Mobile media learning: multiplicities of place

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Abstract

Purpose – This paper seeks to build a theory of mobile media learning by studying indigenous use of these media and theorizing what impact they might have on learning and education.

Design/methodology/approach – Using a critical approach, the paper reviews contemporary developments in mobile media learning particularly those happening outside of schools. It includes reviews of games and/or media, literature (particularly firsthand accounts published by designers and/or users), and analyses of online communities.

Findings – Although mobile media learning has mostly been framed as “anytime, anywhere” their more profound impact may be in the experience of place. Mobile media enables a multiplicity and hybridity of place that causes opportunities and challenges to learning and education.

Research limitations/implications – To date, there has been relatively little close study of how youth use such media in educational and learning contexts, and more case studies are needed to understand the impact of mobile media on learning.

Practical implications – Those designing learning environments for a mobile media-enabled world will need to rethink some basic assumptions about classroom configurations and learning. Rather than designing for large groups, educators might design for students to be in multiple places in time and place.

Originality/value – As handheld computing initiatives continue to proliferate, educators might benefit from taking a step back and reconsidering how mobile media is understood, and this paper argues that looking at mobile media as media with unique affordances makes new kinds of interactions come to light.

Keywords Mobile communication systems, Information media, Learning, Education

Paper type General review

On July 11, 2008, lines formed across the country as enthusiasts anticipated the release of a new media platform. No, it was not the latest SONY PlayStation or Nintendo DS; it was Apple’s latest iPhone. According to Apple, over one million units were sold in the first weekend (Yahoo Technology, 2008), making it one of the fastest selling consumer devices in history. Combine these one million iPhones with the six million already in circulation and you get a sizable install base – although still nothing compared to Nintendo’s consumer market of well over 40 million for their Nintendo DS. Only two new features separated the new iPhone from the last – better broadband internet capacity and true global positioning system (GPS) capability – yet these two features, when combined with the multimedia and processing power of today’s handhelds, give rise to mobile media’s unique capacities for transformative learning experiences.

Although some research projects have investigated the potential of mobile media for learning (Klopfer and Squire, 2003; Roschelle and Pea, 2002; Soloway et al., 2001; Tinker, 2008), little educational research considers mobile media use outside of formally designed curricular experiences. Few have asked how youth use mobile media on their own, beyond the watchful eye of parents and teachers. How does this generation use its mobile phones, iPods, and digital cameras (for learning)? What might this tell us about the design of mobile media learning environments? This paper makes a conceptual argument about the use of mobile media in education based on a sociocultural construction of technology framework.
Bijker et al., 1989). Drawing on an analysis of existing “handheld computing” applications and analyses of entertainment mobile media applications, I suggest that mobile media operate according to a logic of multiplicity of places – a logic that sharply contrasts the underlying logic of contemporary schooling (a group, industrial mode, Tyack and Cuban, 1997, p. 184), and poses a very real threat for disrupting the dominant organization of schools for three reasons:

1. the ubiquity of mobile media devices;
2. how they allow their users to personalize their learning; and
3. how they remediate our experience of place.

Together, these three characteristics offer a radical alternative to the logic of schooling, an alternative that students are helping to co-create, mostly under the radar of parents and teachers.

**Mobile media in education**

Most research on mobile media in education has adopted a “handheld computing” framework. Treating mobile media devices as handheld computers has made a certain amount of sense, as the first generation of devices (Apple Newtons, Palm Computers, PocketPCs) were designed, branded and marketed as such. Perhaps, not surprisingly then, many initial mobile media educational applications were stripped down versions of their more complex desktop predecessors (e.g. Soloway et al., 2001). Early research emphasized the potential for such devices to realize the long-held dream of one-to-one computing (one device for every student) from a classroom perspective. As Roschelle and Pea (2002, p. 2) summarize:

> Handheld computers will become an increasingly compelling choice of technology for K-12 classrooms because they will enable a transition from occasional, supplemental use to frequent, integral use.

Favorable form factors (such as size, weight, and “sociability”), attractive price points (most devices cost just a few hundred dollars), and “user friendliness” (most devices are less cumbersome to maintain than desktops) gave hope that educators might broadly adopt them. Although other, negative, factors (their fragility when dropped, cumbersome input mechanisms, and tiny screens) have given teachers some reason to pause, in general, handheld computers can much more easily be woven into the fabric of most classrooms.

As these initial experiments into handheld computing were realized, researchers began to identify what made mobile media devices unique in order to design educational experiences better suited specifically to them (Klopfer and Squire, 2003). In the learning sciences, researchers have explored the portability of mobile media devices. Tinker and Krajcik (2001) developed software to enables students to take them into the field as probes. Students might use a handheld computer to gather data on rivers and streams in biology, or on the velocity of a robot in physics. Klopfer (2008) has used handheld devices such as Palm Pilots in a variety of participatory simulation games that position the player as one “component” in a complex system. Through interacting with others, they pass along virtual diseases and learn about concepts such as dormancy. The idea is that, by participating in these simulations, students gain what Gee (2007) calls embodied empathy for complex systems – a feel for how such systems operate.

There has been very little broad adoption of mobile media devices in education (with the noted exceptions of calculators in secondary mathematics classes and probe-wear in science (Roschelle and Pea, 2002; Soloway et al., 2001)), but outside of classrooms mobile media have extraordinarily high rates of adoption for entertainment, communication, and learning. Within e-learning more broadly, the subfield of mobile learning (or mlearning) has emphasized “learning anytime/anywhere” capacity – that they enable access to content regardless of time or place. Most often the focus is on presenting static content to users – for example, carrying around a foreign language dictionary or book-on-tape.

Curiously, the most interactive mobile media applications are coming out of the mainstream videogames industry. Game companies, once horribly adverse to the idea of games for learning, have come to embrace them thanks to the great success of Nintendo’s *Brain Age*.
(which offered the chance to reverse the mental effects of aging). UbiSoft and others have pushed even further with games such as My Spanish Coach. Although they use relatively simple drill and practice formulas, it is interesting how using even simple game design techniques (such as overlapping reward structures, routes for character progression, unlockable items, or detailed, multimodal feedback) can still entertain. Such titles have been successful with a diverse cross section of players; as Nintendo’s advertising campaign for More Brain Training with Nichole Kidman would attest, part of their goal is to change the image of gaming from geeky pursuit of adolescent males to a more mainstream activity. Thus, while mobile media for learning lags in formal educational contexts, there is an emerging market for self-study and learning sold as entertainment.

Augmented reality games on handheld computers

This brief review suggests research agendas, applications, and use scenarios explored within the construct of handheld computing. My own work, much of which has been conducted with Klopfer at MIT (Klopfer and Squire, 2008), has investigated the potential of augmented reality (AR) games for learning within schools. AR games use mobile media devices to create a virtual context layered over real world places. An example of such a virtual context might be a historical game in which students revisit a neighborhood 100 years ago and try to rewrite its story. Similarly, science students might explore the ecology of a lake, investigate its health by examining its shoreline, and attempt to manage its use by seeking to reduce storm water run-off. Built using an AR gaming engine developed by Klopfer and colleagues at MIT, such games seek to take advantage of the individuality, communicability, sociability, location-sensitivity, and multimedia capacities of handheld computers. Gameplay typically involves players moving throughout real world locations in response to simulated activities (such as a city going through urban renewal or an urban lake in ecological danger). As they do, they access multimedia data such as historical photographs, news clips about the pollution of a local lake, or charts detailing changes in land use over time.

Through AR games, we have explored many game scenarios including having students investigate mysteries (such as an unexplained death), redesign land use around urban features such as lakes, report on historical events as journalists, and even design their own games about local neighborhoods (Squire et al., 2007). Although our game designs span a range of ages and curricular domains, they share five features in common (Squire and Jan, 2007):

1. **All learning is situated within roles.** Students orient to the games not as “students”, but as journalists, scientists, or community activists. Inducing such roleplay can be challenging and often requires structuring interactions throughout the experience to emphasize students’ identification with roles.

2. **All learning is driven by emotionally compelling challenges.** Based on research from the design of situated learning environments, we draw on students’ natural curiosities, inclinations and desires to develop what Barab and Roth (2006) call “intentionality,” or the adoption of particular goals. Further, we promote their ownership over solving such problems (Savery and Duffy, 1995).

3. **Learning experiences are rooted in particular places.** Challenges and curricular content are tied to the social history of place, providing students ready entrée for their developing understandings. Our goal is to build on their lived experiences of their neighborhoods, lakes and parks, explicitly showing how and why the given curricular content of the game is important to their everyday lives rather than cordoning the content off from the mundane experiences.

4. **Learning experiences are designed around authentic resources.** Each game embeds authentic resources wherever possible so that gameplay involves analyzing primary historical documents, scientific evidence, historical media, etc. Ultimately, the goal of gameplay is to help historical thinking or scientific argumentation, for example, emerge.

5. **Learning experiences are designed for sociability.** Each game requires social interaction: collaboration, discussion, synthesis, and reflection. If, as Scardamalia and Bereiter
(2004) suggest, metacognition is fundamentally a social phenomenon that occurs in the service of communication, then structures that enable communication are not just productive for learning but necessary.

Game design and research from within this framework has shown positive results – particularly by encouraging students to ask deeper questions about their local communities and to engage in complex forms of academic reasoning (Squire, in press). However, the research also reveals difficulties in trying to shoehorn new media into the old structure of schooling. Many students who play our AR games become intellectually curious about the history of their cities and neighborhoods or about the causes and implications of local environmental issues. There are, however, in most standardized curricula, few opportunities to pursue such questions or to work actively on behalf of their local communities and neighborhoods. School, it seems, is organized around the idea of severing kids off from the histories and futures of their local worlds in the name of preparation for some far off future. With few exceptions, school are not only poorly set up for supporting action in a local social and material environment, but also deeply hostile to it. Just setting up field trips to take students out into their natural environs is incredibly difficult, and national mandates to standardize curricula across states further erode possibilities for local adaptations. Whereas mobile media blur such boundaries, making possible a multiplicity of places, schools are systemically structured set up to reinforce them[1].

Emerging research on mobile media use outside of schools suggests that such technology may be deeply disruptive to classrooms as we currently know them, promoting practices at odds with the social organization of schooling. Outside of schools, mobile media are helping to redefine information seeking, learning, and entertainment; inside of schools, we shut down internet access, ban mobile phones, and strictly police students’ access to their outside worlds. Even college campuses are no exception (Chronicle.com, 2008). Perhaps it is time we finally consider a new pedagogical approach.

The transformative potential of mobile media

Pioneers of educational computing have long dreamt of one computer per child, but few predicted it would come in the form of a cell phone. Yet with over half of secondary students attending school with a mobile device in their pockets already, it is a safe bet that mobile phones will be the first multimedia, networked computer technology to reach one-to-one penetration (Kennedy and Wellman, 2008). Just a few years ago, “smart phones” (such as Blackberries, Palm Treos, or Sidekicks) were high-tech gadgets marketed to business professionals and technology geeks, but with the release of the iPhone (and, in response, similar devices from their competitors) this class of device has penetrated the mainstream. Such trends will only continue. Yet, mobile media threaten to disrupt the order of schools and to redefine learning through their ubiquity of access, personalization of learning, and remediation of place.

Ubiquity of access

As a technological category, mobile media include everything from mobile phones to handheld videogame platforms to music/video players to personal internet devices, digital cameras, navigational (GPS) devices, and “whatever technology comes next” (satellite television perhaps?). Instead of convergence toward one grand device to rule them all, we see a variety of devices suited to a variety of activities with tools built originally for one function evolving and combining new capacities over time (Jenkins, 2006). The iPod Touch is an excellent case in point: What started as a device for playing music files (mp3s) evolved to include a touch screen, extra storage capacity, wireless internet connectivity, and web browsing capacity. Personal gaming devices such as the Sony PSP are becoming increasingly powerful platforms for media of all forms, capable of displaying true 3D graphics, playing music and movies, and supporting an increasing range of broadband applications. Digital cameras now include GPS navigation receivers, mobile phones include cameras, and everything, it would seem, is increasingly able to exchange data online.

Whether or not every middle school student will have a broadband internet phone by next week, the trend line is clear: Mobile media devices are becoming increasingly powerful,
ubiquitous and cheap. Today’s youth, and certainly tomorrow’s, come to school with one, two, or more mobile devices in their pocket – at least, those who can afford them. As a recent Pew Report details (Levin and Arafeh, 2002) in “networked” families in which kids regularly go online, 57 percent of youth aged seven to 17 have a mobile phone of their own. When the numbers are restricted to teens, the rate goes up further. Little work has been done to ameliorate the growing mobile divide, leaving students’ access to mobile media use to families’ ability to purchase tools on their own, outside the sanction of schools.

Outside of schools, we hear stories of students live blogging, acting as citizen journalists, or posting stories and media to Flickr or Google Earth. In schools, mobile media use is restricted to more traditional curricular content. Research has predominantly focused on the latter (Colella et al., 2001; Klopfer, 2008; Klopfer and Squire, 2008; Roschelle et al., 2003; Soloway et al. 2001; Squire, in press; Squire and Klopfer, 2007). Such work has highlighted the constraints of schools, including fixed curricular objectives determined by state and federal agencies, limited internet access, and few opportunities for personalized learning. Roschelle and Pea (2002) anticipate many of the challenges that mobile media devices pose to education. They describe the impact that a “classroom” with dozens of independently acting students with personalized learning trajectories – both through content and through physical space – could have. How do we orchestrate an environment of dozens of students independently navigating through the world’s information (and experiences)?

**Personalization of learning**

For decades, educational theorists have discussed an impending “personalization” of learning in which learners will have ubiquitous access to information (see previous section) with learning (both inside school and out) driven by learners’ interests and needs rather than a centralized authority (such as teachers or tests). The internet, it was thought, would bring about this change as it made “the world’s knowledge” available at one’s fingertips. It wasn’t until Google unleashed its search engine, however, that the information was easily searchable and findable. Even with Google, access issues persist. internet access has been expensive with broadband connectivity in poor communities lagging well behind that of the middle class. Projects like the “$100 laptop” have been proposed as solutions to the problem but to date the best solution has been the most ubiquitous mobile media device ever out the mobile phone. With broadband internet capabilities the mobile phone has enabled ease of access to information hitherto unseen; finally creating the context necessary for personalization of learning can flourish.

**Personalized communications**. For me, like many others, the first “aha” moment with mobile media was owning a mobile phone, getting lost in the side streets of town one afternoon, and calling a friend for directions. It is difficult to remember the day and age before ubiquitous mobile phone access – when, if you broke down on the side of the road, there was no easy way to get assistance save walking to the nearest gas station or flagging down someone driving by. Mobile phones are now our lifelines, and it almost takes traveling in territory without coverage to remember what it was like before continuous access to “the grid.” Of course, phoning someone each time you need assistance or an answer to something is disruptive, and text messaging has arisen as a result. Enabling quick queries to friends and colleagues in a manner that does not “demand” they immediately stop their activity to reply, text messages allow receivers to choose whether and when they respond. Much like mobile phones ten years ago, text messaging is at an intriguing place in the USA with broad adoption rates but no settled social norms for practice. Those who have adopted text messaging as a mode of personal and professional communications are negotiating its social norms in real time[2].

**Personalized libraries**. A second “aha” moment many experienced was the first time downloading a book to be read on a mobile device (for many of us, the Palm Pilot). I vividly recall purchasing my Palm Pilot, looking for content online, and finding one of the first books available at that time: the entire Bible. Like many, I was shocked that the entire Bible might be stored in a small, pocket-sized device. Of course, reading the Bible on a screen the size of 3 x 5 note cards did not inspire, but the underlying idea that we would soon have complex media content loaded onto seemingly small-impact devices stuck. For today’s generation, that “aha” moment was the iPod. By enabling users to store their entire music collection (and soon there after, video) in their pocket, many early adopters developed practices for
“cocooning” (Okabe et al., 2005) themselves in an audio landscape of their own design, organizing one’s entire music library using software such as iTunes, and now, with Apple’s new “genius sidebar,” even finding new media for us to share, suggest and consume. As earlier generations recommended books and albums by word of mouth, for the younger generation, software organizes our “word of mouth” information flow. By tracking the consumer choices we make, our mobile media devices are co-determining the very content we consume.

Facilitating open learning. One area where we already see the effects of mobile media on educational practice is through university podcasting. Thousands of courses, tutorials, lectures, and materials are now freely available, for example, through iTunes. University technologists report that such podcasts are very popular with students, who use them to preview content or review lectures, particularly while commuting to campus. Anecdotal evidence suggests that once made available, students come to demand such lectures as a required part of learning. Indeed, many universities now have a substantial number of courses fully online, following the lead of projects such as MIT’s open courseware. Such programs make course content freely available and accessible to those beyond the university classroom. Of course, the availability of information does not equate equal educational access; as most everyone at MIT readily admits, it is the social interactions and atmosphere, the milieu and opportunity to participate in the culture of MIT that is at the heart of an MIT education, not merely their course content.

A small world in your hands. It is frequently overlooked, but Nintendo’s GameBoy, not the Sony PlayStation or the Microsoft Xbox is the most successful gaming platform of all time. Over 199 million game boys exist worldwide. While most previous handheld games were “ports” of games successful on other platforms, more recently, game designers have begun to understand the unique affordances and pleasures of the medium for its own sake and have begin designing games to exploit them. Consider Pokemon, one of the most successful gaming franchises of all time, which has sold, cumulatively, over 180 million units and spawned a multimedia empire for Nintendo that spans games, television, film, and ancillary merchandising. The pleasure of Pokemon, a game was designed to remediate the experience of beetle collecting (a hobby popular in Japan) is a deeply personal experience. Like beetle collectors, Pokemon players raise, train, and care for pets. Doing so demands mastering an arcane system of species, rules, and conditions. Although many educators chided Pokemon for its consumerism, others noted that Pokemon was selling kids aesthetic experience of being expert in a complex system (something that schools, sadly do not offer kids) (Gee, 2007). As such, Pokemon gives kids the experience of not just carrying their beetle collection with them in their pockets, but an entire universe of creatures, rules, characters and capabilities. Such mobile games give players the experience of having entire worlds in their pocket.

Such choices in mobile media lead to a profound personalization of learning. Being able to consume whatever media we want, when we want, with some degrees of privacy changes the basic landscape on information consumption and production for students. Personalized media environment makes it possible for each student to pursue his or her interest areas irrespective of the teacher or overall classroom goals. Middle class parents seem poised to support their children in cultivating these “islands of expertise” (Crowley and Jacobs, 2002) areas where youth develop interests in particular areas, nurture advanced understandings within these domains over time, eventually joining affinity spaces (often online) where they can express and extend these understandings (Gee, 2007). It would be a profound opportunity lost if participation in online affinity spaces became the norm in hobbies such as fantasy baseball, (Halverson and Halverson, 2008) and around entertainment media such as videogames, (Steinkuehler and Duncan, in press) and even around political events (such as Daily Kos reporting on the campaign season), but not in formal education. Having personalized multimedia viewing, authoring, and communication devices that learners literally carry with them makes it possible for learners to bring their personal interests into school and their schoolwork out into the field. Well-connected students are doing this already. If we, as educators, could understand what sort of “trans-spatial” learning practices emerge from it, we might be better able to design learning experiences that span home, school, and informal learning settings.
Remediation of place

Cocooning and camping. Anthropological work on youth’s mobile media use emphasizes how they use such devices to control space in a fast-paced, mobile, and globalized world. Modern (particularly urban) life is full of numerous “down times” that can function as micro-spaces that mobile media allow us to inhabit in new ways, allowing us to “temporarily appropriate public space for personal use.” Urban youth, for example, use personal music players, gaming systems, and digital books while on public transportation to personalize public space, making it private. Ito and colleagues (Okabe et al., 2005) use the term cocooning to describe how youth develop a “personalized media environment that is attached to the person and not the physical place.” They use the term camping to describe a similar, complementary practice with the same devices that allows users to “construct personal work space “encampments” by bringing portable media to public places of choice” (such as cafés). In this case, people are seeking out places that they “have a natural affinity with,” and then use mobile media to make those places inhabitable for work and so on. Through cocooning and camping, mobile media allow us to re-mediate our sense of place and thereby gain control over our surroundings in new ways, effectively creating hybrid spaces that are neither public, nor private but both.

Place-based entertainment. This remediation of space occurs through more specialized, hobbyist activities as well. Geo-caching is an outdoor scavenger hunt style game played with GPS devices. Players hide and then seek out caches, which are small canisters that typically include a log for players to sign and some form of a “goodie” that people gather and leave behind. Players use web sites to post and obtain clues that send them through multiple scavenger steps (often containing complex riddles and puzzles to solve) to find the geocache location. There are thought to be almost one million geocaches worldwide. Another type of hobbyist activity is flash mobs – large groups of people who briefly gather, unannounced, to perform bizarre acts in public, and then disperse. Flashmob events are coordinated via web sites, mobile phones, and text messages so that no one is aware of the final location until right before it occurs. In the “alternative reality game” I Love Bees (McGonigal, 2007) designed to function as an advertisement for the release of Halo 2, player searched for clues hidden in viral videos, secret web sites, and coded messages (phone, text, and so on) as. The game started with a simple URL (www.ilovebees.com) displayed at the bottom of the last frame of a Halo video. The web site featured a beekeeper named Margaret, who on the surface had nothing to do with Halo 2, but soon the web site was hacked and, through a series of clues, participants learned that there was to be a cataclysmic event August 24, 2004. There, participants found a series of 210 GPS coordinates, which they deciphered to correspond to pay phones spread across the USA. The complexity behind I Love Bees is difficult to describe in a short amount of text, but perhaps a few details will suffice. This AR game required 600,000 players to solve involved messages encrypted in a fictional computer programming language, and used payphones ringing at any one of 1,000 locations (sometimes simultaneously, sometimes in series). In its final challenge, a payphone rings in one location and the receiver is given a five word clue; 15 seconds later, another payphone, one of 1,000 across the world, rings and the receiver had to respond with the same five word clue.

Citizen journalism. More formally (and with arguably more recognizable ties to traditional education), the practice of citizen journalism suggests how mobile media is remediating the flow of news from information gathering to analysis to publishing. Citizen journalism (also called participatory journalism) is the practice of “ordinary people” using modern technologies (such as mobile media devices) to gather and distribute information via the internet. In effect, you no longer need to be working directly for a newspaper or radio station to be a journalist. In some cases, media conglomerates such as the BBC publish citizen reports not only to improve their ratings, but also out of necessity. For example, during the London Underground bombings in 2005, first reports of the attacks occurred from citizen journalists on the scene armed with mobile phones. These unedited images were both shocking and powerful, communicating the immediacy of the events from a firsthand perspective. In another example, in 2007 when Myanmar’s military junta shut down Buddhist monasteries and cut off internet access in the country, effectively severing communication, reporting of the events occurred almost exclusively through images captured on mobile phones (Sklar, 2007). As the Wall Street Journal (reported in Sklar, 2007) reported:
Citizen witnesses are using mobile phones and the internet to beam out images of bloodied monks and street fires, subverting the Myanmar government’s effort to control media coverage and present a sanitized version of the uprising. A shaky video, now on YouTube, shows a sea of chanting and clapping monks draped in red robes marching down a street, past Buddhist monuments. One blog features a photo showing two abandoned, bloodstained sandals. Another blog was updated at 3 p.m. Myanmar time yesterday with a few English lines: “Right now they’re using fire engines and hitting people and dragging them onto E2000 trucks and most of them are girls and people are shouting.” Below the post is a blurry photo of trucks with the caption, “This is how they come out and try to kill people.”

In this case, circumventing official channels was absolutely crucial to communicating reliable information. Not all examples of citizen journalism are quite so meritorious, as the Mayhill Fowler incident in the 2008 American elections demonstrates. Here, a citizen journalist looking for a way to hang their favorite candidate’s competition with their own words used a mobile device to surreptitiously record a statement Barack Obama made about rural white people being “bitter” and “clinging to guns and religion” out of context for pure political gain (Mills, 2008). Still, such examples do illustrate that mobile media, with the internet as a distribution channel, are transforming not only what we understand as journalism, but also what we take as authentic or trustworthy reporting.

**Smart mobs and collective intelligence.** In his 2003 book *Smart Mobs*, Rheingold (2002) describes how mobile media, when connected via the internet and other networks create smart mobs, or emergent, self-structuring social organizations. In many respects, the aforementioned citizen journalism campaign around Myanmar might be described as a smart mob, as people, without any a priori planning, began using digital tools to respond to the crisis. Within the entertainment industry, this sort of collective action supported by mobile and digital technologies has often been framed as collective intelligence; that is, intelligence that is held by a group, rather than by particular individuals. Jenkins (2006) uses Levy’s (1997, p. 277) notion of collective intelligence and examples ranging from *Lost* (a television show) fan sites to videogame communities to describes how the modern entertainment landscape involves seeking out, analyzing, and producing information for disparate sources. Jenkins argues that entertainment producers seeking to stay competitive in today’s landscape need to understand consumers’ desires to consume and produce information through multiple channels. If they fail to produce such increasingly sophisticated experiences audiences get bored, a trend noticed by media producers (Koster, 2004) and critics (Johnson, 2005) alike. Sites such as Intrade and Wikipedia enable collective intelligence by providing open access for users to contribute information (wikipedia) or make micro-decisions that add up to create a sort of knowledge (in trade markets). “Their goal: to produce a kind of collectively-generated knowledge that is different not just quantitatively, but also qualitatively, in both its formation” (McGonigal, 2007, p. 2).

**Community organizing.** Finally, and perhaps most importantly, mobile media are enabling new forms of community organizing. A widespread – but not yet widely reported – example of their potential is how the Obama 2008 campaign’s creation an iPhone application that enables participants to organize themselves. Using this simple mobile phone software, participants could find the local Obama Headquarters (using the iPhone’s GPS capacity), see local events in their area, tracks friends and family that they have called for the campaign (conveniently organized state-by-state), view election news, browse media produced by the candidate and his team, and conveniently consult up-to-date policy briefs on campaign topics while canvassing or talking with neighbors and friends. Based on the 1,100 software reviews posted online at the time of this writing, this last feature, the ability to conveniently consult information and share it while out in the field, was the most crucial. Here, a basic iPhone in the field functioned as an powerful tool for mobilizing action both top down, in informing and organizers ground troops out canvassing as well as bottom up, helping higher level campaign staff gathering information on voting trends and track participants’ efforts. Their campaign’s unprecedented use of mobile media has set a new precedent and signals the ushering in of a new kind of democratic participation.

**Discussion: education in a mobile media world**

This article has sought to synthesize contemporary developments with mobile media to understand the educational implications of the medium. I have argued that the ubiquity of
mobile media devices is leading to a profound personalization of learning. Widespread access to mobile media devices has adoption rates for broadband internet capable, multi-media ready devices approaching 100 within the foreseeable future. Everywhere but schools, we see signs of learners pursuing areas of personal interest with such technologies. High storage capacities and broadband internet connectivity make it possible for youth to consume media of their choosing, pursue their own interests with a high degree of privacy, and stay connected throughout the day to peers and social networks. Such constant connectivity makes coordinating complex social actions and following events (such as election results) in real-time relatively easy. In short, with mobile media devices we can pursue our own interests throughout our day – while commuting, on the phone, at meetings or classes, or while waiting in line.

Such ubiquitous access is helping erase old lines of “online and offline” for the youth generation. Already, once respectable, mainstream notions of “internet addiction” and “depression caused by internet use” are beginning to appear a bit antiquated. Of course, this is not to suggest that such shifts are entirely good; indeed, something profound may be lost when we lose the ability to recall a time when we were not constantly plugged into wikipedia, sports scores, or political blogs. Already, a common complaint among knowledge workers is the problem of being unable to “unplug,” with productivity consultants recommending in response that the modern professional must learn to allow their personal lives to “invade” their work time the way that their work time has invaded their leisure time (Allen, 2002).

The flipside of this erosion between “online” and “offline” activity is a reshaping of how we experience place, creating a multiplicity of place. Along with the inability to “unplug” or get away also comes the constant ability to “be” in multiple places at once. Indeed, I may not be able to attend my favorite baseball team’s progress because I have to go to work, but if I can follow the game on a pitch-by-pitch basis while in the office, it becomes difficult to say that part of me is not also at the game. The reality of this multiplicity is even more pronounced when we consider our ability to participate in online places via mobile media. The confluence of text messaging, twittering, facebook updates, and online discussion forums during the 2008 election season made following politics a 24/7 participant/spectator sport for millions of Americans. As disjointed as people’s daily lives have become, the availability of such forums become a constant presence, tying together the interstitial times between work, home, and play.

As a result, mobile media are remediating our experience of place, creating a new world where we are neither entirely here, nor there but in multiple, occasionally hybrid, places of our own choosing. I suspect that in a very real way, for example, the students in my classrooms are both present in the room physically and periodically in other places. I do the same kind of multiplacing during meetings. Minimally, our ability to track and virtually experience events (such as athletics or politics) has been revolutionized. Increasingly, there is also an expectation of others to be in constant virtual co-presence – to the extent that its no unusual to worry if someone has not returned an e-mail, updated their gmail or Facebook status, or similarly left some virtual footprint somewhere in public view every few hours, let alone an entire day.

Entertainment, news, and other information/media industries adapt to this mobile media reality, but as educators, particularly those of us working within the formal learning systems of schools, we have been relatively slow to respond. Although some examples of educators leveraging mobile media devices (such as university podcasting) can be found, it seems as if we still have not fully embraced the reality of a constantly connected, multiplace, fully mobile media reality quite yet. Our materials, classes, and courses are generally not designed to speak to an information-rich, constantly connected student body. The large number of courses banning laptop computers is but one high profile example of formal schooling structures attempting to respond to this change.

However, if colleges are currently struggling with these issues, their challenges pale in comparison to K-12 educators who work in a system dominated by nearly complete control over students’ attention and activities. Mobile media may threaten basic power dynamics, such as control over information, expression, and literally “where” the student is. Simply put, our K-12 classrooms are generally not prepared to deal with a world in which students can and do have ubiquitous access to information, constant contact with peers, and the ability to
“be” in whatever virtual places they choose. It is as if the teacher’s back is forever turned on an entire classroom’s worth of activity happening beneath the radar. The same form factors that make using mobile media devices so unobtrusive during casual social interactions (such as discreetly checking a text message) also make concealing these devices in classrooms incredibly easy. For the large number of students who were never “there” in the classroom in the first place, for those who have mentally checked out long ago, these mobile media developments are likely something of a relief, but for teachers and administrators concerned about the educational success of those students (all students, really), it is sure to be a constant source of headaches, concern – and lost opportunities.

Notes

1. Despite such pressures, there are many educators deeply committed to creating bridges between home life and school, between our backyards and our science classrooms, and between local places and history and our classroom civics lessons (Gruenewald, 2003; Tinker and Krajcik, 2001). My personal collaborations with such teachers have deeply informed my thinking on these issues.

2. As evidence of this, I remember visiting Sweden in the spring of 2004 and remarking to my hosts from the Swedish government how unusual it seemed to me that they would conduct official business communications via text messaging. Four years later, texting professionally is far more common in the USA, although we are still not yet to a point where companies would consider it “essential” to provide employees with mobile phones with unlimited text messaging allowances.

References


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