

Transformative Assessment of Educational Uses of Technology. Early Glimpses

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Abstract: Some institutions foster specific educational improvements not only through traditional methods (e.g., faculty development, technology support, budgets, mission statements, course evaluation procedures, ..) but also through the use of a variety of studies (e.g., by faculty of their own courses; by the institution of students, services, materials, and programs). In effect, these other institutional processes are being aligned with assessment studies in order to promote a particular sort of improvement in the institution's program. Some of the possibilities are suggested by interviews with leaders at three institutions, the University of Central Florida, Mount Royal College (Calgary, Canada), and Washington State University.

By "Transformative assessment system" we mean a routine that fosters educational improvement through 1) the systemic use of inquiry: studies of courses (often by the instructors who teach them), studies of majors, studies of libraries and other services, studies at the institutional level – many of which focus on the same issues, and 2) the alignment of such studies with mission, planning, budgeting, development and other key institutional processes so that, together, they tend to foster improvements in directions of high priority for the institution, its staff, students and constituents.

Assessment can potentially play several constructive roles in the improvement process, including:

- Providing an occasion to focus on operationally useful definitions of goals and strategies (needed to define the assessment studies but also useful for planning, budgeting and other purposes);
- Providing documentation of achievements and problems that can guide efforts to improve teaching and services, and aid in the solicitation of new resources for the program;
- Helping maintain the program's focus on a particular direction for change for enough years to attain meaningful improvements in outcomes.

That's the definition but reality has a habit of being more interesting, if not as neat. A few faculty used computing to improve learning as early as the 1960s and e-mail made its appearance in educational programs as early as the PLATO system in the 1970s. But only in the last decade have many institutions had enough infrastructure, enough trained faculty, and enough interested students to justify thinking about technology playing a role in programmatic and institutional improvement efforts. Most have attained that level only in the last five years. The last decade has also seen a considerable increase in societal interest in assessment. The two shifts are not unrelated. Technology adds to both the cost and the uncertainty of improvement efforts. Assessment can help to

decrease risks while providing some guidance for efforts to make better use of time and money.

In recent weeks, I have begun a series of interviews with people at institutions whose assessment of educational uses of technology seemed likely to be playing a transformative role. These sketches are an early report from the front.

Distributed Learning at The University of Central Florida (UCF)

I spoke with Chuck Dziuban, Professor and Director of the Research Initiative for Teaching Effectiveness at UCF. “Distributed learning” has been the focus of improvement work, including assessment there.

SCE: What was the foundation of your studies to advance the development of distributed learning at UCF?

CD: Our evaluations had to align with our institutional culture, a large metropolitan research university with a real commitment to serve our region while also building programs of national promise in selected areas. We also decided as early as 1996 to warehouse large amounts of data, because we didn't know which data would ultimately be important. We knew that data don't equal information. Data need to be translated into forms decision-makers can use.

SCE: Can you describe some of your findings?

CD: Early on we discovered that a large majority of students who took fully online courses also took courses on campus and spent time here. That led UCF to develop the "M" course: reduced seat time courses that used the Web for part of the instruction. M courses helped us use our classroom space more efficiently. In a later set of studies, we then documented that the M courses have equal or superior success rates and comparable or lower withdrawal rates compared to similar traditional face-to-face courses. We compared success rates in W courses (fully online), M (web instruction replaces a portion of face-to-face instruction), E (web use, but not reduced seat time), and no use of IT.

We're also looking at the cognitive style of students who choose W courses (they tend to be dependent learners; they need some kind of approval from authority figures; high academic profile); independent learners tend not to be drawn to W courses; we don't yet know why.”

SCE: I gather UCF is helping faculty to do studies of their own courses, studies that often align with research done at the institutional level.

CD: We're trying to develop a collage of related studies. But we make no judgment on the projects faculty are doing; they don't have to line up with ours.

SCE: Are there instances where findings related to one another, or where studies fed off one another?

CD: Communications patterns of online courses... Individual faculty members have found that interaction is better in quality and quantity. That comes from several individual studies. Our office is now going to look at that at the institution level, at communications patterns. Another example: Individual faculty have studied gender, ethnicity impact – are there differential impacts of these courses on success rates of different types of students? One thing we've found consistently is that fully online courses (W) are disproportionately female and it's not an artifact of discipline, and the females succeed more than males. Why? Maybe women are more able to take advantage of the medium by collaborating – we don't yet know. These are the kinds of things we're going to look at next.”

SCE: When faculty do studies of their courses, does it help in promotion and tenure decisions, or is it a distraction that can pull them away from the things that are really rewarded?

CD: It depends on the department and the college. It helps in some, and not just in the College of Education at UCF where research on pedagogy is highly valued.

SCE: Any studies done at the level of the department or the major?

CD: “Our first attempt will be to look at the outcomes of our web-based nursing program. When they enter, the students have already finished their clinical component; we provide the courses. We're working with our nursing program to evaluate the job performance. It's a complex and difficult study. Our next such study will be focusing on our Educational Media Masters program, and we hope they'll work together to at least some degree, because some of the issues are similar.”

SCE: Have your findings influenced faculty support?

CD: “When faculty started teaching in M and W courses, they encountered all kinds of problems. M courses typically have one class meeting a week instead of three. We got feedback from M courses indicating that students had real IT problems. So our Course Development and Web Services department developed a CD-ROM – the Pegasus Disc – to answer the majority of the questions and do some automatic debugging.

SCE: How is this transformative assessment focused?

CD: “We began this by calling it a distributed learning impact evaluation. A criticism we got a couple years was that we were spending resources to study and improve distributed learning while no such effort was made to evaluate the "traditional" program. The provost responded that was good point and changed it into evaluation of teaching effectiveness. So our mission now is to help all faculty.”

SCE: Institutions are easily distracted. How has UCF maintained the focus for five years?

CD: Our President, John Hitt, is very strong on the idea of strategic planning. All units develop plans and they all relate to five broad institutional goals. That's how we get this cross validity of initiatives. The Provost, Gary Whitehouse, has been a strong supporter, too. Also, our Vice Provost for Information Technologies and Resources, Joel Hartman, has assembled a wonderful infrastructure. That's not the only thing that helps us maintain focus but it's been really important. We have reached the point now where our students and faculty are enthusiastically asking to go online."

SCE: What sort of financial commitment has the institution made to this kind of assessment? How big is it?

CD: "We have an adequate unit. We're funded internally each year. We have two faculty members full time, two graduate student assistants, so we can provide support for all faculty who ask. We're able to work with about 40 faculty a year. We've helped produce countless presentations for conferences by faculty and about 10 faculty articles have come out of the work so far."

SCE: What's been frustrating?

CD: "It's been like turning an oil tanker. This is a big institution. Institutional change is a long, incremental kind of process. What's positive is that we know that it's a long term commitment and we're committed to it in terms of funding and opportunities."

SCE: What's next?

CD: "We're de-emphasizing comparison kinds of studies to see how good "M" or "W" courses are relative to others—we're past that. We're interested in tracking how the institution changes. What are the changes in faculty development? What are the revitalization possibilities for our faculty?—our uses of the Web seem to be energizing some faculty who had seemed to be burned out. I'm also very much interested in how one indexes the transformation of an institution and the infusion of technology. What are the predictors of success? For example, I suspect that the department is a very important predictor."

Study the Process of Using Technology to Improve Teaching at Mount Royal College

I spoke with Patricia Derbyshire, Coordinator of Institutional Assessment and Market Research at Mount Royal, which is Calgary, Alberta, Canada.

SCE: Patti, tell me about the TITLE Project.

PD: TITLE stood for "Technology Integration in Teaching and Learning Environments." The project lasted for about 18 months, from fall 1997 to spring 1999.

TITLE related to the College's strategic plan but there was also a strategic plan called TIP (Technology Integration Plan) to get computers onto faculty desk and to train them, especially regarding the use of technology for teaching and learning. TITLE affirmed that faculty preferred to tie technology into educational ideas such as the 'seven principles of good practice' and it gave them an opportunity think about technology in terms of how to use it instruction.

SCE: What role did the TITLE studies play in moving that line of work forward?

PD: This was an important focus for administrative and strategic support early in the integration process. There had been no formal snapshot to this point of what was actually going on with technology in teaching at Mount Royal. For faculty who were unsure of even starting to use IT, the findings from the TITLE studies gave them something to review and consider. There were about a dozen studies carried out as part of TITLE.

SCE: TITLE studies impressed because they were both useful and extremely varied. Can you tell me about examples of some of the different kinds of studies that were done?

PD: One type of study looked at individual courses. Our first study of this type was a pilot in the English department involving 5 sections of a composition course, each taught by a different instructor, and about 100 students in all. One thing that study showed was that students were surprisingly diverse in their past experience with computers coming into a course, and that that difference made a difference in what happened to them in the course. Students who were new to computers and feeling intimidated often skipped the training. Ironically, students who were very experienced with computers also skipped the training. Skipping the training hurt both groups because much of the training was specific to the course.

In the course, students were asked to e-mail essays to one another, edit essays they received, and then send them to the instructor. But our study showed that many students didn't understand they were being asked to do this. The next time the explanation was changed and those student complaints vanished.

Our study also uncovered problems with the infrastructure and its reliability; those findings went to the administration. If an institution wants faculty to rely on technology, the infrastructure needs to be reliable, or the window of opportunity created by initial faculty good will closes in a hurry.

When we repeated the study of that course the next term, after our findings had been used to change things, those concerns about training and competence had disappeared. Now we always advise faculty to formally think about the support that students will need, how to invite the students to use the support, and how to engage them.

SCE: At least one of your studies focused on courseware, didn't it?

PD: One focused on a CD-ROM on sports injuries, developed by our athletic therapy program, a post-degree certificate program. The CD-ROM enabled students to look at streaming videos to help them learn how to assess injuries. While I was doing observations of the use of the disc, I saw students working together at computer terminals in the college labs. The instructor hadn't realized how actively the students were going to engage the material.

We learned two lessons from that: a) to design the technology for conversation and assume of direct students to be studying in pairs rather than as individuals, so that they'd talk about what they were doing, and b) to get laptops for students so that they could use the CD while on the athletic fields; it helped shift him from a textbook frame of mind to a working tool perspective. It was an important transition.

SCE: Did TITLE do any studies of majors or departments?

PD: No. Even today at Mount Royal it's still unusual to think on that scale. After close to five years, we've had our first request from our School for Business Insurance Program.

SCE: How about studies of services?

PD: We studied the student technology assistant support program ("START") separately. These are trained undergraduates who help other students and faculty use technology. We found that they were really effective in helping improve student and faculty competence and confidence -- so that faculty could focus more on course content. That study helped create the basis for moving the START program into the operating budget.

SCE: What other sorts of studies did TITLE do during the brief life of that project?

PD: We studied three separate programs that dealt with faculty incentives and support for using technology to improve teaching and learning. What we learned, especially from the initial studies, was that equipment-centered training was a very superficial way to deal with instructional issues. The Academic Development Center (a T&L excellence center) expanded from three staff in 1997 to close to a dozen plus to provide support that was more T&L centered.

SCE: What was the relationship between TITLE and the strategic planning process at Mount Royal?

PD: We were constantly referring to the College's strategic plans and to the TIP document. The way the College's plan and budget were written, these technologies would be put in place, faculty were to be trained in using them, and the outcome was supposed to be increased integration of technology into teaching and learning. We learned quickly that we were giving faculty very little support to actually think through that process of use technology to improve a course or their instruction. Faculty needed occasions that would help them think about how to think about their own courses -- a cookie cutter approach wouldn't work.

SCE: It seems to me that was an unusually good effort to do assessment and line it up with institutional strategy at MRC. How did that happen at MRC when it's so unusual elsewhere?

PD: A concern here with accountability is part of it. Also, there are people here who want assessment to be meaningful; that's made a difference. These days we're looking at full alignment of assessment across the strategic plan, and integrating it into the work of the College rather than seeing it as an add-on. We've see assessment as one of our tools for creating improvement. Also, our approach to assessment uses contemporary models that are inclusive and participatory. Interested faculty are involved in the design and refinement of the assessment at every stage—it's not done "to" them. It's respectful approach and utilizes their expertise. In the end, we have a strong assessment process and relevant results that contribute to change.

SCE: What are the promotion and tenure implications for faculty who do their own studies? I know that, since TITLE ended, you've been working on a new project at Mount Royal to redefine the end-of-course evaluation.

PD: Mount Royal is a college that's prided itself in thinking about teaching and learning. That's our competitive advantage in our market. And yet there was this really big hole in how, and when, faculty could think about powerful approaches to teaching and learning. So, along with TITLE, MRC was drawing on other ways to emphasize the quality of instruction. One of those other initiatives was to rework student evaluation of instruction; the push came from the faculty and student associations. We took a hard look at the old survey and no one could describe or justify where those questions had come from, or what made them valid measures of quality. So we worked with 50 faculty and 50 students to conduct fundamental research mapping the components that affect student learning and that can be tied to real practice. This process, also inclusive, translated into a parametrically valid and reliable set of questions that we'll test beyond the College in the near future.

SCE: It seems like the College has put substantial resources into assessment.

PD: There's real social concern with these issues in the college and in the province. TITLE and some subsequent work are government funded. In Alberta, there are a number of institutions with people, like me, who are full-time assessment specialists on staff. We have a provincial network of such staff.

"GAPs" at Washington State University

My respect for the work at WSU was kindled by many conversations with Gary Brown, Director of their Center for Teaching, Learning and Technology (CTLT). For this essay, I interviewed Tom Henderson (Assessment Coordinator), Dennis Bennett (Information Systems Coordinator), and Carrie Myers (Graduate Staff Assistant), all associated with CTLT.

SCE: WSU has become known for its Goals, Activities and Practices (GAPs) survey system for helping faculty get a better understanding of what students expect in a course. Tell me about that.

Tom Henderson: GAPs is used mainly to improve courses developed with Course Management Systems. It's really a series of three surveys.

1. Instructor survey that asks them to describe goals, and the activities to foster that kind of learning. We send back a Web page (Report #1) with a summary of their results, compared with their peers in the faculty.
2. Student survey #1 is sent out about two weeks after instructor survey. It asks the students about their goals and also asks them to describe the kind of assessment that would best reflect what they learn in this class. For example, the survey asks them to rate the relative importance of several assessment mechanisms, such as "creative projects" and "multiple choice exam." Report #2 to instructors includes their students' responses plus the instructor's response to the analogous questions (from report #1)
3. Student survey #2 is sent out around the middle of the term. It's based on the seven principles of good practice in undergraduate education. For example, it asks students to make judgments about the way that this course uses online environments to communicate, whether they received prompt feedback online, and so on.

SCE: So survey #2 is asking whether the technology is being used in ways that usually improve learning outcomes. That makes sense. How have GAPs findings affected programs at WSU?

TH: Our analyses helped influence the distance learning program to request strongly that all web-based courses be created with a formal course development process that involves both the critical thinking rubric that WSU has developed and the GAPs analysis.

Dennis Bennett: Carrie Myers and I are using GAPs data to predict the kinds of faculty that are most likely to be successful teaching with technology. Our work is still in early stages.

SCE: In looking at transformative uses of assessment, we're especially interested in how and why studies align with one another and with budgeting, mission statements, faculty development, day-to-day improvements in teaching and other elements of operation and change. How is that alignment process working itself out at WSU?

TH: It's the absence of structure that has been most important. The people were there and interested in the issues and there was no other institutional solution or structure getting in the way of them working together. That gave us more of a free rein to do this ourselves.

Jane Sherman, our Associate Vice Provost, and Doug Baker, Vice Provost for Academic Affairs, were key in recognizing all this.

SCE: What are the career implications for faculty who do studies?

DB: It's becoming common for faculty to study their own courses. I just talked with a faculty member who wants to study the online journaling (peer to peer interaction) as it relates with instructor-centered conversation. I talk to 6-12 faculty a semester who are interesting in starting a study.

TH: But few colleges in the University formally reward faculty who study their own courses. Many administrators personally encourage this kind of work, however.

SCE: What's been most frustrating so far?

TH: There are few signs as yet that faculty are talking with one another about the GAPS data or using it to improve their courses. The lesson from GAPS was that gathering good data alone is insufficient for meaningful transformation. Many faculty do not know how to translate survey data on the teaching and learning practice into substantial changes in pedagogy. WSU has had significant gains in this respect with a critical thinking rubric, which we are trying to integrate with the GAPS Survey process. The rubric provides clear and discrete goals that can be applied all or in part to individual assignments and learning activities. As we put the rubric and GAPS together, we should be able to help faculty see what is going on in their courses and provide them more direct guidance for improving the courses.

SCE: How can people find out more about GAPS?

TH: There's background information on the Web at <http://assessment.ctlt.wsu.edu/spring2001/index.htm>.

Bit by Bit, Putting It Together...

These glimpses of transformative assessment at three institutions are probably a bit of a Rorschach test, but here's what I see so far in the inkblots.

First, "transformation" may (for some readers) set too high a bar for the kinds of improvement we're talking about. In the institutional context, it might even be threatening to label the goal "transformation." Instead, the assessment efforts are identified with a particular kind of improvement that has some internal priority and legitimacy (distributed learning, using technology in teaching, aligning student and faculty goals) rather than with "transformation."

Second, the theme may or may not explicitly relate to technology. It does at UCF where technology is examined in relation to access, equity and richer forms of instruction. At

Mount Royal and WSU the focus in on technology in service of good teaching-learning practices.

Third, “transformative assessment” might sound like assessment by itself can cause transformation. That’s the opposite of our point. To use Patti Derbyshire’s words, assessment shouldn’t be seen an add-on. Chuck Dziuban sees institutional culture at UCF as a foundation for their work in assessment. Assessment is only effective in fostering change when it’s closely linked to other facets of institutional life and change.

Fourth, this alignment of studies and action seems to result from a mix of top-down and bottom-up strategies, with assessment specialists playing a keystone role, not just by their own work but also by the way they help others. People in the chief academic officer’s office also are often mentioned. So a team approach makes sense, especially if there is someone or some set of people on staff who can provide continuity, support, and leadership, whether it’s overt or subtle.

Fifth, all of this is part of dramatic, relatively recent growth in assessment activity. As director of the Flashlight Program, I’ve visited over a hundred institutions over the last nine years, talking with folks about the kinds of studies they were doing, or hoped to do, about educational uses of technology. One thing I’ve noticed is that the scope and number of those studies has increased. In the 1980s and early 1990s, it was rare to see studies of more than an assignment or a course, and even those were pretty rare. Like college courses, each study was usually the concern of one person. That’s changing. One index: the number of institutions subscribing to the Flashlight tools and services has been doubling every year, and now tops 200. Institutions such as the three described above are at the cutting edge.

Technology isn’t the only reason for the growth of attention to assessment and the role it can play in improving the academic program. But I think many observers have missed the role technology has played in the growth of attention to assessment. The more money is invested in technology, and the more institutions try to rely on rapidly changing and comparatively fragile boxes and networks, the greater the uncertainties, risks, and costs. All that raises concerns for faculty careers and institutional accountability. So the hunger for data has grown, not for its own sake, but for our institutions, our staff, and our students.