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Theme: Cell Phones as Learning Tools

Cell Phones: Handheld Entertainment Center or Promising Learning Tool?

Cell phones have had a checkered history in US schools. Districts first began to ban cell phones and pagers in the late '80s and early '90s in order to discourage drug deals and gang activity at schools. As more students brought more phones to schools, teachers began to enforce school bans in reaction to the distraction caused by in-class calls but in the wake of the Columbine shootings and the September 11th attacks, parents began handing phones to their children out of concern for their safety. More recently, advances in cell phone technology have helped proponents of bans fortify their position. When texting services became available, students used them to cheat on tests. When camera phones became available, teachers found images of themselves on YouTube that were less than flattering. The same advances have also led to tragic incidents involving cyberbullying and "sexting."

In the last few years, a growing cadre of technologically sophisticated educators has been transforming the debate from the inside out by incorporating cell phones directly into their instruction. Notable among them is Liz Kolb, author of *Toys to Tools: Connecting Student Cell Phones to Education* (ISTE, 2008). As a social studies teacher and school technology coordinator, Kolb initially found cell phones distracting and annoying. But in 2005, Kolb had something of an epiphany: "I was blogging with some teachers, and a message showed up on the screen that said, 'audioblog from your cell phones.' Curious, I tried it, and found that it was the easiest way to create a podcast. At that point I began to . . . re-construct my own definition of cell phones and schools" <http://www.cellphones.org>, "An Interview with Liz Kolb").

In this issue, you'll find research articles which illuminate the potential of cell phones as instructional tools and outline the implications of their current use in educational settings. In the Resources section and MediaLit Moments for this issue, you'll find hands-on activities and guides to mobile applications which will help you evaluate the utility of cell phones for your own practice, both in the classroom and at home.

Research Highlights

Pockets of Potential: Exploring the Development of Mobile Learning

“Just as *Sesame Street* helped transform television into a revolutionary tool for learning among young children four decades ago, advances in mobile technologies are showing enormous untapped educational potential for today’s generation.” This is the premise of “Pockets of Potential,” a report on instructional applications for mobile technologies and the factors enabling and constraining their development. The report draws on interviews with a cross-section of research, policy and industry experts, and was published by the Joan Ganz Cooney Center at the Sesame Workshop in January of this year.

The report begins by noting the relatively slow growth of educational uses of mobile technologies compared to the rapid, if not explosive growth of other applications, and gives readers a preview of current projects in research, development or demonstration stages. In Chile, educational researchers are conducting studies on the use of handheld devices for collaborative learning. Small-scale educational projects have been undertaken in the US, while some of the largest have been undertaken in the UK. For example, British researchers have been steadily releasing interim reports on Learning2Go, a project coordinated by Wolverhampton city schools. The appendices may be the heart of this report, as they contain profiles of numerous projects in the US and around the world

One section of the report discusses key opportunities in mobile learning. Among them is the potential of mobile learning to reach underserved children. Cell phones are generally less expensive than PCs or laptops, and they are also ubiquitous. According to research by the Sesame Workshop, 93% of 6-9-year-olds live in a home with a cell phone (11). Children in developing countries may also stand to benefit from these technologies. By the end of 2006, 68% of the world’s mobile subscriptions were in developing countries; and mobile learning is already a reality on the African continent, where the Nigerian National Council for Nomadic Education has begun to integrate mobile technologies into its curricula (18-19).

In this country, futurists, politicians and educators have looked forward to the day when every student would have a computer at her desk. The report points out that the increasing sophistication of mobile technologies, combined with the portability and decreasing costs of mobile devices, could make that “one-to-one” vision a reality. The report also emphasizes the potential for mobile technologies to break barriers between formal and informal learning, and especially the barriers between school and other environments. For example, students participating in the UK MyArtSpace project are loaned mobile phones when they enter a museum, and are able to use these phones to view multimedia presentations, take photos, make voice recordings, and write notes. All content is transmitted via cell connection to a website which stores a digital record for later use in classroom lessons.

Another section of the report discusses market trends and innovations relevant to mobile learning. Convergence, the bundling of features on cell phones, is cited as a major development. "Individually, features like wireless capability, web browsers, cameras, microphones, audio recorders and video recorders are useful as teaching aids"(29) -- but when bundled together, they enable students to access and create an infinite variety of multi-modal content, and enable teachers to design a wide variety of assessments.

The Cooney Center makes a wide range of recommendations in this report for stimulating and sustaining the development of mobile learning programs. First among these is a call for educational researchers to build a body of scholarship on theories of mobile learning. Without a theoretical base, mobile learning curricula may function as extensions of pencil-and-paper curricula which do little to exploit the unique learning opportunities afforded by mobile technologies. In addition, the Cooney Center views professional development as essential to the future of mobile learning, and proposes the formation of a "digital teacher corps," which would work in the lowest-performing schools and in afterschool settings throughout the country. Not surprisingly, the report also recommends that schools eliminate classroom bans-- but not precipitously: "Step-wise experimentation is needed to help teachers to capitalize on the potential these devices have demonstrated and to expand new inquiry." School policies should also be modified experimentally, so that "we can build acceptance among teachers, parents, and students themselves"(36).

A full-text PDF of the report is available: <http://www.joanganzcooneycenter.org>

Teaching and Learning in 1:1 Technology Classrooms

The William and Ida Friday Institute for Educational Innovation, a leader in the 21st century skills movement, opened its doors last year with \$10.5 million in research funding. The mission of the institute, housed at the North Carolina State University College of Education, is to "prepare students for success in work, life and citizenry in the global, knowledge-based, technology-rich, culturally-diverse, rapidly-changing world in which they will live."

Recently the Friday Institute released a white paper which traces the educational implications of the 21st century economy by highlighting the ways in which 1:1 classrooms--classrooms in which all students possess mobile devices with internet access--re-create contemporary work environments. Not only does the nature of student learning change in such environments, but the pedagogical stance of teachers necessarily changes as well.

The primary change is the shift away from a model of learning in which teachers possess a discrete body of knowledge which they transmit to students. In such a classroom environment, subject matter content is instantly available to all students. Teachers no longer need to supply ready answers for a limited range of

questions. Instead, teachers are free to pose problems while students search for information and sources which will help them formulate viable solutions.

The authors ground this alternative model of learning in John Dewey's theory of productive inquiry, in which students "actively pursue a problem, puzzle, point of fascination, object of wonder, or the like"(8). With so much information available, inquiry becomes a necessary catalyst for transforming the information into new knowledge. Drawing on the work of more contemporary theorists, the authors argue that the advanced communication technologies built into mobile learning devices also create the conditions for students to become part of an extended participatory community of learners in which the focus is on "authentic and productive inquiry and active meaning-making" (ibid.).

In this environment, the student-teacher relationship is also likely to be transformed. Rather than attempting to build student expertise in a particular content area, teachers capitalize on students' skills, interests and dispositions. Teachers also encourage and reinforce particular dispositions to help students leverage the advantages of a 1:1 learning environment, such as a critical stance towards evaluating information, and a disposition towards self-direction and monitoring.

As students learn to engage in sustained inquiry, teachers develop skills in facilitation, improvisation, coaching and consultation. For example, in a science activity on deforestation and global warming, the teacher asks students to collect data on a forested region of the world. They are to determine the nature of the deforestation over the last 20 years: How much land was cleared? Where was it cleared? How is the land being used now? They also need to determine the contribution of deforestation to greenhouse gases. The teacher establishes highly functioning teams based on her knowledge of students' dispositions, provides students with an initial set of resource links, and makes them responsible for finding additional sources of information. She coaches them as they begin the task of evaluating and synthesizing the information they've collected, and asks them key questions as they discuss possible conclusions.

In the final section of the report, the authors suggest a set of priorities for professional development of teachers working in 1:1 classrooms. First among them is the need for teachers to build Technological Pedagogical Content Knowledge (TPACK). The authors argue that teachers need to develop a reflective understanding of the dynamic, transactional relationship between all three components (content, pedagogy, technology), and suggest that professional development take the form of teacher-centered design experiments in which teachers assess the capabilities and constraints of a technology and how it furthers a teaching goal.

For a PDF of this report, visit <http://www.fi.ncsu.edu/library/white-paper-series>

Center on Media and Child Health Launches “Ask the Mediatrician”

In June of this year, the Center on Media and Child Health at Children’s Hospital Boston launched “Ask the Mediatrician,” a new website at CMCH where parents can submit questions about media and the health of their children and receive science-based answers and practical solutions. The Center already offers the CMCH Mentors program for teachers and parents, which offers information and research on a wide variety of topics on children and media, from educational television and literacy to violence in video games. This is the first program which allows members of the public to directly query Center staff.

Who is the ‘mediatrician’? Dr. Michael Rich, founder and director of the Center on Media and Child Health. Rich came to medicine after a twelve year career in film-making, which included an assistant director role in Akira Kurosawa’s *Kagemusha*. Rich received MD and MPH degrees at Harvard Medical School and Harvard School of Public Health in 1991 and 1997. He is currently an associate professor at both Harvard Medical School and Harvard School of Public Health. Rich has established a reputation for investigating the negative health effects of media exposure on children and adolescents, and has authored research papers examining the portrayals of interpersonal violence and substance use in music videos. In 1999 he authored a well-publicized policy statement for the American Academy of Pediatrics on media education as a public health intervention.

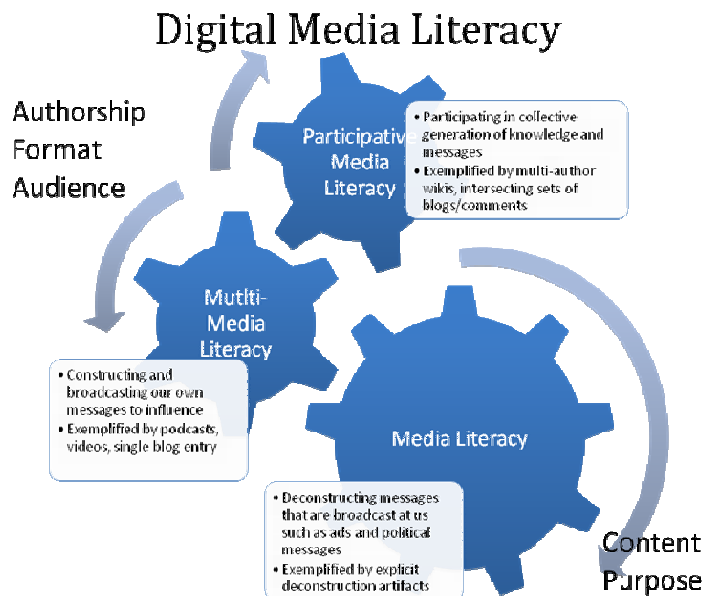
“Ask the Mediatrician” posts are full of useful information, from links to research on children’s responses to advertising to direct, accessible explanations of the effect of night-time television viewing on the chemical reactions in children’s brains. Responses are respectful and invite continued dialogue.

To ask the Mediatrician a question, visit <http://cmch.typepad.com/mediatrician/>

Assessment Project Evolution: An Update on CCSSO's Digital Media Literacy Committee

Although media literacy has always emphasized both the deconstruction ("reading") of multimedia messages and the construction ("writing") of multimedia messages, technology has definitely driven what can be practically delivered in classroom education.

The Council for Chief State School Officers (CCSSO), through funding from the Gates Foundation, assembled the Digital Media Literacy Committee earlier in 2009. Chaired by Tessa Jolls, CML's director, and comprised of representatives from state education agencies, researchers, and leading education organizations, the Committee explored the suitability of utilizing CCSSO's EdSteps assessment methodology for media literacy. At its last meeting in October, 2009, the Committee developed this graphic to represent the relationship between media literacy and technology progression. According to the chart:



- When “big media” represented the latest technology, media literacy focused mostly on deconstruction of messages, while construction projects tended to be limited to writing letters to congressmen or doing posters or other non-digital artifacts. On the chart, this “wheel” appears at the bottom and is labeled “Media Literacy.”
- When technology progressed to being able to easily do desktop publishing and video editing etc. in creating multi-media digital assets, it became much easier in a classroom or after-school setting to focus on construction techniques, and in teaching students to deconstruct as they were also learning to construct their own media messages.
- Now, collaborative technology allows for new participation in creating media messages and also in contributing to understanding and knowledge-building. These new technologies allow for interactive, quick ways of constructing and representing new knowledge and we are just beginning to see the power of these new ways of communicating.
- As the Committee looked at what makes media literacy different from other fields, it saw that the definition of media literacy, “The ability to access, analyze, evaluate, create and participate with media messages in all their forms,” has a great deal of overlap with Bloom’s Revised Taxonomy, and interestingly, these same skills seem to be emerging in the other arenas that EdSteps is exploring, such as Global Competency. What makes media literacy different is the Five Core Concepts and Five Key Questions (rooted originally in Len Masterman’s work and carried through by the Center for Media Literacy and others), which address Authorship, Format, Audience, Content and Purpose. These keywords are reflected on the Digital Media Literacy Graphic chart, since they apply to all aspects of media literacy. These Concepts, which apply not only to media messages but also to the use of communications tools and systems, are timeless and have stood up throughout the digital communications revolution.

Ultimately, CCSSO determined that digital media literacy is not a tight fit for its EdSteps assessment methodology (<http://www.EdSteps.org>). The EdSteps methodology seemed to lend itself well to the capturing and assessing of multi-media constructions, like “writing.” But the other deconstructive aspects of media literacy were implied but not as easy to make explicit or to get enough samples of student work, especially since deconstruction is an analytical process skill that may not be physically represented.

Though the work of the CCSSO Digital Media Literacy Committee has been disbanded, there is much work to be done on devising an appropriate methodology(ies) for assessment for media literacy. As technology evolves, so do opportunities for delivering education and for unleashing the potential brainpower of millions of young people. Definitely, new ways of approaching and assessing the skills of this new generation are needed.

About Us...

The Consortium for Media Literacy addresses the role of global media through the advocacy, research and design of media literacy education for youth, educators and parents.

The Consortium focuses on K-12 grade youth and their parents and communities. The research efforts include nutrition and health education, body image/sexuality, safety and responsibility in media by consumers and creators of products. The Consortium is building a body of research, interventions and communication that demonstrate scientifically that media literacy is an effective intervention strategy in addressing critical issues for youth. <http://www.ConsortiumforMediaLiteracy.org>

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Uniting for Development

Media Literacy Resources

Teaching Tip: By focusing on process skills rather than content knowledge, students gain the ability to analyze *any* message in *any* media and thus are empowered for living all their lives in a media-saturated culture.

The Not-So-Inside Scoop on Applications

Search the internet, and you'll find plenty of teachers and bloggers who offer lists of web-based applications which mobile users can access through text messaging. This list is largely drawn from a blog entry posted by Ken Shelton, a K-12 technology educator in the Los Angeles Unified School District. Most of the applications can be accessed for free. Be sure to read the terms of service for all of these applications, however, since a number of them are in developmental stages.

Touting itself as more accurate than Google or Yahoo voice search, Cha Cha (<http://www.chacha.com>) answers all manner of questions within minutes. Students can text or call in their questions to a toll-free number. Make sure that students check their carrier's voice and text rates before using the service. The service is free.

Poll Everywhere (<http://www.polleverywhere.com>) allows account holders to create multiple choice or free text polls. Poll-takers can send a text message to receive and cast their private ballots. Account holders can download the results as Power Point slides or download them into any spreadsheet application. The service is free to K-12 educators with class sizes of 32 or fewer students.

If you have a phone on your camera, you can take pictures of whiteboards, notes, or printed documents and send a copy via text message to Qipit (<http://www.qipit.com>). The service archives the photo as a PDF document on the Qipit site. From there you can share copies via fax or e-mail, or post them online. You'll need to determine whether your phone is compatible with the service, but it is free.

Foneshow (<http://www.foneshow.com>) sends free podcasts directly to your mobile phone. Choices range from President Obama's weekly radio address to updates from NASA's Jet Propulsion Lab to ShakespeareCast, which offers full text, full cast shows one act a time.

Tumblr (<http://www.tumblr.com>) is a user-friendly blogging website which allows mobile users to call in audio posts or send text or photos to their accounts. Posts can be distributed in a wide variety of formats. Useful for collaborative projects. The service is free.

Vimeo (<http://www.vimeo.com>) and Qik (<http://www.qik.com>): Vimeo allows mobile users to directly upload, store and share 500 MB of video content each

week for free. If Vimeo enables students to collect video news in the field, Qik enables them to “broadcast” it while it’s still breaking. Winner of a 2009 Webby award, Qik allows mobile users to upload live video streams to any website, including YouTube. You’ll need to check your phone against the list of supported phones, but the service is free.

Gcast (<http://www.gcast.com>) allows mobile users to call a toll free number, record audio content, and publish it on a personal podcast channel. Users of the service can embed their podcasts on any website or blog. Alas, the service is no longer free for mobile users, though it is still free for those using a landline.

Review: *Toys to Tools: Connecting Student Cell Phones to Education*

While some commentators who favor the use of cell phones in education take a “gee whiz” to writing about the promise of mobile technologies, Liz Kolb’s *Toys to Tools* discusses the use of cell phones as instructional tools in concrete terms from the first page, and the book as a whole functions as a complete starter kit for educators who are interested in integrating cell phones into their teaching practice.

Her first two chapters make the case for instructional use of cell phones in school settings in both provocative and practical terms. For example, Kolb asks, “If there is so much access to technology in schools today, why is it underused?” (9). Would it be possible to solve the problem by taking a “bottom-up” approach to technology in schools that capitalizes on student knowledge and interests? Kolb also advises the reader on strategies for approaching administrators on initial projects, provides a sample parental permission form, and equips the reader with 23 sample lessons which can be used to gain administrative support as well. Cell phones are used outside of the classroom in all lessons. Most are simple, many feature Web 2.0 technologies which are accessible at little or no cost, and all utilize technologies available on any mobile phone on the market today.

Kolb packs the book with so many suggestions for using cell phone and Web 2.0 applications that teachers who are novice technology educators could easily spend several months exploring them all. For example, YouMail, which provides Internet access to MP3s of cell phone voice mail messages, is an ideal platform for “greeting” assignments. Teachers can mass mail an oral foreign language assignment, a pop quiz, instructions for a test, or a single question to stimulate student thinking. Kolb bundles several applications together for a final lesson in which students mount an election campaign. Students use Phonezoo to create ringtones with a campaign jingle, use Pix2Fone to create campaign logos, use TextForFree to text campaign slogans, use Poll Everywhere to create instant text-message polls, and use Zinadoo to create a mobile website which can tie all the information together. Kolb notes that students can also create a real-life business campaign using the same tools.

Throughout the book, Kolb offers suggestions for ways in which cell phones can be used as tools for management and assessment. If students and parents have their

own cell phones, teachers can use FreeConferencePro to hold conferences with them wherever they are located, and can easily record conferences for future reference. Teachers can ask small groups of students to record their discussions on a podcast tool such as Gabcast, and use the recording to assess the progress of the group. When students are absent for more than a few days, programs like Qipit (see resource article above) can be used to keep students up to date on in-class work. Absent teachers can use YouMail to give assignments directly to students and assess work students have done in class.

Toys to Tools can help teachers re-design their existing instructional plans for greater efficiency, and pursue projects that may have seemed too difficult to carry out in the past. The book is published by the International Society for Technology in Education, and is available at their website (<http://www.iste.org>).

Virtual Science Symposium

How might the history of science been affected if the great physicists of the early 20th century had been able to take part in transatlantic teleconferences at the touch of a button? Would their positions have changed about using scientific knowledge to build an atomic weapon? In this MediaLit Moment, your students will have the chance to develop their scientific literacy skills by discussing controversial social issues in which scientific knowledge plays a substantial role. And they'll be able to create a digital media product and use it as a vehicle for collaboration in and out of the classroom.

Have students take the positions of famous scientists as they discuss controversial social-scientific issues in a moderated cell phone conference

The use of cell phones, in conjunction with a teleconferencing web site, expands the potential circulation of these science symposia almost exponentially. That expanded circulation can boost student motivation, stimulate further class discussion, and provide a tangible product (an MP3 file of the conference) which can be easily assessed by teachers and students alike.

AHA! Famous scientists sometimes use the media to give their opinions on politics as well as science!

Key Question #4 for Producers: Have I clearly and consistently framed values, lifestyles and points of view in my content?

Core Concept #4: Media have embedded values and points of view

Grade Level: 9-12

Materials: For teacher, computer with high speed internet connection to access FreeConferencePro website; for students, individual cell phones with current coverage subscriptions.

This virtual conference activity is not a complete lesson, but rather an activity based on national science and technology standards. Please feel free to adapt it to fit a variety of purposes and contexts. The activity itself has been adapted from *Toys to Tools*, with permission from the publisher.

Standards: National Educational Technology Standards for Students—
Performance Indicators for Grades 9-12: 7, 8, 9, 10

National Science Education Standards: Science in Personal and Social Perspectives, Content Standard F: Grades 9-12

Activity: Students in two different schools will participate in joint virtual cell phone conferences concerning topical issues in science. Topical issues include

stem cell research, nutrition, global warming, genetically engineered foods, and cloning, to name a few. Students will be placed in groups of five, in which two students from one school will be paired with two students from another school; the remaining student (from either school) will be the moderator or host of the conference. Each student in the group will research and “become” a well-known scientist in a specific field. The students will take on the scientist’s perspective on the issue and participate in a virtual conference for homework. The virtual conferences will automatically be saved as an MP3 file with the assistance of FreeConferencePro.

Process

In Class

- 1.** Two teachers from different schools in the same or a similar science subject area pair up and decide on the topical issues they want their students to discuss.
- 2.** Each teacher assigns two students to each agreed-upon controversial topic.
- 3.** In their groups, the students select current or past scientists who have contributed to a specific controversial scientific topic.
- 4.** Students research their particular scientist and the scientist’s perspective on the topic.
- 5.** The teachers select one additional student to become the moderator or host for the group. This student records the conference and asks questions to keep the conference flowing. This student also develops a list of questions for the virtual symposium.
- 6.** One of the teachers sets up a FreeConferencePro account. Here is how:
 - A.** Go to FreeConferencePro at <http://www.freeconferencepro.com>
 - B.** Click on *SIGN UP NOW*.
 - C.** Fill in the appropriate information and click on *submit*.
 - D.** A new screen will appear with the conference access number, the passcode, and the host ID. Copy down all three of these numbers.

Students will use the conference phone number and passcode to access the conference from their cell phones. The host student can use the host ID to start and stop and control the conference.

- 7.** The teachers give their students the conference phone number and the passcode. They also give the host students the host ID.

Outside Class

- 8.** Students in each group select a mutual time to conference for homework.
- 9.** The host student dials in to the conference phone number, types in the passcode, and presses the asterisk (*) symbol.
- 10.** The host will then be asked to type in the host ID. Once the host ID has been entered, the host should select the pound sign (#) and number 9. This will start the conference recording.
- 11.** The rest of the students can now dial in to the conference phone number.
- 12.** Students should type in the passcode followed by the pound sign (#).

13. Once all the students in the group are on the conference line, they can begin the conference.

14. When the conference is done, the students can just hang up.

Back in Class

15. For the teachers to listen to and evaluate the conferences (or share them with the rest of the class), they have to log in to the FreeConferencePro portal. Here is how:

A. Log in to FreeConferencePro <http://www.freeconferencepro.com>

B. Sign in to the portal account. The portal account shows when conferences were recorded and how long they lasted.

C. Click on *Recordings*.

D. In the Recordings window, teachers can download an MP3 file of the conferences. There is also an option to listen to recordings over the phone.

Extensions

- If you do not have another school or classroom to pair up with, your students can participate with students in other class periods of the same subject that you teach.
- Teachers can ask an expert scientist from the local community (or anywhere) to participate in the virtual conferences.
- The virtual conferences can be posted on the class blog or Web page so that other students can listen to them and parents can listen and comment.
- Teachers can also participate in the conference sessions.
- Instead of doing the conference sessions all at once, a conference could be conducted about once a month (or at the beginning each new unit, as an introduction for that topic). Each group of students would be in charge of the conference for only one month (or unit) during the school year.

The Five Core Concepts and Five Key Questions of media literacy were developed as part of the Center for Media Literacy's MediaLit Kit™ and Questions/TIPS (Q/TIPS)™ framework. Used with permission, © 2002-2009, Center for Media Literacy, <http://www.medialit.com>