THE LAPTOP UNIVERSITY: A FACULTY PERSPECTIVE

George Kontos, Ed.D.

Zayed University

Information Technology, Mathematics and Science

P.O. Box 4783

Abu Dhabi, United Arab Emirates

i7042@zu.ac.ae

kontosy@yahoo.com

Abstract

This paper looks at mobile computing and laptop programs in higher education. Some of the benefits and drawbacks of laptop programs are examined. Examples of universities that have implemented laptop programs are given. One such university, located in the United Arab Emirates, is considered a laptop university pioneer in the Middle East. The university's approach to implementing laptops in teaching and learning and the reactions of its faculty are examined. The attitudes of the surveyed faculty toward laptops can be summarized as being positive to very positive. Some thoughts about the future of mobile computing and its impact on education conclude the paper.

The Laptop University: A Faculty Perspective

"Wow! I wish they had this when I was in school." According to Bob Nelson, vice chancellor, Student Affairs, at the University of Minnesota-Crookston, this is the common reaction of parents whose children are enrolled in this pioneering laptop university. This reaction is certainly shared by many parents of students in one of the dozens of laptop schools in the world.

There was a time when working with computers meant that we used dumb terminals connected to the university's mainframe. Everything we could do with that terminal was limited by the computer's power and by the computer center's hours of operation. What happened next was too quick for some teachers and administrators, alike, to cope with: personal computers, the Internet, distance teaching and learning, and now, mobile teaching and learning, are greatly facilitated by the use of laptop computers.

Why Laptops?

Savvy university and college administrators realize that information technology should be at the top of their agenda. Information is indeed very important to all in an educational institution. It is especially important to students. For better access to information, wiring computers to the school network is crucial. In the past, the solution was to put computers in a classroom and hook them to a server. But wiring computer labs is not enough these days. Other school facilities should also have access to electronic information and resources and the trend has been to wire dorms, libraries, classrooms, and even school cafeterias. In addition, 24-hour access, facilitated by Internet providers, is desired.

The need to have access to technology and the continuous drop in PC prices have resulted in more and more students acquiring, on their own, the technology they need. This has widened the gap between the haves and have-nots. The inequity among students is now more acute than it used to be years ago.

Some colleges and universities, in an attempt to combat this, have adopted various programs whereby all students and teachers are expected to have the same software and hardware. In these schools, teaching and learning is based on this assumption. Laptop programs—whereby students and teachers are given (purchased or loaned) a laptop and a full access to the school network plus access to the Internet—are a viable solution to some of the problems inherent with student inequity. And although restricting the student from using different hardware/software may, at first, seem limiting to student learning, such is not the case. The reason for this is because in a laptop school, students do not depend on teacher office hours or computer center hours of operation, and they do not have to rely on campus facilities as much. In other words, students can now take charge of their own learning.

The motto today is "access to information anytime, anyplace," and laptops appear to address the issue. As an added advantage, laptop programs solve the problem of excessive inequity among students. All students can work on the same hardware and software supported by the laptops that the university has chosen. Some more reasons for considering laptop programs as a viable alternative to desktop computer labs at colleges and universities are the rapid advances in technology and the frequent upgrades of costly equipment that make desktop computer labs expensive to maintain.

Benefits and Drawbacks of Laptop Programs

Putting computers in the hands of students and faculty is a broadly effective educational strategy, argues Sargeant (1997). But is laptop computing really the wave of the future or just a fad? Any attempt to answer this question requires that we examine the benefits and the drawbacks of laptop computing. Some of the benefits of laptop programs—noted in The Node Learning Technologies Network (May 1999)—are:

- Ubiquity. If all students have access to information anytime, anywhere, then there certainly is equity.
- Project sophistication. According to Acadia university and others, student projects in laptop programs tend to be more sophisticated than projects in non-laptop programs.
- Design of student projects and activities. The Mac versus PC problem in designing student activities does not exist because all students have the same hardware/software. As a result, the task becomes easier.
- Shift to learning and teaching. Equipment issues are replaced with educational issues with benefits to teaching and learning.
- Savings. There is considerable reduction of desktop computing labs.
- Standardization. Institutions minimize problems of support and equitable access through standardization.

As with any innovation, critics would be quick to point out some of the problems associated with laptop programs. These—according to The Node Learning Technologies Network (May 1999)—are:

- Cost. Laptops are, in general, more expensive than desktops of equal power, although this is changing.
- Size. Small size does not mean comfort in computer use. The keyboards and the screens are too small and rather uncomfortable for some people, especially for students with certain disabilities (poor vision, for example).
- Theft. Laptops, due to their small size and portability, are easier to steal than desktops.
- Faculty workload. Developing curriculum and communicating (e-mail) with students in a laptop program environment tends to be more time consuming.
- Classroom management. Network and e-mail availability in class may create problems such as excessive online chatting and computer game playing.
- Access to online resources. Although this is a blessing it can also be seen as a curse. Students may not bother to visit the library because they expect to find everything online.
- Learning styles. Some students find it difficult to adapt to the laptop program's different student-instructor relationship and the roles of each. In this model, the students must be responsible for their learning and the teacher becomes the facilitator of learning.
- Evaluation. Evaluation methods need to be adjusted. In laptop programs, online exams are replacing the more traditional paper-and-pencil exams. Network availability during exams may increase the chance of cheating.

Some critics go to the extent to say that laptop programs do not address an educational problem but a financial problem instead. They argue that, although computers

do indeed have educational benefits (Berge & Collins, 1995), laptops may or may not have any additional teaching and learning benefits, as there is no sufficient research to support the one or the other (The Node Learning Technologies Network, May 1999).

Models of Laptop Program Implementation

Currently, there are four models for implementing a laptop program (The Node Learning Technologies Network, Spring 1999; Brown, May 1998). These are:

- required but not provided: setting a minimum standard or specifying a particular model of laptop and letting students make their own arrangements for purchase or lease
- provided by program: distributing laptops to students within a particular program or programs
- provided in phases: distributing laptops to all first-year students
- provided in full: distributing laptops to an entire campus at once

Most schools of higher education prefer the program-based model. This is the try-and-see-what-happens approach. Start small and expand if things work OK. Managing a campus-wide laptop program can be a nightmare, especially for institutions with large numbers of students, faculty, and departments. The University of Minnesota-Crookston is one of the few universities that distributed laptops to its entire campus at once. What makes this university unique is that it is the first institution to do so.

Some Examples

A list compiled by Brown (2001)—with the latest update being January 2000—shows that there are almost 100 colleges and universities in North America (Canada and U.S.) that have reported having some type of a laptop program implemented. This number is

increasing, as new institutes of higher education are joining in. Quite impressive since 1988 when Drew University in Madison, NJ, specified the first laptop computer, the Zenith 181, as the standard, and it became the first university implementing a laptop program.

Other pioneers in laptop computing include Niagara College and University of Ottawa who, in 1992, became the first Canadian institutions to require laptops in their manufacturing engineering technologies program (Niagara College) and executive MBA program (University of Ottawa). The first Canadian institution to issue laptops to its 1997 entire first-year class was Nova Scotia's Acadia University.

Instant fame came to the University of Minnesota-Crookston (UMC) which, in the fall of 1993, became the first institution to issue laptops campus-wide. UMC had to wire classrooms, labs, library and residence halls to the campus LAN. This was a tremendous task, but it paid off quickly when enrollment rose and representatives of dozens of other schools visited the university and learned that they, too, could follow in UMC's footsteps.

The University of Minnesota-Crookston is also considered to be the first ThinkPad University. UMC has provided ThinkPad 380XD laptops as part of the tuition and fees for all 1999-2000 students. A ThinkPad University is any institution that has adopted IBM's ThinkPad University program. Under this program, IBM puts IBM Thinkpad notebook computers into the hands of students and faculty members, helping to transform the way teaching and learning is delivered. ThinkPad University creates a truly connected community by:

- providing equitable and universal access to technology for all students,
- integrating technology into the classrooms and faculty buildings, and

- streaming implementation and managing support costs.

With classrooms, residence halls, offices and other buildings wired for online access, the laptop becomes a focus for teaching, learning, research and communications (IBM Global Campus Portfolio, 2000).

More than 60 ThinkPad universities are now operating in North America. Well-established ThinkPad University institutions are Wake Forest University and West Virginia Wesleyan in the U.S., and Acadia University and Collège Boréal in Canada.

The institutions named above are no doubt success stories of laptop program implementation. This is not always true, though. Humber College had good intentions of becoming the next laptop school, but had to abandon such plans in 1998. It ran into some difficulties that, according to those involved in the project, had nothing to do with lack of preparation or poor planning. In fact, there was a careful design of the pilot study and the training of faculty and, despite a tight time frame, the school was ready for the January 1998 launch.

However, several reasons for abandoning mobile computing emerged: lack of student financial commitment, theft, size of the pilot and pedagogy (The Node Learning Technologies Network. LTReport, The Laptop College, Spring, 1999). Humber is in a large urban area, unlike other schools—UMC, Wake Forest—who have successfully launched similar laptop programs. Crime was a bit of an issue, and casual theft was noted on Humber's campus. The main reason why the program was cancelled, though, was the faculty's uncertainty that they were integrating the technology into the classroom and the curriculum in a pedagogically sound and meaningful way.

Faculty Acceptance of Laptop Programs

The key to success in any innovation that affects the way teachers teach is to obtain faculty support. Without such support, the innovation is destined to fail, and the first thing that administrators should do is to poll the faculty. As Dr. Paul D. Escott, dean of the college at Wake Forest University said, “One of the wisest things we did here was to put it up to the faculty for a vote.” Escott is referring to the question of whether his faculty would approve the laptop program. As it turned out, it was approved by a three-to-one margin and was subsequently implemented successfully in the university.

University of Minnesota-Crookston is one of the most successful implementers of the ThinkPad University laptop program. As early as 1995, UMC asked its faculty to assess their personal experience since the implementation of the university’s laptop program two years earlier. Sixty percent thought that, as a result of UMC’s laptop program, the university had become a more exciting, dynamic and rewarding place to work. Of the faculty who replied to the survey, 75% thought that UMC’s laptop program increased student employment prospects, 100% believed that their computer skills were expanded as a result of the program and 78% saw improved communications. When the faculty was asked what application was used the most, the most popular responses were word processing (100%) and e-mail (96%).

Laptop Computing in the Middle East

Zayed University is an undergraduate university for national women, located in the United Arab Emirates. The university puts a lot of emphasis on information technology, and all classrooms are equipped with desktop projectors and network connections for all students. In fact, all university facilities are fully wired, and it is not unusual to see

students working on an assignment or simply cruising the Internet in the school cafeteria. At times, one can see students working in small groups while sitting outside in the university courtyard and, although not connected to the network, their laptops can work on battery for at least one hour. This gives the students an opportunity to practice with standard applications while at the same time, enjoy the sunny weather of the United Arab Emirates.

Much of the work is turned in electronically and is graded by the instructor and returned to the student electronically (Gessner, 2000). E-mail is the most common way of turning in assignments for grade, but some of the faculty chose software for their classes that is specially designed for this purpose.

The laptop is the primary tool that students use to complete assignments. With campuses in Abu Dhabi and Dubai, Zayed University is the first of its kind in the area to introduce laptop technology to all its students. It opened in the fall 1998 with a student population of about 1,000, but it now has more than 2,000 students.

The initial Zayed University faculty consisted of highly educated individuals, experts in their disciplines, who proved to be dedicated teachers. From day one—after they were given laptops and after a short (about three weeks) period of training—they were ready to teach with their laptops. Students, like the instructors, also were given identical laptops loaded with the same applications (Office 97 for standard applications and GroupWise for e-mail). Some teachers have been with the university since its inception, but others joined the university's faculty later.

How does this faculty, one year after the Zayed University laptop program started, like the idea of working at a laptop university? Faculty comments on student and teacher

use of laptops in the classroom range from the enthusiastic—"Can't survive without them"—to the disgruntled—"I avoid them in class because they are often a distraction for the students"—to the indifferent—"success with laptops depends very much upon the teacher's skill."

To learn more about faculty attitudes toward laptop use in the class, the following questionnaire was prepared and distributed to the entire Zayed University faculty:

1. Having my own laptop 24 hours a day helps me be a better teacher.
2. Having my own laptop is very important to me.
3. Having my own laptop helps me communicate better with others.
4. Working at a laptop university is fun.
5. Working with a laptop helps me improve my technology skills.
6. I believe that in a laptop university, job prospects for students increase.
7. I believe that students learn better in a laptop university.
8. I prefer to give "open laptop" exams (students can use laptops in exams).
9. I use my laptop every day.
10. I use my laptop for e-mail every day.
11. I use my laptop for Internet searches every day.
12. I use my laptop mostly for: (a) university work, (b) personal work.
13. I use my laptop mostly for: (a) Microsoft Word, (b) Microsoft Excel, (c) Microsoft PowerPoint, (d) Internet, (e) E-mail.

The surveys were sent via e-mail to the entire Zayed University faculty, numbering to about 200. Of the 56 respondents, 51 returned the survey via e-mail and

five chose to complete it by hand and drop it at the investigator's mailbox, possibly to retain anonymity.

The answers from the first 11 questions of the questionnaire were entered into a spreadsheet and the following chart was obtained:

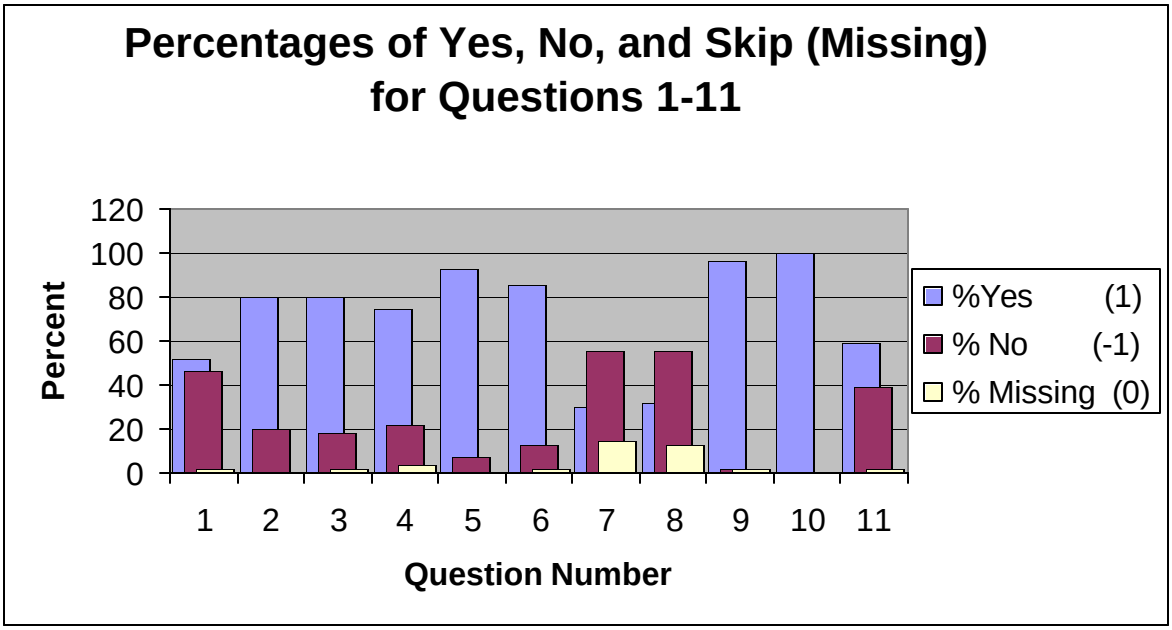

Figure 1. Percentages of faculty that answered "Yes," "No," and "Skip" (Missing) to the first 11 questions of the survey.

It is interesting to note from the above chart that, with the exception of items 7 (students learn better in a laptop university) and 8 (prefer "open laptop" exams), more than 50% of the respondents said "Yes" to all items. Most (93%) respondents thought that laptops help them improve their technology skills, and (96%) said that they use their laptops every day. All (100%) respondents stated that they use their laptops for e-mail daily. The most frequent applications were word processing (*Microsoft Word*—46%) and

e-mail (23%). The majority of the respondents (93%) said that they use their laptops for doing their everyday university work rather than their personal work.

These results are similar to the results of the faculty survey at the University of Minnesota-Crookston. Let us compare some of these:

ZU *	Laptops help me communicate with others	80%
UMC	Laptop programs improve communications	78%

ZU	Laptops improve my technology skills	93%
UMC	Laptop programs improve my computer skills	100%

ZU	Use of laptops increase job prospects for students	86%
UMC	Laptop programs increase student employment prospects	75%

ZU	Most frequent applications for faculty	Word processing, e-mail
UMC	Most frequent applications for faculty	Word processing, e-mail

(*) ZU: Zayed University

UMC: University of Minnesota-Crookston

Conclusion

In laptop computing, access is universal. Access is possibly the main strength of laptop programs. This universal access has an impact on education. It improves education because it promotes student adaptability and encourages lifelong learning. It also increases the relevance of higher education to students and society and enhances equity of access to information and education (Oblinger & Rush, 1998).

So, is laptop computing really the wave of the future? Enthusiasts have every reason to say yes. Critics, as we saw, will find equally many reasons to say no and will try to justify their argument that education is better off without laptops. The results in this study revealed that most faculty at Zayed University (and at University of Minnesota-Crookston) favor such programs. But will faculty be the determining factor for a success or a failure of laptop computing in schools? Or will it be students or, perhaps, the administrators? Although only the future can tell, it seems that we will play our part in influencing the future of laptop computing in schools.

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