OBSTACLES FACED AT VARIOUS STAGES OF CAPABILITY REGARDING DISTANCE EDUCATION IN INSTITUTIONS OF HIGHER EDUCATION: SURVEY RESULTS

Zane L. Berge, Ph.D.
UMBC
1000 Hilltop Circle
Baltimore MD 21250

Berge@umbc.edu

Lin Muilenburg
University of South Alabama
2109 Woodford Court
Mobile, AL 26695

lin@muilenburgs.com

Recently, Brian Hawkins (1999), President of EDUCAUSE, stated the "idea that technology is a panacea and that it is applicable across all types and sizes of institutions is an extraordinarily dangerous assumption." It is dangerous because not all organizations have the same mission or need, nor are they at the same stage of organizational capability, and therefore should not be pursuing distance education at the same level of intensity. Rather, each organization must carefully allocate their resources at a level that will maximize their effectiveness in solving their business problems and meeting their planned opportunities.

Levels of Institutional Capability Regarding Distance Education

The idea has been proposed that different business organizations are at different stages or levels of maturity regarding the capabilities that they have to conduct distance education (Berge, 2001; Schreiber, 1998). This same model or framework can be extended to any organization that is involved in or contemplating the use of distance education in meeting their education or training needs, regardless of the contextual situation of the workplace or learning place (e.g., non-profit; government; higher education),.

Barriers to Distance Education in Higher Education

In an editorial published in 1994 in *The American Journal of Distance Education*, the Editor and one of the world's foremost distance education researchers, Dr. Michael G. Moore speculated:

> … the barriers impeding the development of distance education are not technological, nor even pedagogical. We have plenty of technology, and we have a fair knowledge about how to use it. The major problems are associated with the organizational change, change of faculty roles, and change in administrative structures. Here we desperately need all the ideas and all the leadership than can be assembled. The starting point is to expose the problems. (Moore, 1994, p. 4)

In the years leading up to and following his statement, there have been a substantial amount written that identifies the problems that Moore addressed. Hundreds of articles have been published that identify and discuss barriers to distance education. These articles are either research reports on the barriers to distance education, or they share with the reader anecdotal experiences, lessons-learned, problems and issues educators (or students) face when teaching and learning at a distance.

Our purpose in this article is to go beyond just the identification of barriers to distance education. The barriers to online learning survey results reported in this article tested several hypotheses. One was that educators perceive different barriers depending upon the maturity of their organization's capabilities in distance education. A second hypothesis that was tested and is discussed here states that when an organization is in the earlier stages of capability regarding distance education, educators will face many barriers.. As the organization' distance education competency as a whole matures, the overall number or intensity of perceived barriers to distance education is reduced. Additionally, Moore's statements above are tested regarding the current survey responses.

Current Survey

A survey was recently conducted to determine perceptions of the barriers to distance education (n=2504). One of the independent variables that persons completing the survey were asked to identify was their work place (e.g., community college, government, non-profit The results reported here use the responses of only those persons who self-reported their workplace to be higher education (n=1276).

Stages of Organizational Maturity

We also asked persons completing the survey how they would "characterize the stage that your organization is at with regard to distance learning." Each person checked one of the following choices, and these were subsequently labeled "Stage 1" through "Stage 5" respectively:

1) We have not attempted to use distance learning in my organization.

2) Separate or sporadic distance learning events have occurred.

3) My organization's technological capability can support distance learning events. When DL events occur, they are replicated through an interdisciplinary team which responds to staff and management inquiries and recommendations regarding distance learning.

4) My organization has established a distance learning policy and planning. This means a stable and predictable process is in place to facilitate the identification and selection of technology to deliver distance training.

5) Distance learning has been institutionalized at my organization. Policy, communication, and practice are all aligned so that business objectives are being addressed. We have established a distance learning identity and conduct systematic assessment of distance training events with an organizational perspective.

Outcome Factors

The sixty-four (64) barriers to distance education tested in the survey were determined from a review of literature, from previous survey work (Berge, 1998), and from content analyses of selected case studies (Berge and Mrozowski, 1999). Two rounds of beta-testing were conducted using paper and pencil versions of the instrument. They were administered to selected members of the target population (n>50), and revisions were made before the final version of the survey was released on the web. The survey was programmed to be accessible using standard web browsers (see http://cgi.umbc.edu/cgi-bin/dharley/misc/barrier_survey.pl). It was designed to capture each response directly to an output file that was readable by SPSS. Respondents were asked to rate each of the sixty-four barriers listed on a 1-5 scale, from "no barrier" to "very strong barrier", respectively., Based on survey responses, a subsequent factor analysis clustered the 64 barriers into the following 10 factors:

1) *Administrative Structure:* Managing distance learning programs through most existing organizational structures can be problematic. Partnerships among different units within an organization or among different organizations require agreements about fiscal issues such as costs, tuition and fees, and distribution of revenue, as well as course scheduling and the issuance of credits.

2) *Organizational Change*: Most organizations are resistant to change. Without a shared vision for distance learning, explicated in a strategic plan, and key players within the organization who are knowledgeable and supportive of distance learning, implementing a distance learning program can be a slow and difficult process.

3) *Technical Expertise*: Support, and Infrastructure: It is difficult <for whom?> to keep up with the fast pace of technological change. Many instructors lack the knowledge and skills to design and teach distance learning courses, yet their organizations do not provide a support staff to assist them to develop distance learning course materials, or to provide distance learning training. The technology-enhanced classrooms or laboratories and the infrastructure required to use them may not be available.

4) *Social Interaction and Quality*: Participants in distance learning courses can feel isolated due to lack of person-to-person contact. Both faculty and students are sometimes uncomfortable with the use of student-centered and collaborative learning activities because they change the traditional social structure of the classroom. There are concerns about the quality distance learning courses, programs and student learning. Testing and assessment of student outcomes is also a concern.

5) *Faculty Compensation and Time:* As the saying goes… "Time is money." Distance learning courses require a greater time commitment, so additional faculty compensation, incentives and release time are important issues. Lack of grant monies to fund distance learning start-up and subsequent projects is also a problem.

6) *Threatened by Technology:* Some people fear that an increase in the use of distance learning technologies may decrease the need for teachers. Feeling intimidated by technology may also threaten an instructor’s sense of competence or authority. Either or both of these psychological factors may lead faculty to feel that their job security is threatened.

7) *Legal Issues:* The increasing use of particularly the Internet to deliver distance learning raises concerns about copyright, fair use policies, piracy, intellectual property rights, and problems with hackers and viruses.

8) *Evaluation/Effectiveness:* There is concern over a lack of research supporting the effectiveness of distance education. A lack of effective evaluation methods for distance learning courses and programs is also a concern.

9) *Access*: Many students lack access or there are concerns over equal access to courses offered via newer technologies such as Web-based instruction. Sometimes instructors also lack access to the necessary equipment and courses.

10) *Student Support Services:* Provision of student services, such as advisement, library services, admissions and financial aid, at a distance is a critical facet of any distance learning program. There are also concerns about how to monitor the identity of distance learning students.

Table 1. The Mean of Barrier Factors for Stages of Distance Learning

Barrier Factors	Stages of Distance Learning within Organization					
	No use of DL	Sporadic use of DL (n=388)	DL events replicated by	Established DL policy; stable	DL needed for mission-critical	

						Row Ave.	(n=44)
Faculty Compensation	3.71	3.65	3.51	3.43	3.14	**3.44**	
Organizational Change	3.34	3.27	2.87	2.67	2.24	**2.80**	
Lack Tech Expertise and Support	3.30	3.15	2.78	2.67	2.40	**2.79**	
Evaluation	2.82	2.74	2.62	2.58	2.35	**2.58**	
Student Support Services	2.85	2.80	2.61	2.53	2.28	**2.57**	
Social Interaction/Quality Concerns	2.85	2.73	2.52	2.57	2.32	**2.55**	
Legal Issues	2.39	2.69	2.51	2.53	2.32	**2.51**	
Access	2.76	2.62	2.36	2.41	2.20	**2.42**	
Threatened by Technology	2.40	2.48	2.41	2.35	2.12	**2.34**	
Administrative Structure	2.46	2.38	2.30	2.23	2.05	**2.25**	
Column Average	**2.89**	**2.85**	**2.65**	**2.60**	**2.34**		

Findings and Discussion

This section is organized by the three main hypotheses presented above, and other observations found in the data analysis.

Different Stages, Different Barriers

Is there evidence from the responses to this survey, that there is a relationship between an organization's level of capability in distance education and the barriers to distance education reported by respondents? It depends! (see Table 1). Following is a review of each of the 10 barriers to support that response.

Faculty Compensation and Time. Faculty compensation issues, and especially the lack of *time,* is the most consistently reported of all the barrier factors in this survey. This is ranked as the greatest obstacle in all organizational stages: from those in which distance education has not been engaged in through organizations in which distance education is mission-critical. In fact, throughout the literature on barriers to distance education, time is consistently ranked highest or near the highest in surveys of impediments to distance education (Betts, 1998; Schifter, 2000).

Organizational Change. Cultural change within organizations is the second highest ranked barrier in all stages except the stage in which distance education is integrated into the mission of the organization and the "way business is done." This makes sense. Especially in the early stages of integration, it is the struggle against the organization's existing culture that makes those persons who are involved in distance education feel that they are swimming against a strong current. It is difficult to find more conservative institutions than those in higher education, nor any organizations with greater inertia set toward the status quo. By definition, however, when an organization is at stage five capabilities, "distance learning has been institutionalized—it *is* the culture—and therefore not perceived as a barrier

Lack of Technical Expertise and Support. Again, this factor's score is consistently high, and is ranked third in all stages except Stage 5 where, with the hurdles of organizational change out of the way, it moved up to the second highest ranking.

Evaluation/Effectiveness. As capability in distance education rises in an organization so the issues involving evaluation and effectiveness rise in the list of barriers, from sixth in those where distance education has not be used to third place in the organizations with the most capabilities.

Student Support Service. As organizations develop distance education capabilities, barriers around student support services, such as advisement, library services, admissions and financial aid are overcome as systems are put into place to deal with them. Given that this factor fairly steadily moves down the rankings as capabilities are achieved, we believe this explanation is probable.

Social Interaction/Quality Concerns. This factor remains at a somewhat consistent level in the middle of the rankings throughout the various stages.

Legal Issues. For those organizations who have not tried distance education, legal issues appear to be of least concern to the respondents in this survey. As distance education capabilities grow, it seems that barriers involving legal issues steadily rise in ranking until this factor is of fair concern within organizations that have institutionalized distance education.

Access. Historically, access has been one of the perennial problems associated with distance education. Students have lacked access to quality education, and while distance education has changed that in some instances, it has not in all cases. Access to technology that makes

newer forms of distance education possible is still problematical for some students (and faculty), but it does not seem to be perceived as top on the list by many of the respondents to this survey, especially as the capabilities of the institution increase regarding distance education. Access moved down from its fairly low ranking in Stage 1 organizations and remained ranked next to the bottom in Stages 2-4. Stage 5 saw access ranked one level higher than in stages 2-4, perhaps because other barriers have been solved.

Threatened by Technology. This factor remained ranked eighth or ninth throughout all five stages of capability.

Administrative Structure. This set of barriers were ranked eighth in organizations in which distance education had not been used. However, in all stages in which distance education had been used, this factor was the one perceived as of least consequence to the respondents of this survey. Speculation regarding why this may be so is made below.

Table 2. Rank order of Factors Showing Perceived Barriers to Distance Education by Respondents in Higher Education at Each Stage of Organizational Level of Capability

STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
Faculty Compensation and Time	Faculty Compensation and Time	Faculty Compensation and Time	Faculty Compensation and Time	Faculty Compensation and Time
Organizational Change	Organizational Change	Organizational Change	Organizational Change	Lack Tech Expertise and Support
Lack Tech Expertise and Support	Lack Tech Expertise and Support	Lack Tech Expertise and Support	Lack Tech Expertise and Support	Evaluation
Student Support Services	Student Support Services	Evaluation	Evaluation	Social Interaction and Quality Concerns
Social Interaction and Quality Concerns	Evaluation	Student Support Services	Student Support Services	Legal Issues
Evaluation	Social Interaction and Quality Concerns	Social Interaction and Quality Concerns	Social Interaction and Quality Concerns	Student Support Services
Access	Legal Issues	Legal Issues	Legal Issues	Organizational Change
Administrative Structure	Access	Threatened by Technology	Threatened by Technology	Access
Threatened by Technology	Threatened by Technology	Access	Access	Threatened by Technology
Legal Issues	Administrative Structure	Administrative Structure	Administrative Structure	Administrative Structure

Moore's Claims

Professor Moore's editorializing can be restated as: The barriers associated with organizational change, change in faculty roles, and administrative structures are more critical than barriers associated with technology or pedagogy. Put in terms of the factor analysis reported here and our survey, changes in faculty roles would be included in the organizational change cluster. So, our test is to see if, as Moore said, barriers associated with "organizational change" and "administrative structure" are more critical than "social interaction and quality concerns", which represents pedagogical issues, "technical expertise", and possibly "threatened by technology." which represents technological issues.

Table 2 shows the rank order of the 10 factors at each stage of organizational maturity. Looking at Table 2, barriers around "Organizational change" rank consistently higher than "technical expertise," "threatened by technology," and "social interaction and quality concerns," except in Stage 5.

The need for organizational change is perceived as less of a barrier at the stage of institutionalization of distance education. One plausible explanation for this change is the importance placed on cultural change as distance education becomes increasingly linked to the strategic planning of the organization in the later stages of maturity. It would seem that Moore's claim that organizational change is a more greater barrier to distance education than technology issues, is supported by the responses from this survey, except perhaps in organizations at stage 5 of the organizational capabilities. In other words, organizational change—cultural change—is of utmost importance until, by definition, we are talking about an organization in which distance education can be said to be a "the way we do business" enterprise

The results of this survey clearly do not support Moore's claim that an organization's administrative structure is more of a barrier to distance education than is technology or pedagogy. In fact, barriers perceived to be caused by administrative structure were consistently the least important to these respondents, except in those organizations that have not yet tried distance education. Even then, however, administrative structure was ranked lower than concerns about "technical expertise," and "social interaction and quality concerns." Our survey did not ask what type of administrative structure existed in the respondent's organization. It seems likely that as the stages of maturity change within an institution, so does the administrative structure . What the survey results may suggest is that the organization's administrative structure is not

perceived as a barrier *within* a given stage relative to the many other barriers, but could well inhibit movement across stages.

INSERT FIGURE 1 ABOUT HERE

Barrier Means

One of this study's research questions concerns the decrease in perceived intensity of barriers overall as organizations became more capable and better equipped to conduct education at a distance. Figure 1 shows the mean score for all 64 barriers at each of the five stages of organizational capability. Decrease in mean score for each stage is statistically significant at $p<.01$ level, supporting the proposition that educators perceive fewer or less intense barriers in organizations that are more capable for delivering distance education.

Conclusions

Faculty compensation concerns and the lack of development and maintenance time is the greatest barrier to distance education across all organizational stages of capabilities. It may be that certain factors such as legal issues and evaluation, both of which show a steady increase from stage 1 organizations to stage 5 organizations, are the last to be tackled because other obstacles are more important in the earlier stages of maturity.

The evidence from the responses to this survey indicate that there is a relationship between an organization's level of capability in distance education and the barriers to distance education reported by respondents for some but not all barriers. Separately, we found evidence to support Professor Moore's assertions that barriers associated with "organizational change" are more critical than "social interaction and quality concerns", "technical expertise", and "threatened by technology", we did not find support that "administrative structure is more critical than these factors. Finally, the responses to this survey support the proposition that educators perceive fewer or less intense barriers in organizations that are more capable for delivering distance education.

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zberge@emoderators.com mauri@emoderators.com

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