
Barriers To Online Teaching In Post-Secondary Institutions: Can Policy Changes Fix It?

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Recent technological advances have increased the overall amount of information available and improved accessibility to that information, while at the same time the costs of publishing information have decreased. These general shifts throughout society are true in education and have caused students to be more demanding and more knowledgeable about alternatives for their education. Combined with demographic trends, political forces, economic factors, the need for lifelong learning, and the changing emphases in teaching and learning, there is a resurgence of interest in distance education both at traditional institutions of higher education and in organizations whose sole mission is distance education (Dede, 1990; Knott, 1992; Lewis and Romiszowski, 1996). Can higher education at "traditional" universities change to meet the new student demands and the intense competition among education providers that distance education brings?

The use of computer-mediated communication in distance learning to create online classrooms has become a popular means of distance learning, both in mixed mode with face-to-face instruction or as a sole channel of education at a distance. By online teaching or online instruction for the purposes of this article, I mean those activities limited to primary delivery by computer-mediated online instruction, as opposed to delivery systems such as audio or video/TV. Additionally, I am referring to instruction in which the course interaction is conducted completely online, or significantly online (i.e., where, at the minimum, 50% of the graded part of the course is online).

Advantages of Online Education

Under certain conditions, advantages of online education include some or all of the following: an existing infrastructure that can be used for course delivery; the technology is cross-platform; access to the servers and the Internet is widely available with standard

interfaces; online education can be flexible, accessible and convenient for students; there can often be institutional cost savings and time savings over traditional place-based education; and there is often advantages to the instructor such as ease in updating and revision of courses (e.g., Hopey & Ginsburg, 1996; Kilian, 1997; Owston, 1997). Even with the advantages listed above that occur under certain conditions, there are still critical barriers to distance education and specifically to online education at a distance. What are the barriers experienced when teaching and learning online, and what are the best ways to overcoming these?

This article reports responses to a survey of online teachers in higher education regarding the barriers they perceive to the success of their online classrooms. These barriers are placed within a policy development framework for distance learning recently suggested by Gellman-Danley and Fetzner (1998) in *The Online Journal of Distance Learning Administration*. This was done as one way to validate this policy framework and as a convenient framework for discussing barriers to online teaching.

Barriers to Online Education

Impediments to online teaching and learning can be situational, epistemological, philosophical, psychological, pedagogical, technical, social, and/or cultural (e.g., Espinoza, et. al., 1996; Garland, 1993; Galusha, n.d.; Kaye and Rumble, 1991; Lewis and Romiszowski, 1996; Sherritt, 1992; Sherry, 1996; Shklanaka, 1990; Spodick, 1996) and include:

- "faceless" teaching
- fear of the imminent replacement of faculty by computers
- diffusion of value traditionally placed on getting a degree
- faculty culture
- lack of an adequate time-frame to implement online courses
- many distance learners who lack independent learning skills and local library resources
- lack of formalized agreements to sustain program commitment though difficulties and problems
- high cost of materials
- taxpayer ignorance of the efficacy of distance education
- lack of a national agenda, funding priority, and policy leadership
- increased time required for both online contacts and preparation of materials/activities
- the more technologically advanced the learning system, the more to go wrong
- non-educational considerations take precedence over educational priorities
- resistance to change
- lack of technological assistance

Which subset of these barriers is perceived to be salient at a particular time under particular circumstances is determined by many factors such as the position of the person (e.g., teacher, administrator, student), the maturity of the online program and the policies of the educational institution sanctioning the program.

Policy Framework

Anecdotal evidence suggests that in traditional universities, policies are changed with regard to distance education when someone trying to implement a course or program at a distance meets a barrier and through persuasion causes it to be changed or alternatively, develops a work-around to the obstacle. Barbara Gellman-Danley and Marie J. Fetzner (1998) published a framework of policy issues for distance learning. They suggested that:

Asking the tough policy questions in advance can mitigate future bureaucratic problems and roadblocks. Most educators know that even a minor mid-stream policy skirmish can draw the focus away from their most critical concern - teaching and learning. Policies can provide a framework for operation, an agreed-upon set of rules that explain all participants' roles and responsibilities.

They go on to group policy issues in seven operational areas: academic, fiscal, geographic service area, governance, labor-management, legal and student support services. These seven areas are not claimed to be exhaustive, but rather "an example" of operational areas. To the extent that barriers to online teaching can be identified, analyzed, and policies changed where necessary to mitigate them, this framework should be useful to administrators and teachers in developing an online learning environment.

SURVEY OF ONLINE TEACHERS

Methodology

Over a period of several years, I have accumulated a list of persons who taught, or whom I suspected taught online courses in higher education. In April, 1996, I electronically sent a cover letter and survey to each of the 812 persons whose email addresses were in my list. Between April 16TH and July 10TH, 1996, responses to that survey were received. That initial contact solicited 174 replies, a response rate of 21%. While these responses are two years old now, I believe the barriers noted have not changed very much if at all.

One hundred and eleven (111) respondents said they did not meet the criteria I had established for online teaching. Sixty-three (63) persons completed the survey and returned it. Of those, 19 did not meet the criteria-either they were not using computer systems when teaching the online portion of their course (e.g., TV), or the graded portion of at least one of the courses each person taught did not comprise 50 percent of the grade.. Two of these 44 teachers taught in middle or secondary education. The results are reported elsewhere (Berge, 1997).

Subsequent to that survey, follow-up questions were asked of the respondents. These teachers were asked: "What barriers are the most daunting to your online teaching?" I have based the results reported here on the responses of the 42 post-secondary teachers who teach in a formal setting. The responses were collected during the remainder of the summer of 1996.

The Participants

The forty two teachers responding to this survey taught adults at the undergraduate and graduate levels or in continuing and professional development, or some combination of these areas (See Table 1). They were an experienced group of teachers, having taught an average of 17.6 years (range 2 years to 38 years).

Table 1. Grade Level Taught by Respondents

Grade Level	Count
Undergraduate	24
Graduate	9
Both Undergraduate and Graduate	6
Professional or Continuing Education	1
Professional and Undergraduate	1
Professional and Graduate	1
Total:	42

Nearly half (45.2%) of the teachers listed receiving one or more local, regional, national or international awards (see Table 2), (three teachers listed multiple awards). They had taught online an average of 4.1 years, with a range from having just taught their first online course to a remarkable 16 years of experience!

Table 2. Awards Received by Respondents

Level of Award	Number of Awards
Local	13
Regional	1
National	8
International	2
Number of respondents listing no awards	23

The courses taught by these respondents were mainly in applied areas such as education, health services and business (see Table 3).

Table 3. Course Subjects Taught by Respondents

Subjects Taught	Count
Rhetoric, Composition, Writing, Editing	14
Business, Leadership, Management, Marketing,	12
Computer systems, Computer Science, Information Tech, Internet	10
Online Education, Computer App'l. in Ed, Communication in Ed	6
Education, Instructional or Curriculum Design, Ed Research	6
Nursing, Health Care, Medical, Adaptive Technologies	5
Ethics	2
English, Vocabulary	2
Critical Thinking	2
Philosophy	1
Introductory Neuroscience	1
Inquiry and Research	1
Government; Politics; Contemporary Issues	1
Animal Physiology	1

While there is no typical "online classroom," I have included three brief descriptions of how these teachers described the learning environment (See Appendix A). Half the respondents to this survey were male and half female (n=21 each).

Limitations

This survey dealt with only a small segment of subject areas and only from a teacher perspective. This small, convenience sample means that, while there were commonalities among these 42 teachers, the findings are not generalizable to other courses, teachers, or even within the formal, post-secondary setting. The self-reported data was not challenged or probed. No attempt was made to verify that what these teachers said was actually what they did (e.g., through observations, or interviews with learners in their courses). Additionally, my own biases regarding online teaching, educational philosophy, and subjectivity when coding and categorizing responses may have influenced the data analysis. Further, the teachers in this survey were self-selected and there may be significant

differences between them and non-respondents who also teach online. Readers interested in more information about these limitations can review the survey methodology literature where these various limitations have been thoroughly discussed (see e.g., Alreck and Settle, 1995; Dillman, 1978; Rossi, Wright and Anderson, 1983).

Survey Results and Discussion

Thirty-six teachers responded to the survey question about barriers to their online teaching. Of those 36, one stated that he encountered no barriers to online teaching, only opportunities. The remaining thirty-five teachers responding to the survey mentioned a total of 69 barriers, which I subsequently attempted to match with the "key issues" suggested by Gellman-Danley and Fetzner (1998). Only 28 (40.6%) seemed to fit within their categories.

Table 4. Policy Development Areas for Distance Learning

Policy Development Area Key Issues	Barrier Count
1. Academic Academic calendar, course integrity, transferability, transcripts, evaluation process, admission standards, curriculum approval process, accreditation.	7
2. Fiscal Tuition rate, technology fee, FTE's, consortia contracts, state fiscal regulations.	5
3. Geographic Service Area Regional limitations, local versus out-of-state tuition, consortia agreements.	1
4. Governance Single versus multiple board oversight, staffing, existing structure versus shadow colleges or enclaves.	0
5. Labor-Management Compensation and workload, development incentives, intellectual property, faculty training, congruence with existing union contracts	8
6. Legal Fair use, copyright, faculty, student and institutional liability	0
7. Student Support Advisement, counseling, library access, materials Services delivery, student training, test proctoring	7
Technical Lack of systems reliability, lack of connectivity/access; inadequate hardware/software; setup	19

problems; inadequate infrastructure; inadequate technical support.	
Cultural Faculty or student resistance to innovation; resistance to online teaching methods; difficulty recruiting faculty or students; lack understanding of distance education and what works at a distance	22

The remaining 42 barriers (59.4%) clustered into two areas not mentioned explicitly by Gellman-Danley and Fetzner: "technical" and "cultural."

Table 4 table shows the seven "Policy Development Areas" (numbered 1 through 7), and the "Key Issues" for those seven areas as determined by Gellman-Danley and Fetzner (1998). The "Barrier Counts" are to indicate the number of times like or similar issues were mentioned by the online teachers responding to this survey. The "Technical" and "Cultural" areas, nor the "Key Issues" for these two areas, were part of Gellman-Danley's and Fetzner's framework, but rather these were categories added by me. The cultural barriers are included in this table for the convenience of the reader. However, change to organizational culture is not an area that policy can be directly applied. Rather organizational culture is changed through such things as the structure, practices, communication systems and reward systems within the organization.

Technical Area

Nineteen of the 69 barriers (27.5%) mentioned by the respondents to this survey indicated inadequacies in the technical area such as: lack of systems reliability, lack of connectivity/access; inadequate hardware/software; setup problems; inadequate infrastructure; and inadequate technical support.

Historically, increasing access to quality education has been one of the main justifications for the use of distance education, so it is little wonder that it is critical to online teachers that access can be provided to the broadest range of students. One of the most powerful uses of the Internet in education is to provide an efficient way to collaborate with others: teachers can collaborate with other teachers; students with other students. Experts and educators all over the world can become collaborators with the teachers and students in a classroom. No longer are distance and time barriers to educational collaborations.

Following are three example responses:

- Actually connecting--the software and hardware set up. And the feeling of wondering where students were if they had not logged in for a while.
- I still find the technical problems the most daunting (because we have students logging in from all parts of the world). Some manage it relatively well, but others just can't seem to find the missing link that allows them to log in successfully on a regular basis. It's daunting because the problems are so variable and many we never solve.

· I think the biggest barrier we've encountered boils down to access. In past courses, we had problems because the system we were using was so busy that students could not get on when they needed to. With the growth of the Internet and the variety of service providers now available, that problem has greatly diminished. But, it has not gone away. It is now virtually impossible to dial into the university any time between about 9 a.m. and midnight. The entire modem pool is always busy. And, for some of those students we most want to reach--those in remote areas of the state--there still are no service providers within the local calling area. If we start relying more on the Web, I'm concerned that we'll compound these issues. Web access via AOL at 2400 baud is like no Web access at all.

Cultural Barriers

Another area not mentioned in the policy development framework by Gellman-Danley and Fetzner involved the fears of persons in the educational community, of faculty members or students, concerning the cultural changes for which technologically-mediated teaching and learning is often the catalyst. Institutional or organization culture here means the "way things are done at this institution." It is the beliefs, values, expectations, language, motivation, and norms in place in the organization (Pappas, 1996). This was the largest category of barriers with twenty-two of the responses (31.9% of the total) indicating reluctance or inability to deal with the cultural changes often engendered by online teaching. Responses placed in this category included: faculty or student resistance to innovation; resistance to online teaching methods; difficulty recruiting faculty or students; lack understanding of distance education and what works at a distance.

Example excerpts from the survey responses are:

· Barriers? hmmm... People's attitudes is a big one. Right up there with access issues. Problems with getting pure programmers and developers of technologies to understand that the programmer should work with the educator as a team. One can certainly help the other. What scares me is that many programmers think they know what's best for educational technology without any background in education.

· Despite my laments about the high attrition rates inherent in the present forms of online ed, I think I'm more concerned about the inertia of most of my colleagues. Many instructors don't know about the medium and don't want to know. This is creating a serious culture gap, and computer-literate faculty must now proselytize their colleagues even as they try to become more familiar with the requirements of the medium. If we don't make more converts, it's going to be even harder to deal with the changing technology: we'll be a minority perennially at odds with the majority, and we'll be too few to share the workload of keeping up with improved technology, adapting curriculum, etc.

· Having the technology has been the least of my problems. Convincing students that this was worthwhile has always been a problem. Sometimes student evaluations will reflect that! It would be great to be a tenured full professor and not have to worry about what anyone says.

· I believe the most difficult challenges I face is convincing the students that a 'textbook accompanied by lecture' is not the only way to learn something. Our kids are so accustomed to being 'read to' from textbooks and told what to do when, how to think, what to write, etc. They really have a difficult time shifting paradigms into the arena where they have the freedom to interact with each other without a teacher figure at the head of the class, interact with the teacher without physical nonverbal clues, etc.

· My boss!!! I worked in an environment that was mostly non-supportive of new learning paradigms. I was actually told (by my Dean) to "go back to traditional lecture methods, like Susan (my colleague)" because the students like it better!

· The most daunting barrier I face is in trying to build an online learning community--I want students to interact with each other, not just with me. This is a difficult enough dynamic to foster in f2f classrooms, where people can see me and read my intentions by "eavesdropping" on my interactions with other students. Online, it becomes much harder because students can't eavesdrop in this way.

Cultural Change and Policy Development

It will take leadership at the highest institutional levels--one of the most important ingredients in the diffusion of distance education, yet the most neglected--to have a significant, positive impact upon the faculty and the changes that are occurring in institutions (Dillon and Walsh, 1992). Tinzmann (1990) states:

The reluctance people feel when asked to make major changes in the way they do things is clearly the most serious issue of those discussed here. Hardly a person exists who eagerly gives up familiar ways of behaving to attempt something that is unknown and is likely to have many challenges of implementation. (n.p.)

Access to online educational opportunities, while critically important and certainly concerning, seems to be improving. . Online teaching and learning will fail without strong administrative leadership to support the many changes necessary to fully implement online educational activities and to overcome the barriers expressed by the teachers responding to this survey and by others educators.

FURTHER RESEARCH

· Given that the survey results were obtained from teachers who have already taught online, the set of barriers they perceive as problematical appear to be quite different from those perceived by persons who are about to begin teaching online. For instance, some of the significant impediments faculty speak of before they become involved in distance education are (Beaudoin, 1990; Catchpole, 1992; Clark, 1993; Dillon and Walsh, 1992; Gunawardena, 1990; Koontz, 1989; Olcott and Wright, 1995; Strain, 1987):

- a) the team approach to developing instructional materials may undermine the instructor's autonomy and control of the curriculum
- b) a fear of changing teaching methods to a facilitator's role
- c) inadequate compensation and incentives, lack of training and support, and
- d) fear of reduced student interaction and spontaneity

These do not appear to be the same set of barriers as reported here that concern teachers who are already teaching online.

- My experience has been that many faculty are concerned about losing direct control of the teaching/learning processes because, in most cases, the instructor can no longer develop all the learning materials and activities that can be used in a technology-rich learning environment. It takes a team of people, usually with the instructor, in their role as the subject-matter expert, working closely with them. While frightening in some ways, this is analogous to a model of using technology that is quite old in education. Think of teachers in previous generations. Even though they knew their subject matter and could write and edit, most of them did not develop their own textbooks. They didn't have to. Why should they have to develop their own multimedia teaching materials?
- This survey reported the perceptions of teachers who taught in formal, post-secondary education, and therefore taught only adults. Do elementary and secondary online teachers perceive barriers that are different from those perceived by teachers in higher education?
- I would speculate that the stage at which the institution is in its overall support of technologically-mediated teaching and learning will influence what barriers are perceived as most concerning to the teachers and students within that system. Similarly, I suspect that the level of maturity attained by the distance education program in an institution will influence what barriers are perceived as most concerning to online teachers and potential online teachers. Further research is needed to explore this conjecture.

CONCLUSIONS

While there are many concerns expressed about technologically-mediated teaching, there are faculty members who applaud the opportunities technology brings to their teaching and their students' learning environment. While the survey data used in the analysis here is now a couple years old, anecdotal conversation and review of current online discussion lists suggest the barriers to online teaching have not changed, or changed very little. Many barriers to learning and teaching at a distance are caused by lack of access to resources and people. Further, the most critical obstacles reported in this survey appear related to persons' resistance to or fear of the many changes that must occur at the individual and organizational level. Add to these fears the lack of support for the changing roles of students and teachers and you have the ingredients that often lead to significant impediments to success in online education. Other barriers arise over difficulties in assessment: whether it involves evaluating students' online work, or the rewarding, compensating, valuing, and supporting of faculty members' teaching online and as they develop technologically-mediated learning environments.

The barriers reported here indicate that an additional area of policy interest besides the seven in the Gellman-Danley and Fetzner (1998) framework should involve technical or infrastructure needs in the educational system. I can imagine that some of the impediments I have categorized could fall under a different category than the one I choose or under more than one area. The point I want to make isn't to put such a fine point on where each barrier belongs. Rather it is to say that at least half the barriers mentioned by these online teachers have to do with culture.

The cultural barriers spoken of have widespread policy implications. However, changing the culture of an organization rarely occurs through direct action, but rather through changes to the policy areas listed in Table 4. Yet by evolutionary changes within traditional,

post-secondary institutions, the best that can be hoped for is incremental change to the existing structure and culture of higher education. Conceptions of higher education has remained largely unchanged for the past 150 years. Evolution and incremental changes to traditional colleges and universities may not be enough to meet the demands students have nor the competitive forces emerging in higher education today. It may be the concern that cultural changes raises in teachers suggests a need for radical, structural change to the organizations (Hammer, 1996, Hammer and Champy, 1993) and different models (Hanna, 1998) than have been in place in higher education since the industrial revolution began. To the extent reengineering of higher education is needed, changes to the existing structure in higher education may be working hard at the wrong thing--rearranging the deck chairs on the Titanic.

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