Perceptions of Faculty on the Effect of Distance Learning Technology on Faculty Preparation Time

Lynne M. Pachnowski, Ph.D.
Associate Professor, Education
University of Akron
lmp@uakron.edu

Joseph P. Jurczyk, M.B.A.
University of Akron
jurczyk@apk.net

Abstract

Over the course of three consecutive semesters, faculty members involved in both video-conference-based and online-based distance learning environments were surveyed in order to determine their perception regarding the technical support services, equipment, training and additional preparation time it takes to teach in a distance environment. The results showed that the faculty spent less additional time on training and preparation for distance teaching for courses that they repeated teaching in the same environment. However, thirty percent of the faculty still reported needing between ten and twenty additional hours of preparation time even in their third semester of teaching.

Over the past several years, as the number of courses offered through distance learning technologies has increased, so has the discussion among college faculty regarding the perceived added responsibilities of faculty who teach in these environments. Of particular interest to faculty is the perception that these courses require far more development and preparation time on the part of the instructor than traditional classroom-based instruction.
But when faculty are surveyed over time, do they report the same additional responsibilities associated with distance learning when they are repeated teaching the same preparation? Do faculty still require the same support services or receive the same encouragement or financial support after repeated semesters? This article will discuss the results of a research study that collected research over the course of three semesters from instructors teaching in a distance learning environment across one metropolitan campus.

Background

Since about 1997, the large, mid-Western university where this research took place has developed both synchronous (real-time) and asynchronous (delayed time) distance learning technologies and subsequent coursework. Specifically, there are two synchronous environments on campus. One is a relatively simple system with a dedicated T-1 line connected to another state university forty miles north and used to deliver a shared graduate program between the two campuses. The other is and a high-end fiber-optic-based system able to transmit voice, video, and media simultaneously to several branch campus, high school, and community center locations across two counties. Both systems, whether simplistic or state-of-the-art, were known to have the typical issues associated with synchronous systems, such as delays in class start time and complications during class time such as loss of audio.

At the same time that these environments were being developed, there was interest from faculty across campus to develop completely online course materials. In particular, the dean of the

business school paid stipends to faculty members to develop online course materials as part of a bridge program to a Master's in Business Administration.

There was a lively discussion across campus regarding the additional responsibilities that these new teaching environments placed upon the instructors among faculty members who participated in the distance learning and others who observed the development. In order to measure the actual effect on the faculty members' time and their responses to training opportunities, the Coordinator of Distance Education created a survey instrument that was distributed to all distance teaching faculty at the end of three consecutive semesters. This paper reports some of the results of that data collection and its subsequent implications.

Related Literature

In the past few years since distance education has become a viable option for institutions of higher education, the amount of distance education literature regarding the associated teaching conditions for faculty has flourished. Nearly all communications that discuss the time it takes for faculty to teach in a distance environment report that it requires a great deal of additional time compared to traditional classroom teaching. However, many articles go on to suggest that factors such as varying resources provided by the university the faculty member's comfort level with the technology may influence the amount of stress imposed on the instructor.

In Distance Education: More Work, Same Pay for Faculty! (Farhad, ed. 2000) the author maintains that faculty who teach through distance learning are spending more time preparing the course and teaching it than their face-to-face counterparts, but receive the same pay and benefits. Schifter (2000) reports that when administrators were surveyed regarding the motivating factors of faculty to participate in distance education, three of the top five include monetary support, credit toward promotion and tenure, and release time. However, faculty who teach in distance learning environments stated that their top five motivating factors were the personal motivation to use technology, the opportunity to develop new ideas, the opportunity to improve their teaching, the opportunity to diversify program offerings, and greater course flexibility for students. When asked to rank their top inhibiting factors regarding distance education teaching from a list of seventeen items, distance teaching participants and non-participants as well as administrators cited the lack of technical support provided by the institution as their primary reason. Concern about faculty workload ranked third among participants and non-participants and second among administrators. Lack of release time was ranked second by distance teaching participants, third by administrators, and fifth by non-participants.

Although Major and Levenburg (1997) state that it takes more time for faculty to teach in a video-conferencing-based environment, DiBiase (2000) compared the time spent teaching two comparable, mature courses, one online and one face-to-face and found that the distance course required more frequent attention, but the total teaching and maintenance time per student was less than in the face-to-face course.

The literature cited above demonstrates that it is difficult to conclude that it does take more time to teach in a distance learning environment and that specific faculty obligations, such as time per student, can be lessened in a distance environment. Furthermore, while some, including some administrators, may believe that the primary motivations for faculty to pursue online learning are financial and time-motivated, the reasons that faculty provide are often more altruistic and pertain to the academic freedom of the faculty and the needs of the students.

Methodology

The data for this study was collected over the course of three semesters at a large mid-Western university. The then-administrator of the distance learning program at the university understood that it was necessary to collect data to measure the effect that teaching in a distance learning environment had on a faculty's time and teaching and, therefore, the impact that teaching in that environment should have on load policy and reward. The university has primarily two distance learning environments that a faculty member may use for instruction: a video-conference-based environment (synchronous) and a web-based environment (asynchronous). Of the two video-conference-based environments, there are two distinct systems, the newer, more state-of-the-art system and the older, more simplistic system.

The administrator created an instrument that consisted of three scales:
1. the perception of the faculty toward the instructional technology and the support personnel,
2. the perception of the faculty member of the effect of the distance learning environment on his preparation time and preparation techniques and
3. the perception of the faculty toward the effect that the distance learning environment had on the teaching/learning process.
After the author created the instrument, the institutional assessment leader and a former instructor in the synchronous setting (both also department heads) did a content validity check of the instrument. The following are two sample items from the instrument:

How would you rate the on-going technical support throughout the semester?

1 VERY GOOD
2 GOOD
3 FAIR
4 POOR

And

If you were to teach the same course in the same environment next semester, how much additional prep time would you need for course development (due to the technology, not due to typical course revision)?

1 0-5 HOURS
2 6-10 HOURS
3 11-20 HOURS
4 MORE THAN 20 HOURS

The instrument contained six items regarding the faculty member's attitudes toward the instructional technology and the support personnel. It contained nine items regarding the faculty member's perception regarding the effect of the distance learning environment on his preparation time and preparation techniques. Finally, the intrument contained six items regarding the perception of the faculty toward the effect that the distance learning environment had on the teaching/learning process. The results of the second and third sets of questions produced interesting results, but only the results pertaining to preparation time and preparation techniques are discussed in this paper.
Faculty were also asked for demographic data regarding the type of distance learning environment taught in, whether they had taught in this environment before, their rated encouragement from the department chair, their rated encouragement from the dean, and financial support provided for preparation and teaching.

The instrument was distributed through campus mail at the end of each of the three semesters. The researcher protected the respondents' anonymity by coding the surveys. A graduate assistant was responsible for survey collection and follow-up to non-respondents.

Results

After the first semester (a spring semester), twenty-one out of thirty-two faculty replied to the survey, yielding a 65.6% response rate. After the second semester (the subsequent fall semester), seventeen of twenty-six faculty responded to the survey, yielding a 65% response rate. After the third semester, thirteen out of fifty-four faculty responded, yielding a 24% response rate. The researcher concluded that the same faculty who had agreed to teach in the distance learning environment were being surveyed and that the response rate would remain low from then on. Therefore, no further surveys were distributed after the third semester.

At least some faculty from each of the three teaching environments – newer video-conference-based, older video-conference-based, and web-based – responded. In the data reported below, faculty from all groups have been aggregated and where there was an interest to determine if there was a difference between teaching environments, those data sets were disaggregated.

The first six questions on the questionnaire asked faculty about their experiences with specific technical support services, such as equipment and support staff. The responses are only of interest to those who work in this particular university's technical support unit, and so the results will not be discussed in depth. In general, however, all replied that support services were either "good" or "fair", if applicable, except for the web-based course management system which has since been replaced. The vast majority (80%, 94%, 77% respectively by semester) of faculty reported that they experienced "down time" as part of their teaching experiences and nearly all of these replied that the problem was resolved within the day or week. Only one responded that the problem was resolved by the end of the semester.

The third group of questions that pertained to the faculty's perception of the effect on the teaching/learning process rendered interesting results and are discussed in another paper. The second group of questions in the survey was a set of nine questions that pertained to the faculty member's preparation for the teaching experience. Some items pertained specifically to the nature of the training sessions and have been deleted. The tables below list a breakdown of responses to each question by semester.

P1 - How much EXTRA prep time did you have to put in to prepare for this semester (due to the technology)?

Table 1: Faculty-reported extra prep time due to the technology.

Reported extra prep time.	Spring 1999	Fall 1999	Spring 2000
0-5 Hours	20%	17%	69%
5-10 Hours	15%	17%	0%
10-20 Hours	10%	39%	15%
20-30 Hours	5%	17%	15%
More than 30	50%	11%	0%
Count	20	18	13

When the results for the same item are sorted by the type of teaching environment that the instructor worked in, it becomes evident that instructors in a web-based environment spend a great deal of more preparation time during the first semester of a course then video-conference-based instructors.

Table 2: Faculty-reported extra prep time sorted by distance learning environment.

Reported extra prep time, by DE environment	Video			Web		
	Spring 1999	Fall 1999	Spring 2000	Spring 1999	Fall 1999	Spring 2000
0-5 Hours	27%	20%	70%	0%	13%	67%
5-10 Hours	20%	20%	0%	0%	13%	0%
10-20 Hours	13%	30%	10%	0%	50%	33%
20-30 Hours	7%	10%	20%	0%	25%	0%
> 30 Hours	33%	20%	0%	100%	0%	0%
Count	15	10	10	5	8	3

P2 - How many hours of hardware/software training on your own have you done for this semester?

Table 3: Faculty-reported hardware/software training time completed on their own.

Reported hours of training	Spring 1999	Fall 1999	Spring 2000
0-3 Hours	53%	24%	85%
3-6 Hours	0%	18%	8%
6-10 Hours	11%	24%	0%
More than 10	37%	35%	8%
Count	19	17	13

Again, when sorted by teaching environment, the instructors in the web-based environment spend more training time during the first semester.

P2 How many hours of hardware / software training on your own have you done for this semester?

Table 4: Faculty-reported hardware/software training time completed on their own sorted by distance learning environment.

Reported hours of training, by DE environment	Video			Web		
	Spring 1999	Fall 1999	Spring 2000	Spring 1999	Fall 1999	Spring 2000
0-3 Hours	64%	30%	67%	20%	14%	67%
3-6 Hours	0%	20%	0%	0%	14%	0%
6-10 Hours	7%	30%	0%	20%	14%	0%
> 10 Hours	29%	20%	33%	60%	57%	33%

Count	14	10	3	5	7	3

P3 - Was technical training offered to you prior to this semester?

Table 5: Faculty who reported that technical training was offered to them prior to the distance teaching semester.

Reported training available prior to teaching semester.	Spring 1999	Fall 1999	Spring 2000
No	29%	50%	33%
Yes	71%	50%	67%
Count	21	18	12

P3a - If Yes, did you take advantage of the training?

Table 6: Faculty who reported that they took advantage of technical training.

Reported taking advantage of training prior to teaching semester	Spring 1999	Fall 1999	Spring 2000
No	27%	22%	33%
Yes	73%	78%	67%
Count	15	9	9

P4 - How many hours of preparation with the hardware/software with a trainer did you do in preparation for this semester?

Table 7: Faculty-reported hours of preparation with a hardware/software trainer.

Reported hours of prep time with a trainer	Spring 1999	Fall 1999	Spring 2000
0-3 Hours	75%	100%	100%
3-6 Hours	13%	0%	0%
6-10 Hours	13%	0%	0%
More than 10	0%	0%	0%
Count	16	12	9

P5 - If you were to teach the same course in the same environment next semester, how much additional prep time would you need for course development (due to the technology, not due to typical course revision)?

Table 8: Faculty-reported number of additional prep time needed to teach the same course in the same environment the following semester.

Reported hours additional prep time to teach same course following semester	Spring 1999	Fall 1999	Spring 2000
0-5 Hours	38%	44%	62%
6-10 Hours	14%	28%	15%
11-20 Hours	19%	6%	15%
More than 20	29%	22%	8%
Count	21	18	13

The data resulting from these questions suggest that faculty members fairly consistently show that as they progress through each semester, they require less and less preparation time beyond what would be expected from a traditional classroom experience, yet many of them still take advantage of training sessions that are offered to them. (Based on the results of demographic item D2 that follows and the diminishing response rate, the respondents in the second and third semester of this study are faculty who are continuing to teach in the distance environment semester after semester. If they are not new to the teaching environment, then there are still one-third of faculty who require a great deal of additional preparation time even the second, third, or fourth time teaching a distance course. When sorted by teaching environment, faculty who teach on the web need far more preparation time than faculty who teach via video-conferencing.

Demographic Information

The final items on the questionnaire pertained to the demographic information of each faculty respondent. It demonstrates that about two-thirds of the faculty in the study taught in the synchronous environment, that increasingly, they, indeed, had taught in the same environment before, and that their perceived encouragement from the department chair or dean decreased as time went on.

D1 - Which distance learning environment did you teach in this semester?

Table 9: Distribution of faculty by distance learning environment.

Distribution of faculty, by environment	Spring 1999	Fall 1999	Spring 2000
2-Way Audio/Visual Classroom	70%	61%	77%
Web-Based	30%	39%	23%
Count	20	18	13

D2 - Have you taught in this distance learning environment before?

Table 10: Distribution of numbers of faculty who had taught in the specific distance learning environment before

Distribution of faculty who had taught in same	Spring 1999	Fall 1999	Spring 2000

environment before			
No	43%	28%	31%
Yes	57%	72%	69%
Count	21	18	13

D2a - If Yes, how many times?

Table 11: Distribution of number of times faculty taught in the specific distance learning environment before.

# of times faculty had taught in same environment before	Spring 1999	Fall 1999	Spring 2000
Once	33%	29%	0%
Twice	25%	36%	11%
Three Times	0%	21%	56%
More than 3	42%	14%	33%
Count	12	14	9

D3 - Rate the encouragement from your department chair or school director.

Table 12: Rated encouragement from department chair or school director.

Rated encouragement from dept. chair or director	Spring 1999	Fall 1999	Spring 2000
Good	71%	50%	62%
Fair	5%	39%	23%
Poor	24%	11%	15%
Count	21	18	13

D4 - Rate the encouragement from your dean.

Table 13: Rated encouragement from dean.

Rated encouragement from dean	Spring 1999	Fall 1999	Spring 2000
Good	69%	63%	33%
Fair	19%	6%	22%
Poor	13%	31%	44%
Count	16	16	9

D5 - Did your college provide any financial support for your course development beyond your regular teaching load?

Table 14: Distribution of faculty receiving or not receiving financial support for course development

Received or did not receive financial support	Spring 1999	Fall 1999	Spring 2000
No	57%	59%	77%
Yes	43%	41%	23%
Count	21	17	13

D5a - If Yes, in what form?

Table 15: Distribution of the type of financial support faculty received.

Type of financial support	Spring 1999	Fall 1999	Spring 2000
Load Hours	50%	14%	0%
Stipend	38%	86%	67%
Other	13%	0%	33%
Count	8	7	3

Discussion

The faculty in the study reported that the amount of preparation time beyond that expected in a traditional class went down over time. (See Tables 1 and 2.) Further, the amount of reported hardware/software training went down, as well. (See Table 3 and 4.) The results also suggest that the majority of the faculty in this study are repeating their distance teaching experiences semester after semester. (See Tables 10 and 11.) However, about thirty percent of faculty in the third year of the study still reported spending ten to thirty hours beyond the typical prep time. (See Table 1.) When sorted by web and video-conference-based teaching environments, web instructors spent a great deal more time in preparation, particularly during the first semester. (See Table 2.) Also, the faculty, themselves, self-reported that if they were to teach in the environment again, the amount of preparation time they would need would decrease. (See Table 8.)

The results of this study suggest that faculty members who begin to engage in distance learning teaching, particularly web-based teaching, may require some additional accommodations during their first semester for the additional time it takes to transfer the course into the alternate teaching environment. However, after the first semester or two, most faculty do not spend a great deal of additional time for preparation. Still, some faculty may need specific support services to help them manage their time. Based on the results of the study, faculty members will take advantage of training sessions when they are offered. (See Table 6.) The faculty also report that the encouragement from department and college supervisors as well as financial support decreased as time passed. (See Tables 12, 13, and 14.) University faculty administrators and technical support administrators could use these results to develop faculty load policy that provide additional preparation time for a faculty member during the first semester of teaching a distance course and to develop support services in time management and evaluation techniques. Further, the results of this study suggest that administrators also need to provide encouragement to those faculty who continue to teach within the distance learning environment, providing a model to other, newer faculty who may be considering teaching in that environment, as well.

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