LEARNING ON THE GO
AT&T HANDBOOK ON MOBILITY IN THE CLASSROOM AND ON CAMPUS
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Introduction

“Change your thoughts and you change your world.”
— Norman Vincent Peale

That is a good summary of how innovative educators think about the possibilities of technology in teaching and learning.

To some, a cellphone in the classroom is a distraction and should not be allowed. To others, a cellphone in the classroom opens up a whole new world of possibilities to advance instruction and drive learning outcomes.

In this handbook, Learning On The Go, we will focus on those who are embracing this technology. Real-life examples of innovative programs will be profiled, particularly smart-phones as an instruction and collaboration tool. The reader will see how this technology is being used today to engage digital natives, promote customized instruction, and differentiate the school to attract the best and brightest students.

Trends and statistics related to mobility and education will be provided, showing the relevance and projected success mobile devices can have in the classroom. With the use of mobile devices on the rise (39 percent of Americans ages 18 to 34 own just a cell phone, according to a 2009 Media-mark Research and Intelligence survey), harnessing this technology for use in education can benefit students, teachers, faculty and staff.

When it comes to cellphones in the classroom, some educators have changed their thoughts and are now changing their worlds. Read on to see how.
Section One: Hand-held Learning in Higher Education

When a critical mass of university students show up with smartphones in their pockets, forward-thinking educators see an extraordinary opportunity.

For example, Vanderbilt University in Nashville, Tenn., released a version of its Web site’s home page designed specifically for the iPhone, so smartphone users could easily access the site’s content, e-mail, online directory and other resources.

Abilene Christian University (ACU) was the first university to distribute Apple iPhones and iPod touches to the incoming freshman class, allowing the university to explore a new vision for mobile teaching and learning. ACU has made resources accessed via smart phone a prime vehicle to serve its students.

Educators are already plugging into this technology and using it to their benefit. Dr. Mark Wagner, president of Educational Technology and Life Corporation, noted that for many of today’s students, if it’s not in their pocket, it may as well not exist. Thus, to use mobile devices in education is to engage students in a way they understand.

The following chapters show, through case studies, how colleges and universities are taking advantage of this mobility trend. This section also assesses what mobility can do for university life: helps students and teachers with curriculum and content, as well as engaging their students; creates a user-friendly campus for students in terms of access to information, and enables them to learn when they want, where they want; and can help universities with student recruitment. Read on to get a feel for how mobility might fit in your campus environment.

Chapter 1
For Students and Teachers: Curriculum and Content Through Podcasting

Smart phones have transformed the way teaching and learning can take place. The advent of podcasting — downloadable, portable, on-demand content, has become firmly established as an essential instructional delivery mechanism on campuses worldwide. The emergence of this easy-to-produce, easy-to-access content has created many possibilities.

iTunes U is one such avenue that has helped to proliferate podcasting for education. It is the largest collection of free educational content — including more than 200,000 lectures, presentations, videos and podcasts. Hundreds of colleges and universities from all over the world are using iTunes U to distribute digital lessons.
Faculty can easily record, upload and post digital lessons directly from their mobile device: They can prepare and present supplementary materials, expanding their contact with students. Using their wireless device, students can stream audio or video Podcasts over the Internet, listen and view them whenever and as often as they choose without an Internet connection.

At ACU, more than just podcasting is used: The University connects its students to the campus through news and calendars, course documents and media, in-class surveys and polls via ACU Mobile. Now all freshmen and their teachers can integrate technology and learning both in and out of the

**CASE STORY: ABILENE CHRISTIAN UNIVERSITY**

At ACU, the success of iPhone use would depend on what Kevin Roberts, CIO and director of re-engineering, calls, “the ubiquity of deployment.”

“If you really want to use mobile devices as part of teaching and learning, everybody has to have one,” he said. “We decided that to ensure this, we would give one to each incoming freshman. We put out a request for proposals to our faculty to see if any would rethink how they teach in order to take advantage of the devices — over half the faculty applied.”

ACU’s program began by giving devices to 30 faculty members, who quickly reported great satisfaction with the experience. Based on that, Roberts said, ACU began scaling up to a campus-wide initiative.

In addition to increasing enrollment, Roberts said that three things have changed on campus, thanks to this initiative:

First, it has created a sense of buzz and excitement among faculty and students that hasn’t been seen before.

Second, it has served ACU well in living out a key part of its mission. “We want to be distinctive and innovative,” Roberts said, “and this has been a great way to live that out.”

And third, it has created, among the faculty and staff especially, a sense of pride. “It has helped us realize that we can accomplish great things, and that we can play on a national stage — even a global stage at some level,” he said.

One thing Roberts said ACU officials feel very strongly about is that the pedagogy has changed over the past five to 10 years: Today’s students needn’t rely solely on the professor.

“Students are just a Wikipedia search away from learning about all the other theories not covered in the classroom,” he said. “The role of professor has changed; it’s not just disseminating information, but teaching how to vet information. These devices enable casual research — a very important change in learning that expands their understanding.”
classroom. This added flexibility enables faculty and students to increase their capacity for success in their core businesses of teaching and learning.

Chapter 2
For Teachers: Engaging Today’s Digital Natives

Today’s students have grown up with cell phones and the Internet and have integrated technology into their lives.

About four of every five teens, ages 13 to 19, carry cell phones, according to the CTIA report A Generation Unplugged, and 41 percent of respondents said they would include desktop/laptop functionality in their cell phones if they could, while 36 percent said they would want to access their desktop/notebook files from anywhere.

Today, many colleges and universities are capitalizing on today’s digital natives comfort with technology by introducing innovative learning programs in the classroom. These programs feature technologies such as student response systems, as well as the use of social networking sites to promote classroom collaboration.

For example, Ball State University (BSU) has been working to make available through Facebook some student services such as available classes, grades and whether students can transfer from one class to another. “We are interested in Facebook because it promotes social networking and is accessible from any device,” said BSU Assistant Director of Computing Vernon Draper. “They do a good job of allowing groups to create, to [give] an opportunity for people to band together through shared interests.”

An essential workplace skill, collaboration, is strongly associated with 21st-century learning, and is increasingly adopted by schools as an instructional goal. Collaboration skills must be taught through modeling and direct experience, and social networking sites like Twitter and Facebook offer good go-to resources schools can use.

Overall, student response systems, commonly called “clickers,” have proven especially effective in lecture halls: They improve student attendance, participation and in general, overall satisfaction; improve teaching effectiveness; and reduce time and effort expended in chores like taking attendance and administering exams.

The beauty of the iPhone or iPod touch is that Turning Technologies’ ResponseWare application transforms either device into a wireless, interactive audience-response tool — with no need to buy a completely separate system.

Additionally, these devices handle the full cycle of preparing and presenting a media-supported lecture — everything from online research and the ability to download materials, to connecting to an LCD projector and presenting to a class of students.
CASE STORY: FREED-HARDEMAN UNIVERSITY

Beginning in the fall 2008 semester, Tennessee's Freed-Hardeman University (FHU) gave all students an opportunity to have an Apple MacBook® — and an iPhone or iPod touch.

“I have always tried to look at new, innovative ways of learning,” said President Joe Wiley. “I am a big believer in using technology to enhance learning.”

This FHU program, called iKnow, costs participating students one additional hour per semester, said university CIO John Bentley. Students with four semesters left will pay a one-time $951 opt-in fee, then the standard $349 per semester to cover the cost of the computer, phone and all the benefits included through the university. The opt-in price varies based on each student’s graduation target.

“If students have a mobile device in addition to the laptop, and we have written applications to use inside and outside the classroom, it really just enhances their experience as a student, no matter where they are or what they’re doing,” Bentley said. “Of course, the iPhone has thousands of applications that have been written — that in and of itself makes life a little easier, a little richer, a little more convenient.”

And the university-written applications are actually browser-based, he said, so they run on any device with a browser.

The addition of mobile technology enhances the university in a few ways, said FHU’s Director of Instructional Technology Mark Scott. One major area, he said, has been communication — especially with those who have iPhones.

“Students remark frequently about how easy it is to make contact with their professor. With the iPhone, that means SMS or e-mail, and with the iPod touch, it is e-mail only,” he said. “Because of this, it is easier to extend the student experience beyond the traditional classroom setting.”

Another major enhancement area, Scott said, has been transitioning classrooms from a mainly passive setting to a more participatory and collaborative setting.

Theater Professor Cliff Thompson, for example, uses a word cloud application, which is essentially a visual list of frequently used words. Thompson says that such word clouds are a new tool built directly from student input, and create a starting point for conversation.

“I use the word cloud application as I introduce a new topic for discussion; for example, when I discussed musical theatre, I asked the class to list as many titles of musicals as possible,” he said. “The repetition of titles illustrated musicals with which everyone was familiar. I also used it to discuss different art forms found in the Bible. When I received odd answers, I recognized the need to define more specifically what an ‘art form’ was. How did a sermon differ from a poem or a sculpture?”

Students can also access an iPhone portal called ”Beyond the Classroom,” that includes campus information, financials, library books checked out/due, an electronic directory of students and faculty, a 3D map of campus, and class schedules.
At ACU, Psychology Professor and Department Chair Dr. Richard Beck teaches an upper-division class that uses the iPhone united with Blogger®, Beck said in a blog on ithinked.com. Beck replaced the old class journal with a class blog, and used the iPhone to interact with students on their blogs to grow the online conversation, thus keeping their interest levels up.

“I’ve found the iPhone to be the perfect support technology for hosting a class blog conversation,” he wrote. “Due to the iPhone’s browsing capability, no matter where I am during the day, during the week, or on the weekend, I’m in regular communication with the class blog. With the iPhone, I’m able to use small moments of free time (for example, walking across campus) to check the blog and upload a quick comment. The total effect is that my students get the sense that I am a constant presence on the blog.”

Beck said that the class blog, supported by the iPhone, turned out to be one of the richest educational experiences of his teaching career. By enabling students to blog and professors to interact with students on those blogs while on the go, classroom blogging is more convenient and offers real-time access to updates. This makes the blog much more lively and valuable as a teaching tool by keeping both faculty and students interacting and engaged.

Chapter 3
Student Support: A User-Friendly Campus

New college students always face the challenge of coping with new and unfamiliar campus environments. But this can be tamed with appropriate and focused applications, giving students a far better first experience.

Application providers such as Terriblyclever® (now part of Blackboard Inc.) actively team with schools to produce custom applications that satisfy campus and student body needs. Stanford University and Duke University have already taken advantage of this to smooth out speed bumps for appreciative students.

“We have seen almost an overwhelming response from the students and faculty,” said Aaron Wasserman, director of Blackboard Mobile and formerly managing partner at Terriblyclever. “Just from our contact@terriblyclever.com address alone, we must have received hundreds of e-mails from people asking when the next update was coming out, and suggesting ideas of their own.”
For example, he said, within the first couple weeks, the company was inundated with requests for an events application, which is now live.

ACU is also customizing applications to get students around campus using a customized version of Google® Maps. They can also access the school’s digital campus directory to contact their instructor by finding the instructor’s name in the campus directory and tapping the screen to connect to the correct phone number or e-mail address.

Also at ACU, professors put class schedules, assignments and assignment due dates on the class’ Google Calendar for students to access via iPhone. The device counts the events on those calendars, aggregates them, and by tapping on the screen, the student can drill down to assignment details.

Making the campus and classroom environment enticing to students by incorporating technologies with which they’re comfortable and accustomed to can enhance not only their campus experience, but their learning experience as well. Incorporating these technologies can also help with student recruitment, discussed in the next chapter.

CASE STORY: BALL STATE UNIVERSITY

At Ball State University (BSU), students typically arrive on campus with a cell phone, said Assistant Director of Computing Vernon Draper, and they may even have a data plan already.

“That is an opportunity for us,” he said. “It means that almost everyone can be reached mobil[y] [sic], which is different from just a couple of years ago.”

In 2005, BSU was named the Most Unwired Campus in the U.S. — both a wake-up call and a challenge, Draper said. “Once the university won the distinction, student technology became a brand for Ball State. We work to maintain our brand, so we’ve always been very aggressive, especially in the wireless area. For example, we have a WiMAX environment — a 4G network — pretty rare on campuses today.”

By developing this environment, he said, Ball State can support more mobile devices, and at greater range.

BSU is working on many potential mobile applications, Draper said, such as locating shuttle buses for the university’s free shuttle service that runs several miles across campus, and adding mobile capabilities for electronic access to online classes.

“A student ought to be able to work on classes at a coffee shop or riding a community bus,” he said. “Five years or so ago, when we looked at the size of the screen on a cell phone, we might have said, ‘No one will ever use this!’ That’s just no longer the perception. People adapt. They want mobility; they want flexibility.”

BSU is also known for accommodating students with disabilities. “If you have no sight, getting lost could be an important issue; devices equipped with screen readers could confirm where you are, utilizing location-based services. This might provide a real safety advantage for them.”
Chapter 4
Student Recruitment

Enticing students to attend your college or university is a priority for many universities. Implementing mobile strategies — and incorporating mobility in learning on campus — could help in realizing this goal.

Bob Johnson, a consultant for online marketing in higher education, says that once a college or university has a site prepared for mobile access, it will want to consider expanding recruitment communications to take advantage of mobile possibilities.

First, he said, the university will want to inform all new inquiries that a Web site especially prepared for mobile access is now available. “That contact should also include the specific content that a potential student might be most interested in,” he said, “although that will likely change at various points in the recruitment cycle.”

Once people know they can easily communicate via a mobile site, such as at Azusa Pacific University (APU), Johnson said they are likely to use that to connect

CASE STORY: AZUSA PACIFIC UNIVERSITY

APU announced in March 2009 the first generation mobile version of its Web site, specifically designed for mobile phones and Web-enabled devices. The mobile site features news and calendars; live athletics scores, stories; final class schedules; as well as faculty and campus directories, to name a few.

As APU’s associate vice president for university relations, David Peck said that when it comes to recruitment, universities must understand that prospective undergraduate students are growing up with mobile devices.

“At an early age, these kids are using tools that allow them to connect,” he said. “They grow up with the framing that these devices, whether a mobile platform or a gaming console, are used for interactivity and creating connections between each other.”

Ultimately, Peck said he thinks it is the college or university’s responsibility to meet the students’ needs by creating engagement and shared meaning in an authentic way.

“From my standpoint, what an amazing time to be in higher education and to be a part of rolling out new learning tools,” he said. “I think we’ve just seen the tip of the iceberg. As our faculty becomes adept in using technology and mobile devices, I think we’re going to see a whole new level of education.”
and ask questions via their mobile devices. “The percent who use mobile devices to do that will constantly expand over the next few years,” he said. “Every organization will have to become ‘mobile friendly.’”

In a March 2008 article in Mobile Enterprise Magazine, Daniel Corsetti, senior analyst for enterprise networks at IDC, said that educational institutions are investing in wireless technologies hoping not only to increase student enrollment, but also to engage students by using multimedia applications that are already part of their social environment.4

Ultimately, schools working to reinvent themselves as 21st-century learning environments — with wireless campuses and enhanced mobility — can gain the appreciation and attention of prospective students. In our competitive job market, schools that integrate advanced working, networking and collaboration into the fabric of student life will certainly draw attention to themselves.

Section Two: Hand-held Learning in K-12 Classrooms

The hand-held device concept has been part of the school experience for many years, and has become an established part of education; schools use various hand-helds, such as calculators, student response devices, digital and video cameras, digital audio recording and playback devices, as well as hand-held text and word processing devices, to name a few.

A Web site dedicated to the use of mobile computing in K-12 education, k12handhelds.com, offers a list of 101 uses for the hand-held computer in education that fit into three main categories: administrative, communication and collaboration, and teaching and learning. Uses listed include: keep a schedule; track student progress on specific skills; take attendance; instantly access student information, to name just a few.

Karen Fasimpaur, president of K12 Handhelds, said that one of her beliefs about K-12 education is that differentiation is a real key to academic success. “I think that mobile technology is a real way to make differentiation work, because it’s so difficult for a teacher to adapt materials and processes
to all the different student needs,” she said. “But with mobile devices, there’s another tool to make that happen.”

Fasimpaur noted that mobile devices enable this differentiation in two primary ways: by delivering content, and by delivering different kinds of content that are appropriate to different student needs in a way that textbooks can’t.

Many districts and classrooms nationwide are already embracing mobility, which the following chapters demonstrate through discussion and real-life examples. This section also looks at how mobility can enhance K-12 education through creating individualized instruction, offering on-demand content, promoting digital literacy, synthesizing information, helping with testing and assessments, keeping administrators connected to student information on the go, offering professional development and collaboration resources for teachers, and discussing the opposition to mobile devices at the K-12 level.

**Chapter 1**
*For Students: Individualized Instruction/Differentiation*

It is widely known in the academic community that people typically learn in three primary ways: visual, auditory and interactive. Mobile learning devices can provide curriculum for each of these three methods.

There are interactive iPhone applications available for download from the iTunes App Store. For example, Pi Cubed is a visual math application that lets the user perform calculations as he would on a piece of paper. And using Molecules, a molecule visualization application, users can view three-dimensional renderings of molecules and manipulate them using their fingers.

Smart phones let students conduct spontaneous Web research, which engages them through interaction while also freeing them from finding laptops or desktops to call up a support resource. In mid-thought or mid-conversation, a quick time-out to consult an encyclopedia, primary document archive or online thesaurus can make the difference between a standard learning experience and one that is transformational for the student. He may connect to a dictionary that speaks the correct pronunciation of a word, enabling native speakers and English Language Learners (ELLs) alike to hear the word rather than simply read it.

Tailoring teaching to student ability and need can be made easier using wireless devices like the smart phone, which can help with ELLs, special education students and those who learn best by interacting.

**Chapter 2**
*Student Learning: On Demand Content*

The ultra-vast library that is the World Wide Web is available to smart phone-carrying students everywhere. Because these devices are small, students who take advantage of them essentially have their computer in their pocket.
Furthermore, downloadable content, such as podcasts and videocasts, lets learners consume content on the go. This provides learning opportunities that are virtually anywhere and anytime.

In addition to what the Internet has to offer, certain entities provide their own content: The Monterey Bay Aquarium has biology podcasts, while NASA has Aero-Space podcasts. There are even podcasts related to language: Learn Chinese Online and the Just Vocabulary Podcast.

Devices like the iPhone can be used to create audio or video content, and upload it to the Web as blogs, podcasts or video podcasts (vlogs). This ever-growing body of content produced by fellow students is great material to motivate, inspire and learn from. Certain programs and applications that enable students to submit content include: Flickr, for quick sharing of photos; Voice Thread, for group conversations worldwide; PBWorks, for hosted collaboration; iProRecorder, for easy recording and playback; and Twitterfon, for quick Twitter updates.

State Departments of Education have adopted iTunes U for the distribution of content to their K-12 teachers and classrooms. Educators can easily publish audio and video content, and students can find, download, organize, and play back that content whenever they want. iTunes U is also a place where K-12 teachers can find materials for their classes from colleges, universities, museums and other cultural institutions.

Podcasts offer content across many sectors of the curriculum, and the ability for students to get this content — and listen to and learn from it on their own schedule — makes a round-the-clock education easy and doable, no matter the grade level.

**Chapter 3**

**For Students: Digital Literacy**

Literacy today includes not only traditional literacy — how to read and write — but also understanding and knowing how to use the multiple media in our everyday lives: computers, the Internet and cell phones, among other high-tech gadgets. According to Wikipedia, digitally literate people can communicate and work more efficiently, especially with those who possess the same knowledge and skills.
CASE STORY: JOSE MARTI MIDDLE SCHOOL

In New Jersey, Grace Poli, media specialist at Jose Marti Middle School in Union City, N.J, has used iPods since 2004.

The afterschool program with bilingual students, to support their language acquisition, was extremely successful, she said. “They were motivated, engaged and worked until 6 o’clock at night — they wouldn’t even want to go home until they finished their assignment,” she said. “After that, my principal decided to make teaching with iPods part of my regular, daytime assignment.”

The ESL students use iPods for various things, and often listen to music as a focus for specific grammar skills.

“I collaborate with the students’ language teacher, and then select a song that has lyrics that will help them learn,” she said. “We then create language exercises to fit with that. I purchase the music from iTunes, find the lyrics on the Web, and then customize an activity based on these lyrics.”

Poli said the school also downloads instructional videos that these students watch several times, and then participate in a reading activity and quiz that she creates for them, all using their iPods.

Students also use the voice recorder, an attachment to their iPod, to record one another, and record themselves reading, or take them on field trips.

In the museum, for example, students use the devices to record their discussions and reflections as they move through the museum. “It’s kind of an on-the-spot audio notetaking,” Poli said, adding that students can also scan pictures from print material they collect at the museum. “Then, when they get back to school, they can edit this all into a visually enhanced podcast. The mobility of the iPods helps. The flexibility to move around, maybe take the learning to the cafeteria, the school yard, or home, is an advantage.”

As the school’s media specialist, Poli finds different uses for the iPods based on the type of student using the iPod. Bilingual students, as previously described, listen to music, while special education students create podcasts.

“This completely changed the dynamics of the classroom — these students created podcasts even though they were struggling with writing,” she said. “To create a podcast, you have to write a script, you have to edit, and they researched copyright issues for the images they wanted to include. It gave them a very hands-on, meaningful experience as the creator of their podcasts.”

“The students didn’t have any trouble with learning to create podcasts, and overall, the results have been great,” Poli said. “Their behavior has improved. They’re engaged, excited; they want to do more work and learn more. They want people to see and appreciate their final product. And recently, the school literacy coach retested these students and told me that their literacy scores have gone up.”

Based on the success Poli has had with these practices, she said the school district is expanding its use to more schools and classes.
Incorporating digital storytelling into the K-12 curriculum can start students down the path of digital literacy.

A combination of creativity, communication and technology literacy, digital storytelling can help students who may otherwise be too shy to share a story, according to “Making a Case for Digital Storytelling” by David Jakes.7

“This is a truly authentic learning experience that represents value-added technology use, and develops many different types of intellectual skills in students,” Jakes writes. “But most importantly, it helps students to develop a competitive voice, and gives them a creative palette to compose in a language familiar to them (technology).”

The presence of a digital audio recording application in the smart phone will make notetaking and storytelling easier, more effective and more consistent.

Often times in the classroom, teachers must repeat procedural information over and over — a distraction from the higher level of idea exchange between teacher and student. What if these teachers had audio guides — the type common to museum visitors — that could now provide educators with a
model for handling chores and freeing up more time for their core business: teaching.

According to the International Society for Technology in Education’s (ISTE) National Educational Technology Standards (NETS), which have served as a guide to improve teaching and learning since 1998, students should know and demonstrate skills from six standards as a result of their education:
1. Creativity and Innovation.
2. Communication and Collaboration.
3. Research and Information Fluency.
5. Digital Citizenship.
6. Technology Operations and Concepts.\(^8\)

These six standards help students prepare to work, live and contribute to society as we know it. They will be expected to apply the basics in authentic, integrated ways to solve problems, complete projects and creatively extend their abilities.

Implementing a mobile learning project in the K-12 classroom is a perfect way to meet ISTE NETS standards: Students and teachers have access to content, the ability to synthesize and repurpose content into podcasts, and the option for incorporating digital storytelling, to name a few. In the following pages are examples of students doing what these standards say they should be doing.

**Chapter 4**

*For Students: Synthesizing Information*

In today’s world, technology is the medium through which much collaboration is done. Therefore, educators must keep that in mind when planning to include collaboration in the curriculum.

Through their text messaging functionality, wireless hand-helds and smart phones can bring special dimensions to collaboration. And using the iPhone in particular, students can collaborate on such sites as Twitter, for example.

Also critical in effective learning is synthesizing information into a narrative: Narrative is recognized as a valid support for learning because it helps make sense of experience, organize knowledge and increase motivation, according to *Narrative Learning in Technology-Enhanced Environments*, written by Giuliana Dettori and Ana Paiva.\(^9\)

This fact is also pointed out in Daniel Pink’s book *A Whole New Mind*, which uses the two sides of people’s brains — right, with inventiveness and emotional qualities and left, with sequential and logical qualities — to help us understand the world in which we currently live.\(^10\)
“When facts become so widely available and instantly accessible, each one becomes less valuable,” Pink wrote. “What begins to matter more is the ability to place these facts in context and to deliver them with emotional impact.”

Chapter 5
For Teachers: Testing and Assessments

Formative assessment is a self-reflective process that aims to promote student attainment, according to “The Validity of Formative Assessments” by Terry Crooks. Additionally, an assessment is considered “formative” when the feedback from learning activities is actually used to adapt the teaching to meet the learner’s needs, according to “Inside the Black Box: Raising Standards through Classroom Assessment.”

CASE STORY: KELLER INDEPENDENT SCHOOL DISTRICT

At Keller Independent School District’s Trinity Meadows Intermediate School near Fort Worth, Texas, two math and science teachers — Matt Cook and Cynthia Varela — have incorporated mobile learning devices in their fifth-grade classrooms.

Cook used cell phones in his classroom years ago, when he said he realized how many of his kids already had their own cell phones. “At the very least, you can take pictures with them,” he said. “And that’s how I started using them — taking pictures of science experiments as a way to document things we were doing in the lab.”

After that proved successful, thanks in part to parental involvement, which is extremely important to getting mobile learning projects off the ground, Cook experimented with text homework; one assignment, for example, was for students to go home and take pictures with their cell phones of erosion in their neighborhoods, and e-mail or Bluetooth® those images back to him.

This year, however, the program has beefed up, thanks to sponsorship, and Cook uses mobile devices in all subject areas.

“The beauty of what we did was we didn’t make it about the device; the device didn’t drive the curriculum,” he said. “I was able to use the same curriculum I’ve always used, it just enhanced it.”

One way Cook enhanced his science curriculum was during his lesson on comparing Earth to the moon. Previously, he would have students create either a Venn diagram, or double-bubble map, to show how the two are the same and how they’re different. This year, however, thanks to the donation of GoKnow software, and the program called “My Projects,” the students created their own planet and solar system.

“In that creation, they had to define what a day was on that planet, what a season was, if it had seasons, how it was formed, and they had to do those same comparisons, so this took it a step further,” Cook said. “They could even make an animation of how their planet went around its sun in its own solar system, and they could annotate and label all the things they did.”

Learning in this way, Cook said, the students better retain the information they’re being taught. “Students are more visual than ever,” he said, “and any time we can get them creating visually, I think we really start talking their language, and are a lot more likely to capture their imagination.”

“When facts become so widely available and instantly accessible, each one becomes less valuable,” Pink wrote. “What begins to matter more is the ability to place these facts in context and to deliver them with emotional impact.”
Smart phones are an ideal device for formative assessments. Giving teachers and students a hand-held device enables quality assessment on the fly, which can improve the efficacy of instruction. Assessment results can be shared with the class immediately which helps to keep students engaged and teachers aware of the class’ understanding. With smart-phone enabled formative assessment, teachers can quickly determine if remediation is required or if they can advance to the next days lesson plan.

Chapter 6
For Administrators: Keeping Connected is Being Effective

If school administrators aren’t busy in the office, they’re busy running around the school or district. Their jobs require them to stay in touch with staff, provide support when needed and make constant decisions throughout the day. Wireless hand-helds make it easier to accomplish these tasks in a way that is efficient and effective.

CASE STORY: ROCKDALE COUNTY PUBLIC SCHOOLS

Rockdale County Public Schools near Atlanta wanted to keep better tabs on students, and make its administrators more productive and informed when out of their offices.

So it initiated the iProfile program from Microsoft Certified Partner Otis Educational Systems, giving district administrators and office staff mobile devices with password-protected access to important student data.

“This includes student schedules, attendance information, student health information — like allergies and medicines — and also a photo, so that if a student doesn’t have an ID card with him, you can still make a positive identification,” said Grover Daily, the district’s director of technology, adding that the iProfile program lets schools easily access the student information they need, whether it’s a schedule because a parent is coming to pick up a student, or phone numbers, addresses and schedule information in case there’s an emergency.

And in case of evacuation, administrators can keep better track of their students, Daily said, adding that before this program was implemented, someone had to find and take a set of paper records. Additionally, he said, paper records can go out of date, but the iProfile solution updates information overnight — no information is ever more than a day old.

“Working with this system becomes a habitual thing,” Daily said. “Each morning, you synch your hand-held and it uploads the data that was generated the night before. So all day or all weekend, you’ve got current data that you can get to quickly.”

Daily noted that the Rockdale County Public Schools will continue with this successful program. “As we all become more attuned to using cell phones, it becomes easier and easier for staff to learn to use these devices and solutions,” he said. “Accessing the information from the device is actually pretty self-explanatory.”
In Florida, Broward County Public Schools joined Twitter as an additional method to deliver information expediently and directly to students, parents and the community.

And in Philadelphia, Jenkintown High School uses Twitter on its main site to post any sort of news to the parents, whether it’s a Renaissance night, an art show or scores from athletic events, to name a few.

“Upcoming nights here in the district, whether it’s a hobby night or any event, we’re putting them on Twitter,” said Jim Cummins, the district’s director of technology. “There’s a constant stream of information being pushed by the district, and it’s all information that increases communication between us and our parents.”

Keeping administrators consistently connected to information helps them run a tighter ship. Administrators know where students belong and can ensure they receive the care and information they need and deserve.

Chapter 7
For Teachers: Professional Development and Collaboration

Districts and schools know their teachers must participate in professional development; they often have access to materials and presenters for this, but have little access to their own teachers, who are too busy teaching to participate in professional training.

Now, however, teachers can turn to professional development provided by podcasts to fill this need. Enabled by an appropriate mobile wireless device and headset, they can participate in professional development during periods of time that previously would not have been made productive, such as when commuting to and from work.

With a single device, teachers can search, download and listen to such podcasts as The Teachers Podcast, Ed Tech Talk and Teachers Teaching Teachers, all produced by educators to provide important information to colleagues about developments in their profession. On-demand learning doesn’t just help the students; it can enable education in the educators as well.

Chapter 8
Opposition in K-12

At the K-12 level, the concerns with cell phone use most often heard about are typically distraction and cheating, said the NSBA Senior Staff Attorney Thomas Hutton, which, he said, are real concerns. He referenced a case in California in which an entire exam was thrown out because some students had access to text messaging. But cases of banning use of cell phones in school, which is what happened in New York City’s school district,13 are rare, and Hutton said he doesn’t think many districts will implement new bans on cell phones in schools, though current policies may include the older, standing bans.
“When it comes to the challenges with these devices, schools tend to experience them before the larger society does,” he said. “Schools are always out ahead of where policy and the law are clear on things, and yet they have to make decisions on the spot in how to deal with them. It’s an ongoing trial and error process for schools.”

Ultimately, if teachers are using school-provided devices for instructional purposes, Hutton said, the situation is easier to control so that schools can take advantage of the benefits of mobile devices.

“The NSBA feels that using mobile devices is an option school districts should have in running an instructional program,” he said. “And there ought to be ways to manage the challenges associated with them.”

Generally speaking, NSBA officials don’t have particular positions on which resources teachers should and shouldn’t use, Hutton said.

But one thing to think about, he said, is the educational potential, the innovation and how technology is transforming education.

“This new generation processes information in substantially different ways as a result of being so exposed to technology from a very young age, and that has very serious educational implications,” Hutton said. “However, there are concerns that arise, some of which are a function simply of change. So the challenge becomes taking advantage of the potential of technology while protecting yourself from some of the downsides that may come along with it.”

Dr. Mark Wagner, president of Educational Technology and Life Corporation, echoed that sentiment: Before the technology will make a difference, teachers need professional development focused on changing their teaching techniques, he said, adding that based on his experience, simply bringing a smart phone into a classroom won’t bring about magic changes. “There would still be the same need to win over the faculty, parents and community — and to get the same sort of buy-in you would with any kind of new technology implementation,” he said. “The iPhone certainly won’t be a magic bullet. We’re seeing a lot of resistance to cell phones in the classrooms.”

Wagner managed an Enhancing Education Through Technology (EETT) grant-funded program at the district level that gave 1,200 Palm hand-holds to middle school students. Though Wagner saw some positives, he also ran into some setbacks — setbacks that can be found in any potential new technology implementation if certain things aren’t handled at the beginning of the process.

“We had a teacher say at one point, ‘How is having them use this better than me writing on the board and them copying it into their notebooks?’ We were coming from two different planets in that respect — there was a cultural gulf that had to be bridged before the technology could reach its full potential in the classroom.”
Any time a new power to communicate is put into students’ hands, Wagner said, that method is met by new resistance.

“I think in small pockets of innovation, things like the iPhone are going to be spectacular,” he added, “but I don’t think we’re going to see wide implementation without significant organizational and societal change to go along with it.”

Because this concept of cell phones in the classroom is so new, part of the challenge is getting education officials and educators to witness firsthand how others are doing this — this Learning On The Go handbook does just that.

Endnotes

3 Beck, Richard; iThinked.com, “The iPhone in the Classroom: One Teacher’s Story: Dr. Richard Beck.”
4 Von Fuchs, Teresa; “The Wireless Campus,” Mobile Enterprise Magazine; March 5, 2008.
10 Pink, Dan; A Whole New Mind: Why Right-Brainers will Rule the Future.
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