

# Cell Phones As Tools For Learning, Information, and Security on Our Campuses

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**Abstract** – Studies have shown that cell phones with powerful features are becoming common among college students. Cell phones are also very portable, and are brought into the classroom by students. This paper discusses examples of how cell phones have been used as teaching tools. Other uses of cell phones on the campus are also discussed in this paper. These include using cell phones to provide day-to-day campus information, and to disseminate emergency information.

*Keywords:* Cell phones in education; mobile phones.

## INTRODUCTION

Ownership of wireless communication devices has been increasing. According to a report, *Wireless Industry Indices: 1985 – 2006*, by the Cellular Telecommunications Industry Association (CTIA), the estimated number of wireless subscribers in 2006 has increased by more than 25 million; the number of wireless subscribers in 2006 was estimated to be over 233 million. In other words, over 60% of the people in the USA subscribe to cellular telephony service [Dieterle, 1].

Another report states that more Americans are going exclusive wireless, and doing away with landline telephony service. It estimates that 14% of all wireless subscribers will only carry a mobile phone [Amorosa, 2]. In this group, going exclusively wireless is highest with young adults in the in the age range of 18 to 24.

In addition to making phone calls, modern cell phones can be used for taking digital photos, recording video clips, and text/picture/video messaging. Because of the growing use of cell phones by college-age adults, it is important for educators to explore ways in which these devices can be used as learning tools.

### Some Disadvantages of Having Cell Phones in Schools

Cell phones run the risk of distracting students, thereby undercutting learning. The main problems that educators have with inappropriate cell phone use in schools include [Melville, 3]:

- Sending text messages during class time.
- Sending or receiving test answers.
- Bullying or harassment by sending unwanted text messaging.
- Taking and distributing inappropriate digital photos of students.

Despite these potential problems, the same skill set of playing games, taking pictures, and text messaging, when used appropriately, has strong educational value [Dieterle, 4].

### Some Advantages of Using Cell Phones as Teaching Tools

Many students own cell phones, and are skilled in their use [5 - 7]. Many students who cannot afford a computer are more likely to own a cell phone [Rishi, 5]. Modern cell phone also have features that can be used to enhance teaching and learning. Some of these features include:

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- **Internet Access.** This opens up a lot of possibilities for accessing educational and other types of content via a cell phone. This also means that a cell phone user does not have to search for a computer lab or a wireless hotspot in order to access the Internet. Depending on the signal strength, a cell phone can access the Internet from more locations than a laptop with a wireless hotspot card.

The screen resolution of modern cell phones has improved, thereby leading to better display capabilities. Websites that have been specifically designed for cell phones are becoming available. Also, some websites can automatically detect that a request is from a cell phone browser; the websites then respond by sending content that is in the appropriate format for a cell phone.

- **Messaging Capabilities.** These include sending and receiving text messages. This feature can be used by professors to give short quizzes and to poll students in a class. Other uses of this feature include broadcasting schedule changes and emergency messages, such as weather alerts. An urgent broadcast message that is sent using text messaging has a better chance of reaching more students quicker than if the message is sent to student e-mail accounts.
- **Digital Cameras and Video Recorders.** Phones with cameras and video recorders can be used to take pictures and record video images outside the classroom. This visual data recording feature in a portable and convenient device can be used for fieldwork in many disciplines.

The ubiquity of cell phones with powerful features, as well as the willingness of students to bring these cell phones to the classroom, makes the cell phone to be a new educational tool that can be used to enhance student learning.

### EXAMPLES OF HOW CELL PHONES ARE USED AS TEACHING TOOLS

Some examples of cell phone use in education are shown below:

- **Text Messaging.** SMS (Short Messaging Service), also known as text messaging, has been used by Stephen Cheung of Sydney University to conduct classroom experiments in economics [Cheung, 8 - 9]. An example of a set up for SMS-based experiments is shown in Figure 1 below.

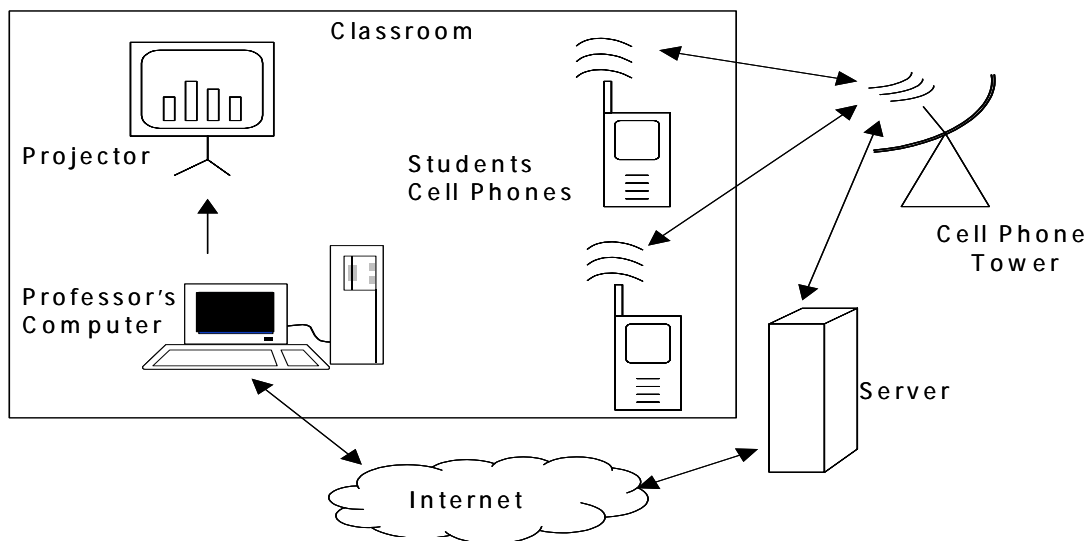


Figure 1: Setup For SMS-Based Classroom Experiments.

In this setup, students submit their responses by sending text messages to a designated phone number. The text messages are stored in a database server provided by a cell phone company. The professor's computer, which has Internet access, can be used to download the text messages into a spreadsheet for automated analysis. The results of the analysis can then be displayed on a projector in the classroom. Return messages are generated for each student, and uploaded to the server via the Internet. The server then broadcasts the messages to the student phones.

Cheung has used a similar setup to conduct experiments in an Economics class that are based on the bargaining game and the contributions game. Cheung reported that the use of SMS replaced the inefficient paper and pencil method.

- **Language Study.** Both text messaging and audio features of cell phones have also been used to support language instruction. In the UK, the BBC World Service English Section has used text messaging in conjunction with radio broadcasts for English language instruction in Francophone West Africa and in China [Godwin-Jones, 10, Prenskey, 11]. BBC Wales has also used text messaging, in addition to a new learners' website to offer lessons in Welsh [Andrews, 12].

Cell phones have also been used to teach English at a Japanese university [Thornton, 13]. In one project, English vocabulary lessons were e-mailed at timed intervals to students. It was reported that students who received these lessons on their mobile phones learned more than students who received identical materials on paper or the Internet.

At Rice University in Texas, there is a course in which Chinese language is taught via cell phones [Chung, 14]. The core teaching materials and the communication component in this course are delivered to the students via wireless devices, including cell phones.

- **Vidblinks.** A project at Hamilton College has explored the use of rhetorical techniques and video cell phones to produce persuasive multimedia messages [Adams, 15]. They used the video camera of a cell phone to create 15-second videos (also known as Vidblinks) that communicated a message within the theme of "war". The vidblinks were sent to 150 people, and the recipients were surveyed to measure the effectiveness of the messages.
- **Astronomy.** Budiardja et. al. [Budiardja, 16] have developed several client/server applications for teaching introductory Astronomy. One of these applications implements interactive quizzing over a wireless handheld device, e.g. a cell phone, using a 700-question database. This application allows students to study for astronomy quizzes by using their cell phones.

### OTHER USES OF CELL PHONES IN SCHOOLS

Cell phones can also be used to provide a wide range of services on campus. Security and weather alerts can be broadcast via SMS to cell phones of students, staff, and faculty. Georgia Southern University is one of the universities that provides an emergency text messaging system for campus emergencies [17].

The web browsing features of cell phones can be used to gain access information on campus events and news headlines. At the University of Texas in Austin, the UT Mobile Service [18] allows cell phone users to search the campus directory for contact information of students, faculty, and staff. It also provides access to campus email and maps. Users can also use this service to read headline news from some newspapers.

Rave Wireless [19] has partnered with several universities and colleges to provide a wide range of mobile applications and mobile phone programs for higher education. Some of these schools include Mercer University, University of North Carolina at Chapel Hill, Colorado State University, Georgia Gwinnett College, and St. Michael's College (Colchester, VT). Applications from Rave Wireless include broadcast text alerting, class and scheduling updates, academic assessments and polls, local transportation schedules/updates, and event and social information services. Another application is a global positioning system (GPS) based campus safety service.

## CONCLUDING REMARKS

Cell phones with powerful features are becoming common among college-age students. One advantage cell phones have over computers is that of portability. As examples in this paper have shown, cell phones can be used as teaching tools. They can also be used to disseminate campus information, including weather and security alerts. Their ubiquity, portability, and increasingly powerful features, make them useful for these applications.

As more tools become available, applications will be developed for use in other areas such as engineering and environmental sciences.

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