

The LABTOP: A Transitional Approach to a Laptop-based Curriculum

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QUESTION

Can and should design programs transition from school-owned computer labs to student-owned laptops?

PROBLEM STATEMENT

A laptop-based curriculum represents a fundamental change in the way design courses are taught, classrooms are managed, equipment is expensed, and students learn. Balancing the stability of a traditional computer lab with the advantages of laptops (the “LABtop” approach) can provide students with the best of both worlds. At our institution, Sage College of Albany, we have equipped and managed traditional computer labs since 1984. The first lab we had consisted of well-researched, state-of-the-art equipment including proprietary systems from a company that went out of business the next year. This scenario has been repeated in various ways at design schools for the last two decades. We will discuss how we have blended traditional, dedicated computer-based classrooms and student-owned laptops for course delivery. Our experiences and observations in transitioning curriculum, technology management, and resource allocation will address the concerns many design faculty expressed at the AIGA National Convention in Vancouver this past autumn.

THE CASE FOR LAPTOPS

In the fall of 2003 we implemented a mandatory laptop requirement for students starting their third year. We have found that although the policy has introduced a few new and unexpected complications, it has been overwhelmingly positive for our students and our program. Some of the benefits of the decision include:

1. *A shift in expensing from the institution to the individual.* For over twenty years now design programs have struggled with the problems inherent in providing and maintaining computer labs for students. Costs continue to be significant and often consume a program's entire annual budget. Furthermore, with the popularity of graphic design programs on the rise, institutions are struggling to support increased demands for labs and computers. Requiring personally owned laptops shifts this burden, allowing institutions to purchase larger, shared resources such as large-scale printers, digital cameras, licenses for expensive software, and infrastructure (such as servers and network access) that can be used by all students.
2. *Ensuring equipment and software is always up-to-date.* At Sage, we require the laptops at the start of the junior year. With most major software on a roughly 18 month upgrade cycle, this means that students need to purchase, at most, one upgrade before completion of their bachelor's degree.
3. *Students have full-time, 24-7 access to the technology.* Students who have their own computers are no longer tied to limited open lab hours and the often unproductive atmosphere of a shared lab. Laptops allow students to work anywhere, anytime, day or night. As a result, students often work longer on projects, with more satisfying results.
4. *Students are required to take a more active role in caring for and maintaining the technology.* This may be one of the most compelling arguments for requiring laptops. Our experiences (and those chronicled by others at the AIGA Design Education web group) make the case for significantly greater student interest and engagement in technology issues as a result of ownership. Because they own the equipment, and because maintenance is now their responsibility, students invariably are more absorbed in getting the most out of their investment. They want to customize their systems, explore networking, and learn what's going on under the hood. It goes without saying that these skills, so difficult to teach in a shared-lab environment, are precisely what students will need to survive in an increasingly technology-dependent workplace.
5. *Classrooms become mobile.* For years we have had to carefully schedule our computer labs to accommodate both course delivery and open lab hours. As student numbers increased, this became increasingly difficult. With students walking in to class with their own laptops, our courses can now be taught almost anywhere network (wireless) access and power is available. This also allows for flexibility in cap numbers for classes (we shifted from 15 to 18 students per class, although this could also be debated as a negative result) and opens up more free hours for dedicated labs.
6. *Student collaboration.* We have been pleased to see our laptop students working in smaller groups outside the confines of the lab. This summer, without faculty instigation, a group of our students met on our building's porch to conduct Flash review classes and to socialize. A studio-style atmosphere, more closely resembling the work world, encourages more and better student-to-student interaction and collaboration.
7. *Curricular development.* Student-owned laptops can also be an impetus for cross-curricular possibilities. For example, at Sage, photography majors will also be required to have laptops in their third year starting this fall. We are already working with the photography faculty on new courses that will maximize the use of and potential for laptop-based curriculum.

Despite the aforementioned benefits, we have observed several drawbacks related to this decision.

Some of those include:

1. *Financial demands.* As college costs continue to rise, we seriously considered the financial implications of requiring laptops before instituting our laptop policy. Would the extra \$2000-3000 cost turn applicants and their parents away? Would the administration support such a requirement? As it happens, we found that the cost of a laptop can be bundled into a student's financial aid/student loan package. Students can also take advantage of other financing programs such as those offered directly from computer manufacturers such as Apple. It is also worth considering that the cost of the art supplies purchased over time often comes close to the cost of a laptop. Furthermore, a laptop requirement can give students the leverage they need with parents to rationalize the purchase of an extraordinarily useful tool.
2. *Differing hardware and software configurations.* Despite our efforts to standardize software and hardware requirements, issues of incompatibility can arise. It is easy enough to provide a set of baseline requirements, and our laptop policy makes it clear that students who come to class with different configurations, operating systems, or software are responsible for the consequences. But what about those students who choose to exceed the minimum requirements? This can create a much trickier problem. This past year, for example, several of our students elected to upgrade to the new Macromedia MX2004 suite, although our requirements specified the earlier, MX series. As the two versions contain some significant differences, this created a distracting environment in the classroom, as the instructors were forced to try to teach both versions simultaneously. While the students who chose not to upgrade could make the case that they were meeting the stated requirements of the program, those who purchased the new version made an equally compelling case: they wanted to be as prepared as possible for the workplace, and that meant becoming proficient in the latest software.
3. *Consequences of student-maintained equipment.* Leaving technology and technology management to students can also present a problem. It shifts the burden of preparation and maintenance to individuals with varying levels of expertise. What if a computer is not working? In for repair service? Crashing often? Running slow? For students, all of these factors can affect their ability to use the laptop and, consequently, their ability to complete their coursework. Some colleges provide loaner equipment for just such emergencies, a policy we are now investigating. Nonetheless, even in the best of circumstances loss of a laptop is disruptive in a way that the loss of a lab computer is not.
4. *Software piracy.* Although piracy is a widespread problem on every campus, it becomes a particular concern on laptops where it can affect the performance of software required for class, thereby affecting the pace and effectiveness of course delivery. We have encouraged students to buy licensed software and have offered, by way of corporate partners, loan programs, and the ability to build costs into tuition, every incentive to purchase legal software. We also recommend students purchase a collection of legal fonts, such as Adobe's Type Classics disc, which provides them with approximately 100 fonts.
5. *Non-majors.* While some programs make no accommodation or even room for non-majors, others do, so how should non-major or undecided major students be handled? Should they, if allowed to register for a class that requires laptops, be made to have one for just one class? One way we have reduced this problem is by requiring laptops only on the junior level and above, courses that non-majors are much less likely to take. When we do have the rare non-major in one of these classes, the laptop requirement stands as written.
6. *Privacy issues.* With individual machines and wireless networks, another question arises: how can instructors manage and control problems such as e-mailing and net-surfing in class? Software such as Apple Remote Desktop can be used in dedicated labs to discourage such practices, and some instructors in other colleges are requiring students to install software (such as Altiris Vision) that allows them to see what is on their students' laptop screens.¹ The *Chronicle of Higher Education* reported recently that some schools are installing kill switches, which will limit Internet access to prescribed time periods².

Other unexpected or external considerations resulted from our laptop policy. For example, when deciding what software to recommend for page layout coursework, we struggled with requiring Quark Xpress. Its expense, and, at the time, its incompatibility with prescribed system software, led us to make the switch to InDesign. This required additional faculty training and curriculum changes. Likewise, we found it completely necessary to have a dedicated server to provide our newly mobile student population a virtual "home base" to share resources and store information.

THE CASE FOR DEDICATED LABS

1. *Access.* Access to dedicated labs is necessary for nearly all academic majors today. Even though many students arrive on campus with better systems than we use in our offices, others lack the means and need to rely on college-provided equipment. For those students, having the dedicated lab means the difference between completing an assignment or not.
2. *What's your major?* It may be that first twelve-hour shift in the computer lab. Or perhaps it's finding out that we really care that they know when to use an em dash that sends students running for a change of major sheet. Considering that 60-75% of students with declared majors change their major at least once in four years³, it is likely that some graphic design majors will not graduate as such. For these students, having to make the commitment of purchasing a laptop with design software simply does not make sense. A dedicated lab provides them with the resources they need as they figure out where they really belong.
3. *Stability.* The great advantage of a computer lab is that the institution can insure a consistent configuration (software, printer drivers, etc.) across the board. This is especially important for students in their first two years, who are only just becoming acquainted with the technology and the software. By removing the distractions of maintenance and configuration, beginning students can put their entire focus on learning the fundamentals. Furthermore, having an identical set of computers in a lab setting makes teaching

fundamental tasks (“go to this palette, click this button...”) immeasurably simpler.

4. *Adjuncts*. As tenure-track contracts go the way of the floppy disk and C=average grade, colleges across the nation, including ours, are increasing their reliance upon adjunct instructors. Adjuncts frequently end up teaching the freshman and sophomore classes, where students are grappling with basic skills and concepts. As these instructors tend to have more limited time for both class preparation and interaction with students, the need for a consistent, controlled teaching environment is of increased importance. A dedicated lab assures them that they can hit the ground running when class begins.
5. *Shared resources*. Computer labs allow for the use of certain types of technology that are more difficult to implement in a laptop-based setting. Remote management software (such as Apple Remote Desktop[®] or Timbuktu[®]), fonts, smart boards, scanners, and similar shared-technology are much easier to implement in an environment where nearly all aspects can be controlled and standardized. Again, these resources are especially important during the first two years when most students are still finding their way.

THE LABTOP APPROACH

We believe that the best solution for design programs is to combine traditional, dedicated labs with required laptops. Our experiences show that the right balance lies in providing and using dedicated labs for the first two years of a bachelor’s program and requiring the laptop at the beginning of a student’s junior year. This juncture is a critical point in the students’ academic life -- the point at which they must decide whether or not they are willing to make the commitment to pursue the major. In our case, the very structure of our program dictates this: Students are accepted into the BFA program (or not) at the end of the sophomore year, thus making it a logical point of policy implementation.

Initially, we considered requiring laptops from the beginning of our students’ academic careers. However, experience has shown us that, while immensely valuable, laptops are not a panacea and, in fact, are often not even appropriate for students at a certain level of development. The right mix, it now appears to us, is a solid technical foundation in a controlled environment, followed by an increasing independence and responsibility on the part of the students. As their skill set grows, so does both their capacity to understand and care for the equipment, as well as their enthusiasm to do so. This mix, the “LABtop” approach, allows us to reduce our financial and administrative burden while simultaneously preparing our students for the workplace in the most effective way we know how. It’s a win-win situation for all involved.

¹ Buffalo Business First, “Going Offline in Class Gets Students on Task,” Tracey Drury, October 22, 2001.

² The Chronicle of Higher Education, “Business Schools, Fed Up With Internet Use During Classes, Force Students to Log Off,” Katherine S. Mangan, September 7, 2001.

³ NACADA website, <http://www.nacada.ksu.edu/Commissions/C13/>.

BIOS:

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Matt McElligott is an Associate Professor and Art Technology Coordinator at Sage College of Albany in Albany, NY. A past president of the Graphic Artists Guild of Albany, Matt has been a professional illustrator for fifteen years and is the author/illustrator of several children’s books, including his latest, *Absolutely Not* (Walker & Co., 2004). He is currently working on the story of the hairiest pirate who ever lived and his quest to buy a new outfit.