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MOBILE LEARNING

Giving Students and Teachers Powerful Tools to Succeed

Today's students live in a digital world; they will need new real life skills to do well in a future that's very different from the past. Teachers utilizing mobile computers and digital learning solutions are preparing their students to be ahead of the curve. They will be ready for wherever their ambitions take them and able to adapt to changing requirements. New technologies enhance their ability to create new ideas, make discoveries, prove theories, test knowledge, and realize dreams like never before.

Notebooks and mini-notebooks are the tools that help students and teachers fulfill the promise of anytime, anywhere learning. What mobile computers have in common is that students are untethered from the classroom and can learn wherever wireless connections exist*. As technology breaks down the four walls of schools to allow students access to a global information and communications environment, mobile computing allows them the freedom to use it whenever they want.

The differences among notebooks, tablets, and minis are subtle. Notebooks provide full-featured access to applications, Internet access, and everything that desktops can do. Tablets add a whole new dimension, providing specialized software and tools to take advantage of the flexible nature of tablets. The newest option is the mini-notebook, which is the ultimate in portability with its small size, weight, and price. Access to the Web and its wonderful assortment of tools and opportunities is crucial to learning.

From success stories and case studies, it's clear that students are more engaged in learning both basic and 21st century skills when they have a mobile computer, wireless access, and a digital learning environment to help them. They can access information, analyze its meaning, collaborate with other students on a project and share the results when their notebooks and online access are available as needed.

The end result is that these students will be prepared for the new kinds of higher education and employment that require knowing how to learn new ideas and new ways of doing things. Technology will make the difference in which students will be able to adapt to a changing world with changing demands.

About the Fundamentals of K-12 Technology Programs

Brought to you by *Tech & Learning* and sponsored by HP, this series covers the educational technology topics that matter most to the profession's leaders, practitioners, and innovators. Look for other issues on such topics as Anytime, Anywhere Learning, Infrastructure, Leadership, Security, 21st Century Learning and Assessment, Web 2.0 and more.

For more information, go to <http://www.techlearning.com/K12/Fundamentals>

Benefits of Mobile Computing

Schools and Districts can:

- Offer a choice of learning styles and formats.
- Support lifelong learning.
- Enable more flexible learning.
- Empower collaboration for research and sharing of best practices.
- Build for ongoing change.
- Support digital content and services.
- Store, access, and manipulate student data for decision-making.

Teachers can:

- Collaborate with students, other teachers, and parents.
- Share knowledge and resources.
- Use e-learning tools and monitor results.
- Customize curriculum and create project-based lessons that address multiple learning styles.
- Prepare students with real life skills for higher education, future internships and careers.

Students can:

- Collaborate with other students and teachers.
- Get homework assignments and even take tests when they're out sick or use the Internet to research, study, and explore, after school and on weekends.

Parents can:

- Monitor homework assignments and attendance.
- Track student progress.
- Communicate with teachers and administrators.

Administrators can:

- Manage data to determine student needs and streamline operations.
- Address the changing needs of students, teachers, and parents.

“Expanding student horizons is so important in rural districts like ours. HP provided our students with opportunities to discover for themselves that they have enormous potential. It’s wonderful to see improvements in students’ academic performance. But even more important is their enhanced self-confidence, because that means that when they leave us they’ll be ready to take on the world.”

– Joe Bueno, former Lead Technology Teacher, Canutillo Middle School

Advantages of Mobile Computing

21ST CENTURY SKILLS — REAL LIFE

The ability to learn in a mobile, connected environment affords students and educators the ability to participate in a new paradigm of technology-enabled education. New technologies enhance our ability to create ideas, make discoveries, test our theories, build knowledge, and collaborate and communicate like never before, and education can combine practical, intellectual, and social skills. What does this mean for day-to-day teaching and learning? While students have to demonstrate proficiency in standards-based skills, they also need to show higher order thinking and interpersonal skills.

NEW STYLES OF TEACHING AND LEARNING

Research indicates that student engagement, motivation, time on task, and self-directed learning improve when a prescribed curriculum is taught in an environment in which personal, portable technology has been effectively integrated on a one-to-one basis.

A mobile environment causes teachers to change their pedagogy to create student-centered, constructivist environments in which technology allows students to be self-directed learning leaders.

To be effective, teaching and learning must follow a structured, systematic process of change that will transform learning from teacher centered to student centered. Advanced planning, teacher and staff preparation, professional learning, technology infrastructure, and assessment and evaluation are strategic elements of such a program.

PERSONALIZED LEARNING

Notebooks give students better access to their instructors so that they can submit homework and ask teachers questions via e-mail after school hours. Teachers can use e-mail to return corrected homework to students quickly and recommend ways they can improve. Personalizing instruction in this way helps students achieve their potential.

During school hours, students can take notes on presentations given by their teachers or classmates and engage in conversations about concepts. Meanwhile, teachers can monitor student work and gauge each student’s understanding of the topic being discussed.

DIFFERENTIATED INSTRUCTION

With today’s drive toward inclusive classrooms, students present a wider range of abilities, skills, languages, and learning styles than ever before. How can teachers address the needs of all? The answer is differentiated instruction, grouping students with similar abilities and needs and providing appropriate learning activities to maximize growth.

With mobile computing, teachers can assign research projects, confident that there’s an abundance of information at students’ fingertips. Students can focus on complex topics and create thorough and thoughtful reports. For elementary students searching for simple texts and images to high school students looking for sophisticated data, the information is available anytime from their notebooks.

BRIDGING THE DIGITAL DIVIDE

Online access to resources and information, research, exploration, communication, and more makes the difference for this generation of learners and may level the playing field for students who traditionally would not have ready access to information, tools, materials, and the technology to learn 21st century skills.

DIGITAL LEARNING ENVIRONMENTS

Technology can help students learn all of the needed skills. By encouraging students to use computers to read, write, share, and present, teachers promote communication skills. By providing access to the Web, they promote research, information, and media literacy skills. They promote collaboration skills by encouraging students to work together with peers, teachers, and experts inside and beyond their classrooms. Teaching with project-based learning and technology tools helps students to analyze, synthesize, and apply information and acquire problem-solving and contextual learning skills.

Having ongoing access to their own notebooks in and out of school puts students into the environment they need to learn for the future. Notebooks make teachers’ lives easier too — between being able to access resources, improve productivity, and decrease the burden of administrative tasks.

COST-EFFECTIVENESS

In times of tight budgets, mobile computers like HP Mini-Notes can make a huge impact on the bottom line. With their affordability and low maintenance costs, schools can provide one-to-one computing at far less than ever before. With their use of web-based applications instead of licensing software for individual computers and reliance on licensing and upgrades, mini-notes streamline classrooms into digital learning environments that promote 21st century skills.

Case Study: Bishop Hartley High School, Ohio

The one-to-one program's success at Bishop Hartley is evident every day, all day. Students carry Tablet PCs with them in the classrooms, halls, gym, and cafeteria, and they take them home at night and on the weekend. The mobility and flexibility of the Tablet PC mean anytime, anywhere learning that inspires the students and teachers. At Bishop Hartley, enthusiasm for learning is on the rise, and new teaching and study methods are increasing staff and student productivity and improving learning outcomes.

Web-based Applications

Students today are comfortable with working and storing their files online. They can do just about anything they need to on the Web. For example, when students need traditional applications like word processors, spreadsheets, and presentation tools, they can look to the same familiar Microsoft® Office applications online in Office Live Workspace®.

Online software such as Microsoft® Photo Story 3 allows students to create slideshows using digital photos, add special effects, soundtracks, and voice narration, personalize with titles and captions and then send the stories in email.

Blog software such as Movable Type (www.movabletype.org), Wordpress (wordpress.org), and Classblogmeister (www.classblogmeister.com), which is designed for schools, allows students to write, edit, and share their work and then receive comments from readers.

Wikis such as Wikispaces (www.wikispaces.com) and PBWiki (pbwiki.com) provide collaborative work environments for students to write and share while their teachers track each student's contribution.

Image and Video Storing and Editing are popular for student creativity. Flickr (www.flickr.com) provides space for displaying photos.

Tablet Applications

Besides running the standard applications (Microsoft Word®, Excel®, PowerPoint®, etc.) as well as having complete wireless Internet access, the Tablet PC can take advantage of some very special software which makes it stand out from an ordinary notebook computer.

MICROSOFT OFFICE ONENOTE®

Microsoft Office OneNote® provides one place for students to gather notes and information, text, pictures, audio files, video files, and more. Because it is able to work with digital handwriting, it is ideal software for a Tablet PC.

Features include:

- Keep all your information all in one place – including freeform notes, images, documents, files from other Microsoft® Office system programs, and rich media – and organize it in the way that works best for you.
- Take class notes to create a living repository of group decisions and brainstorming sessions.
- Use it as a shared digital whiteboard, enabling virtual teams to work together in real time, viewing and editing the same set of notes.
- Search and find keywords quickly within text, in images, and in audio recordings.
- Mark notes with note tags, visually rich icons that make it easier to return to reminders, to-dos, and other action items.

CLASSROOM MANAGEMENT

DyKnow Vision®

DyKnow Vision software is an interactive teaching tool used to gather student feedback, foster collaborative learning, maximize class time and promote effective studying.

DyKnow Monitor+®

Designed exclusively for HP computers, DyKnow Monitor+ allows teachers to focus student attention on learning with classroom management and student response tools.

“I see the future with Tablet PCs in every classroom, with every student and every teacher,” he says. “I truly believe the Tablet PC can provide a major educational benefit. There are just so many advantages, but clearly the key is you have the student being able to use a computer 24/7 without needing anything else. That’s key because they have all of their work with them at any given time.”

— Kenneth Collura, Director of Technology, Diocese of Columbus

Educators at Canutillo Middle School improved their math and science curricula by integrating HP Tablet PCs, digital cameras, digital projectors, and printers into day-to-day activities. They designed a field research project with hands-on experience with technology and a cross-disciplinary project that emphasized math and science. Students worked with the data they collected. In science, they analyzed soil samples. In math, they calculated averages and percentages. With wireless bringing the Web to them, students performed extensive research.

The tools encouraged frequent, high-quality presentations in the classrooms, and students became self-confident and proud. Most important, teachers were gratified to see test scores improve.

Additional Applications

EXPERIENCE PACK

Microsoft® offers an Experience Pack with an interesting assortment of tools. They include:

Ink Desktop lets students write notes directly on the desktop for quick and easy access. It's like one big sticky note that won't get lost. They can even doodle.

Snipping Tool allows students to select and capture a portion of your screen — part of a Web site, document, or application — and add handwritten comments that students can save or send in e-mail.

Ink Art simulates an artist's toolset with different textured canvases, paintbrushes, chalks, crayons, and more. Students can draw or paint freehand or use a digital picture as tracing paper to create a professional-looking painting.

Media Transfer allows students to copy media files — their favorite music, movies, and digital photo albums — from one computer to another.

EDUCATION PACK

Microsoft® offers these programs to help students get organized and study effectively — and have a little fun too. They include:

Equation Writer lets students add mathematical expressions to their papers. They can handwrite a math equation and then convert it into a neatly typewritten image to paste into a report or a presentation.

Ink Flash Cards allow students to create flash cards so they can learn facts or study for an exam. Handwrite a question on the front of a card and put an answer on the back. Draw, insert graphics, and add text too.

GoBinder Lite by Agilix Labs, Inc. lets students keep track of their schedules. They can use the tablet pen to jot down quick reminders about class schedules, project deadlines, and extracurricular activities.

Hexic® Deluxe for Tablet PC is a full-featured puzzle game from MSN® Games with a new spin for Tablet PCs. Now students can rotate pieces easily with a tablet pen.

Microsoft® Student combines Microsoft Encarta® Premium 2009 multimedia encyclopedia, Microsoft® Math, Microsoft® Learning Essentials, and foreign language tools plus more than 1,000 book summaries to help students succeed in a variety of subjects.

Microsoft® World Wide Telescope

Scientists increasingly see their instruments through online scientific archives and analysis tools, rather than examining the raw data. Astronomy presents an excellent example of new trends and these archives presents interesting challenges.

Microsoft Photosynth™

Creating the best synth starts with the right photos. This guide helps students to get started.

Microsoft® Movie Maker

This feature of Windows Vista® enables students to create home movies and slide shows complete with professional-looking titles, transitions, effects, music, and even narration and then publish the movie and share it with others.

Microsoft® Live@edu

Give students and alumni mobile, desktop and Web-based applications to help them collaborate on college campuses and in K-12 schools, and create a community that lasts a lifetime.

Microsoft® Office SharePoint® Server

SharePoint Server offers an integrated suite of server capabilities for building educational portals.

Virtual Earth™

Virtual Earth offers rich, robust, customizable imagery for mobile devices with international mapping capabilities, richer data, and enhanced features such as pushpin clustering, landmark-based routing, and more.

**Wireless access point and Internet access required. Availability of public wireless access points limited.*

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