

Case

02



## Ubiquitous Computing: Going One-to-one

### Background Information

As each day passes, technology in education changes. Some states have made changes through the use of ubiquitous computing, which simply means that computers are integrated into the environment, or in this case, schools. With the means of ubiquitous computing on the move, high schools and colleges are supplying laptops to enrolled students to be used throughout their high school and college careers. There have been several debates as to whether or not ubiquitous computing is the right move to make in education. While some argue that having laptops for use throughout the day (and night) allows students to “access information, communicate, and follow their learning passions,” (DeWitt, 2005, p.6) others foresee that a problem will lie in training teachers how to use the laptops and how to implement the technology into their current courses of study (Brown, 2003, p.28). Another issue that is prevalent is that schools must purchase the laptops and budget for support, repair, replacement, and upgrades.

According to sources, there are several positive factors that promote student learning through the use of ubiquitous computing. First, this allows students to write more frequently and to produce better writing (Warschauer, 2005/2006, p. 35). With writing the old-fashioned way, students rewrite an essay to produce a final draft. If students only have to use the click of a button to edit writing, less time is spent, which would create more time for other activities incorporating various learning styles. Also, with this program at hand, students can learn other material on their own after assignments have been completed. They can research other topics of interest instead of wasting valuable class time waiting on other students to complete assignments.

As with all recent technological trends, there are few doubts as to whether or not ubiquitous computing is beneficial to education. One problem that schools will face is training teachers how to use the laptops and how to implement them into their current courses of study (Brown, 2003, p. 28). With ubiquitous computing many factors of education will change. The question is whether or not all teachers will be willing to accept the responsibility of implementing this into their curriculum.

As Anita McAnear (2005) said, “It feels as if technology continues to evolve at a faster and faster pace” (p. 4). With this evolution comes much responsibility for teachers and students. If both teachers and students accept the responsibility, students will have better achievement levels due to the fact that with computers for each student, more can be accomplished and learned in a school day which is a goal that every educator should be trying to reach.

## Preview

As each day passes, technology in education changes. Some states have made changes through the use of ubiquitous computing, which simply means that computers are integrated into the environment, or in this case, schools. With the means of ubiquitous computing on the move, high schools and colleges are supplying laptops to enrolled students to be used throughout their high school and college careers. There have been several debates as to whether or not ubiquitous computing is the right move to make in education. While some argue that having laptops for use throughout the day (and night) allows students to “access information, communicate, and follow their learning passions,” (DeWitt, et. al., 2005, 6) others foresee that a problem will lie in training teachers how to use the laptops and how to implement the technology into their current courses of study (Brown, et. al., 2003, 28). Another issue that is prevalent is that schools must purchase the laptops and budget for support, repair, replacement, and upgrades.

## Focus Questions

As you study the following case, keep these questions in mind: (1) Is ubiquitous computing beneficial to all students in all schools? (2) Is there anything that John can do to make the situation better?

## The Case

### Going One-to-one

Although tenth graders Casey and John had been friends their entire lives, they did not live in the same school district which, of course, did not permit them to attend the same school. Casey attended Mountain Springs High School, which is a large school mainly made up of students of the upper end of the socioeconomic status level, while John attended Friendly High School, a small rural school mainly composed of students of lower to middle class status.

On the weekends Casey and John visit regularly and while the main topics of conversations are girls and basketball, they, too, often discuss the differences of their schools. Casey feels that with his educational preparation and experiences, he will be a candidate for a college scholarship. Mountain Springs gives him many opportunities that students, like John, who attend smaller, less fortunate schools, do not receive. For example, when Casey enrolled in the school in ninth grade, each student was issued a laptop computer to use for the remainder of his or her high school career. This is helpful to Casey in that it allows him to write more frequently and to produce better writing. With writing the old-fashioned way, Casey had to rewrite an essay to produce a final draft. With this piece of technology at his hands at all times, Casey can use the click of a button to edit writing, which means that less time is spent, and in turn creates more time for other activities incorporating various learning styles. The major plus for Casey is that he can engage in other material on his own after assignments have been completed. He is allowed to research other topics of interest instead of wasting valuable class time waiting on other students to complete assignments. The only downfall to this is that Casey’s teacher is not exactly what one would call computer literate. She is

one year from retirement and refuses to learn anymore about technology than she has to in order to survive, so students have to take up the slack by helping each other with technology related problems.

On the other hand, John, at Friendly High School is rarely given time to use technology. His school has one computer per grade level and one lab that contains 20 highly-used computers. While John's teacher is very tech-savvy and loves to learn more about technology with each passing day, there are at least 30 students in each class that John is in, therefore, often students in John's school must share what little time they get with the computers. John is a bright student who plans to attend college after high school but does not feel that his parents can afford to send him. He usually finishes assignments before others and is regularly asked to be a peer tutor to those around him in his spare class time. John is really jealous of Casey because of the advantages that Casey has at his school, such as technology at all times.

After hearing what Casey has said about being able to research other topics when he is finished with assignments, John often questions as to whether his education is as valuable as his friend's. John knows that he is intelligent and loves to help others, but feels that his being a peer tutor to other students is not enhancing his learning.

## Questions for Discussion

1. Even though John doesn't have the technology in front of him, what can he do to broaden his academic horizons when his class work has been completed?
2. Is Casey's education more valuable than John's education?
3. What role do the *very different* teachers play in Casey and John's use(s) of technology?
4. If ubiquitous computing takes place, how can it be ensured that <sub>all</sub> teachers can effectively and efficiently teach students how to use technology?

## Links

UbiComp 2006—Information for a conference on ubiquitous computing  
<http://ubicomp.org/ubicomp2006/>

Ubiquitous Computing Evaluation Consortium—organization that evaluates ubiquitous computing in the classroom  
<http://ubiqcomputing.org/>

Personal and Ubiquitous Computing Journal—links to several articles about ubiquitous computing  
[http://www.springerlink.com/\(i2qinb55ldf2od452a4kpi45\)/app/home/journal.asp?referrer=parent&backto=linkingpublicationresults,1:106503,1](http://www.springerlink.com/(i2qinb55ldf2od452a4kpi45)/app/home/journal.asp?referrer=parent&backto=linkingpublicationresults,1:106503,1)

eClass—organization that studies the impact of ubiquitous computing on education  
<http://www-static.cc.gatech.edu/fce/eclass/>

The University of Alabama Computers and Applied Technology Program (2009). Technology Education: A series of Case Studies. Available at <http://www.ua.edu/edtechcases>.

Ubiquitous Computing Movies—offers a few videos that further explain ubiquitous computing

<http://sandbox.xerox.com/hypertext/weiser/UbiMovies.html>

TecO—completes research in the field of ubiquitous computing in education

<http://ubicomp.teco.edu/index2.html>

## Resources

Brown, David G. and Petitto, Karen R. (2003). The status of ubiquitous computing. *Educause*, 24-33.

DeWitt, Scott W. and Horn, Patricia S. (2005). Ubiquitous computing—are we crazy? *Learning & leading with technology*, 32(8), 6-7.

McAneer, Anita. (2005). Ubiquitous versus one-to-one. *Learning & leading with technology*, 33(4), 4-5.

Thompson, Ann. (2002). Ubiquitous computing: Futures for preservice teachers and teacher educators? *Journal of computing in teacher education*, 18(3), 74 and 106.

Warschauer, Mark. (2005/2006). Going one-to-one. *Educational leadership*, 63 (4), 34-38.