

Sustainable Learning In Technology Intensive Programs

Introduction:

At many institutions of higher learning today, instructors often find themselves having to introduce a significant amount of new technology into their courses as they continue to incorporate traditional components. In programs that address digital media design and/or communications, there is a need to teach students a broad array of technology. Making this more complicated, most of this technology is regularly updated, changed or replaced. Instructors in this area (and, by extension, ones that incorporate a similar amount of technology) can easily spend most of the time in their courses teaching to the technology needs of the curriculum. Therefore, it is important to find appropriate ways to transfer a significant portion of the technology learning from where it usually resides inside the classroom to locations and times outside of the classroom. The research in this project will attempt to prove that this can be achieved by assigning a large measure of the technology learning to students and that it be done primarily outside of normal class time. This shift in approach to teaching technology will give instructors more class time to focus on the other primary learning objectives of the curriculum that are, perhaps, more challenging for students to learn well. Furthermore, it is essential to the long-term success of students that they master strategies for learning technology on their own; essentially they must learn how to learn technology. Achieving this will allow students to sustain what they've learned beyond the limits of a course or program and will give them the ability to adapt to any future changes in the relevant technology. Students can reinforce their newly acquired skills by mentoring peers. In sharing their knowledge, students will further their understanding of how best to learn.

1. Nature and Goals of Project:

Most digital media design/communication students are tasked with learning a large amount of technology alongside more traditional topic areas like visual aesthetics, communication theory, design principles, content development, etc. Communications students at Elon face many of these challenges; the new Interactive Media students are especially challenged in this regard. Many other academic programs are similarly challenged vis-à-vis their own specific disciplinary technology. However, few programs try to do so in as compressed a time frame as the iMedia program does where students earn their MA degree in a fast-paced ten months.

There is a necessity to compartmentalize this project into two distinct segments. First, work needs to be done to determine the ways in which students in this type of program view the technology components of their education in comparison to their views on the other primary learning objectives. With respect to the Scholarship of Teaching and Learning, this points to a "What Is" type of question. To effectively address this inquiry,

questions such as the following need to be answered: Do students see learning technology as an equal player in their curriculum or do they perceive the major curriculum areas in a ranked hierarchy. If so, which do they assign the most value? Which areas do they think are the easiest – or hardest – to learn well? Which components do they believe will have the most significant impact on their future careers? Which curriculum topics do students think their instructors should spend the most time on in the classroom? Who should be responsible for helping them digest the majority of the technical course material: the instructor or themselves?

Second, to establish a set of pedagogical best practices, we need to answer a "What Works" question. Specifically, what pedagogies can be employed to best educate students about the technology aspects of their curriculum while also thoroughly addressing the other primary program objectives? To do so, we believe we must find ways to place a greater amount of the onus for learning technology on the students themselves. As we do so, we must provide outside the classroom resources to support this new level of student responsibility. In a nutshell, our task at this stage will be to create a "sustainable learning" model. Part of successfully teaching technology should be about teaching students how to learn technology on a meta level rather than simply teaching whatever the technology du jour is that semester, year, course, etc. If students understand a learning process that allows them to solve technology challenges beyond the classroom – or even the degree – then we will have created a successful student for a lifetime.

Throughout this project, we will keep the "sustainable learning" concept at the forefront of our research. We see this approach as integral to how we can best help students become – and stay – actively engaged with their learning processes while they absorb large amounts of technology. We think this model will work best if we invite students to participate in the learning process by sharing their knowledge with others. We believe this will reinforce and sustain what they've learned. Ultimately, what we want is to persuade students to embrace two concepts: learning how to learn technology and sustaining that learning via sharing. We hope that this concept of sustainable technology learning can eventually be adapted in other disciplines.

2. Student Involvement:

In the first year of the project, students' views, beliefs and values as they pertain to learning technology will be surveyed and analyzed; their role will be passive. As we transition from investigating a "What Is" question to a "What Works" question, we will become increasingly reliant on students as active participants in the project. We will directly involve students in the implementation of the teaching strategies that emerge as potential best candidates for our study; they will be our link to evidence for what works and what does not. Some possibilities during this stage of the study might include having more advanced students serve as teaching mentors via

mentor/novice pairings or possibly as teaching assistants in a tutoring lab structured similarly to the math, foreign language and/or writing centers that are relatively common in higher education today.

As we work through this project, it will be our overarching goal to determine the best ways to actively engage students in their technology learning processes. It is essential that we determine ways to have students prioritize what they can learn on their own with what they must learn from their instructors. Furthermore, we need to make sure that students become more cognizant of how their instructors see the technology learning process as it relates to their own views. If students can begin to appreciate the following – that technology is 1) generally the easiest to learn of the primary curriculum objectives, 2) the aspect of their learning that they have the most control of, and 3) the curriculum component that they will have to be vigilant about as they transition from school to the working world and beyond – then we will have made real progress. Essentially, success with this will free students to obtain the necessary aesthetics/theory/strategy/etc. that are vital to their education.

3. Teaching and Learning Evidence and Effectiveness:

We will produce evidence of effectiveness in two ways: first, as we seek to address the question of what a successful communication design student looks like, we will gather survey data from students that we can analyze and from which we can extract common themes. This evidence won't, in and of itself, produce better teaching strategies or more effective learning, yet it's hard to deny the notion that in order to effectively teach students one must first understand them.

As we transition to the second phase of our study we will produce more tangible evidence of pedagogical effectiveness. If we can demonstrate ways to teach students technology that don't absorb the majority of their time in class we will have achieved one level of success. If we can deliver effective strategies for promoting sustainable learning while students are enrolled as well as after they've graduated, we will be able to assess success at a further level. Ultimately, through critically examining and assessing the approaches we use to teach technology to students, our goal will be to show an improvement in the level of sophistication in student understanding and an ability to sustainably learn in a field that evolves rapidly.

4. Teacher-Scholar Implications:

The implications of this study, if successful, are significant for us as instructors of communication design. If it can be shown that through the use of specific pedagogical strategies students can be persuaded to take ownership of a greater amount of the responsibility for technology learning, then we can spend more time in class teaching to the meatier, more nebulous, and often more difficult to master theoretical components of the

curriculum. By extension, the same should be true for those who teach in other academic areas in which technology learning must be successfully coupled with other primary curriculum objectives.

5. Potential for Dissemination:

The net results of this research project should provide useful information for anyone teaching in an academic area that is challenged with teaching a healthy dose of technology. We will be interested in sharing the results of our research with the campus community at-large and especially with those who find themselves similarly challenged with having their students synthesize technology with discipline specific goals (i.e. digital art, computer science, technical writing, medical technology, theatrical design/production, etc.).

There will be ample opportunity for public dissemination of the results of this research at each stage of our research. As we finish each stage we will look to publish the results of our research in discipline specific journals and/or conferences. We also believe that this information will be of special interest to the SoTL community through journals and conferences.

6. Timeline and Budget:

Both investigators were previously selected to represent their respective universities as Teaching Fellows in the University of Wisconsin's Teaching Fellows and Scholars program in 2008-09. Our individual projects investigated similar SoTL issues inherent in the digital arts and communication design fields. Some data has already been gathered from students enrolled at each respective University of Wisconsin campus. More data is needed; surveying Elon students will add to the richness of what has already been collected. For comparison purposes, survey data also needs to be gathered from two other groups: instructors that teach in this area and industry professionals who work in related fields. This needs to be accomplished so that we can attempt to distill from the data specific strategies that will allow us make progress with our overarching issue.

In light of this, the timeline for this project will be constructed in two parts: The first year will be devoted to completing the work already begun in Wisconsin and will focus on answering a "what is" question. We will design (or adapt) survey instruments for three distinct populations: students enrolled in communication design programs; faculty and staff who teach in these programs; and industry professionals whose careers encompass communication design. The survey instruments will ask each group questions about how they view and value technology as it fits into either a communication design degree program or related career. With respect to student groups in particular, we will design and administer surveys at both the beginning and end of a given semester as a means to further discern student views and whether or not they change as students progress through their program.

This will be followed in the second year by research into answering a "what works" question. Students who have demonstrated strong understanding of technology and the means to sustain this learning will be selected to mentor other students who lack essential skills and understanding. By using experimental and control classes we will compare (through pre and post surveys) student learning outcomes with and without student mentoring (or tutoring) to determine effectiveness.

Project Year 1			
Summer	Design survey instruments (for students, instructors and professionals)		
Academic Year	Administer surveys	Collect data and analyze data	Assess results

Project Year 2			
Summer	From survey data analysis design 1-2 pedagogical strategies that employ control groups as a means of measuring effectiveness	Choose student mentor participants *; choose courses in which to implement pedagogical strategies **	Design pedagogical strategies; design survey instruments
Academic Year	Implement pedagogical strategies	Survey experimental and control classes at beginning and end of semester	Collect and analyze data and assess pedagogical strategies

* Possibility of using students enrolled in the iMedia program

** Most likely to focus on undergrad courses that incorporate a healthy dose of technology and that have abundant sections (COM 220: Digital Media Convergence or COM 360: Interactive Media)

In terms of budgetary requests, we are requesting funds for travel, software, summer salary stipends and student stipends:

The travel budget will allow us to participate in various SoTL conferences where we will share our findings with others working in this field. We have both participated in various SoTL conferences as presenters in the past and feel confident that our work will be well received and will represent Elon University as a leading institution in investigating innovative pedagogies. We are targeting several annual conferences for presenting our findings: the SoTL Commons Conference, the International Society for the Scholarship of Teaching & Learning Conference, the New Media Consortium Summer Conference, and the MERLOT International Conference.

The equipment budget will be used to provide us with surveying software tools and data analysis technology (and to provide any training, if necessary).

We feel its necessary to continue teaching our current technology-related courses in order to closely observe our classes. Therefore, we prefer not to take advantage of semester course releases. Instead, we would like to receive financial support to focus on the proposed project during the summer.

In the second stage of our project, we will compensate students that we recruit for mentor/novice pair work and/or as teaching assistants who will facilitate efforts in a tutoring center.