# iPhones and Smartphones

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**Long utilized in European and Asian countries, fast "next generation" cell phone networks and mobile data streams have only recently begun to make deep inroads in the United States, and companies are scrambling to write content, tools, and new applets ("apps") for these users. The iPhone has become a juggernaut in the United States, with 13 million units sold in 2008 (a 245% increase over 2007) and a further 45 million units expected in 2009 (Elmer-DeWitt, 2009). While iPhone still lags Nokia and RIM internationally, the overall trend toward mobile computing becomes firmer by the day, and it behooves educators to become familiar with the cell phone tools that are relevant for teaching in tomorrow's--and increasingly "today's"--classroom.**

**Smartphones have for years offered SMS instant messaging, but the first uses of that technology have inevitably been social rather than educational in nature (Reid, 2004). The recent rise in popularity of the iPhone has, however, sparked interest in new uses for SMS with the advent of new and expanded audiences. One promising online tool offers instant polling via SMS: polleverywhere.com's free account allows up to 30 responses per 1-question poll, with unlimited polls per account.**

**This opens up the possibility of classroom response systems that require no student purchases of the clicker hardware. While accountability back to the student and grades are not feasible with polleverywhere.com's solution, instructors can harvest quick, anonymous feedback and encourage otherwise reluctant students to engage and participate.**

**Apart from texting, modern cell phones come equipped with cameras, which can combine with email capabilities to offer a potent alternative to writing on whiteboards. Working at their seats, singly or in groups, students can photograph their work and email it to the instructor, who then can choose from the submissions which to highlight on the lecture hall's projection of his computer station, and further discuss the anonymous work. Cameras may also be useful in field work and group projects.**

**But perhaps the greatest use of Smartphones has been the web browsing capability. Essentially pocket computers carried by almost all students, today's cell phones can surf the Internet and access most content that formerly had to be seen from their desktop computers at home.**

**Instructors might imagine students in the lecture hall looking up facts, verifying information, or using web-based prompts for roleplays, groupwork, and problem-based learning, in some cases entirely replacing the need for handouts.**

**There are limitations; some Course-Management Software (CMS) like BlackBoard may not function on cell phone browsers, since they lack web programming languages such as Flash or Java.**

**One of the major revolutions created by the iPhone specifically has been the convenience of offering apps, including many free ones, from the ubiquitous iTunes shopping cart software also used to purchase and manage mp3s on iPods. The resulting cascade of available apps has been breathtaking. In the first twelve months since its inception in July, 2008, the iTunes App Store logged 65,000 apps and 1.5 billion downloads (Apple, 2009).**

**Inevitably, many apps are offered for free, and dozens speak to individual industries and disciplines. The list is seemingly endless: customizable flash cards, an interactive periodic table, the collected works of Shakespeare, scientific and graphic calculators (which can render 3D objects and rotate them at a touch), art collections, MRI brain scans, foreign language tutors, maps of the world, dictionaries, and dozens more. iPhones feature still more built-in applications, including one for YouTube that may also encourage faculty to weave more videos into their teaching. Suddenly, students may have access to rich media right from their seats, and the possibilities for on-the-spot groupwork are enticing indeed.**

**The primary hurdle may not be technological, but rather financial in nature. Not every student will have a SmartPhone, let alone an iPhone specifically. Abilene Christian University (ACU, 2009) became the first college in the United States to give all incoming freshmen an iPhone or iPod Touch, and both University of Florida's College of Pharmacy (Martin, 2009) and the University of Missouri's School of Journalism (Eddy, 2009) will start requiring incoming students to purchase their own, but these are exceptions rather than the rule. For most universities, it is difficult to imagine mandating such purchases from individual students, so instructors will most likely be reduced to seeking volunteers from among the class population.Inevitably, this will result in the formation of buzz groups clustered around the iPhone bearers, which in and of itself may not be a bad thing, though it may take longer to organize groups and re-direct students back to the plenary discussion.**

**Students might be allowed to use phones for "backchannel" discussions; basically discussions among themselves that occur without involving the lecturer, such as clarifications or amplifications of points made during the lecture, but in real time while the lecture continues. While there are numerous possibly ways to implement such a backchannel discussion, a Twitter feed provides the simplest solution. Such a system could also be used to post (anonymous) questions to the lecturer that are examined only every so often, which provides a new venue for the more shy students who nonetheless have a pressing concern.**

**One caveat for interested users will be the role of iPhones and SmartPhones in off-task behavior, particularly if backchannel discussions are encouraged. Absent backchannel discussions, however, instructors could easily dictate the specific moments when cell phones are to be used, with the understanding that all other times are to be technology-free. In this fashion, classroom management issues should remain minimal, even in technology-rich classroom environments that reap maximal benefits from the technology already in the hands of many students.**

## BIODATA and CONTACT ADDRESSES of AUTHORS

**Dr. HARGIS has authored two books and over forty academic articles as well as over one hundred national and international presentations. Currently, he is an Assistant Provost at the University of the Pacific and an Associate Professor of Education. His undergraduate and graduate degrees are in the chemical sciences and he has earned a Ph.D. from the University of Florida in Science Education, specializing in the area of informal learning settings, which is the focus of his research agenda.**

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