

Instructor Workload of a Campus-Based versus a Web-Based Pharmacy Course

Thomas L. Lenz

ABSTRACT. Instructor workload and workload sources were compared between an elective campus-based and web-based pharmacy course. Instructor workload was measured for each pathway by documenting the total time required throughout the semester to teach, maintain and evaluate the course. Specific workload items that were measured included: in-class activities, e-mail communications, discussion boards, office visits and grading term-papers and examinations. The web-based students (n = 16) required a 5.4% increase in total workload for the semester and nearly 28 minutes of additional workload per student compared to campus-based students (n = 25). The majority of workload involved with the web-based course came from receiving and sending e-mail while workload from the campus-based course primarily came from in-class activities. Faculty workload was higher in the web-based course versus the campus-based course. Similar studies should be conducted on other courses to determine if these results are generalizable. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>>* © 2005 by The Haworth Press, Inc. All rights reserved.]

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INTRODUCTION

As communication technologies improve, the ability to offer educational programs via an online or web-based format becomes more of a re-

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ality for many schools and students alike (1). Many higher education institutions are now offering courses on-line and pharmacy education is no exception. The ability for educational programs to offer courses in such a manner comes with many issues that must be considered prior to starting such courses. One factor that faculty and administrators must consider before offering a web-based course is the amount of faculty workload it will consume compared with teaching a traditional campus-based course.

Creighton University School of Pharmacy and Health Professions has recently implemented a Web-based Doctor of Pharmacy Distance pathway (2). The Web-Based Distance pathway provides a full-time educational program to obtain a Doctor of Pharmacy degree that involves several innovative approaches to education. All didactic courses in the program are taught by distance mechanisms, which use the Internet and CD-ROM. Interactions with faculty and mentors occur via Internet chat rooms, discussion boards, e-mail, fax, and telephone. Students come to campus each summer for laboratory courses and annual performance-based assessments.

Some web-based educational programs outside the area of pharmacy have studied faculty workload with respect to teaching an on-line course (3-8). Very little information is available in this area with respect to pharmacy education (9). Therefore, the primary objective of this study was to compare the faculty workload (i.e., amount of total instructor work time and time invested per student) to teach, maintain and evaluate an elective pharmacy web-based course versus that same course offered through a traditional campus-based course. A secondary objective was to identify the sources of the workload. The study was approved by the Institutional Review Board at Creighton University as exempt from Federal Policy for Protection of Human Subjects prior to data collection.

METHODS

Course Content

Exercise and Sports Pharmacy (PHA 330) is a one credit hour elective course. Course content is identical in both the campus and web-based pathways. This course offers students the knowledge to counsel patients with chronic diseases such as diabetes, hypertension, hypercholesterolemia, obesity and others on appropriate exercises to help treat and prevent their individual disease(s). In addition, the course also provides informa-

tion regarding sports pharmacy issues such as the role of community pharmacists in counseling athletes and active people, the role of a team pharmacist, and issues concerning sports supplements.

Course Delivery

The campus-based and web-based courses are taught by the same instructor and are both offered during the fall semester in the second and third professional years of the pharmacy program. The campus-based class meets once per week for one hour. The in-class activities consist of lecturing, discussing study questions, and evaluating and discussing patient case scenarios.

Both courses are structured to have 13 lectures, two examinations and one written term-paper. The examinations and term-paper are due on the same dates in both pathways. The campus-based lectures are offered every Tuesday while the web-based lectures are available on the course web-site and can be accessed at any time throughout the semester.

In the web-based course, students obtain the exact same material as the campus-based students via a course web site that consists of lecture topics that are written and illustrated the same as the campus-based lectures. The material is presented on the course website in a Microsoft Word outline format without audio. Students submit questions and assignments via e-mail and participate in class discussions and review patient case scenarios via a discussion board. The discussion board is a format that allows students and instructors to post comments regarding a topic or topics so that the instructor and other members of the class can read comments and reply to them creating a sequence for the discussion. Deadlines for submitting material for each topic is listed on the course website.

Data Collection

Instructor workload was measured for each pathway by documenting the total amount of time required to teach, maintain and evaluate the students in the course each day. There are currently no established criteria for measuring faculty workload when comparing campus versus web-based courses. This study, however, is consistent with the workload variables reported in similar studies outside the area of pharmacy education (3-8).

For this study, workload was defined as the amount of time (measured in minutes) the instructor dedicated to the course starting from the first day of class and ending on the last day of finals week (including weekend days). The data collection time period was from August 18, 2004 through

December 17, 2004. The only workload criteria not included was the time to prepare the individual lectures and the time spent writing the examinations. These two variables were not included because the same lecture material and exams were used for all students, regardless of pathway. Therefore, there were no differences between these two variables. The total time inclusion criteria for each pathway are listed in Table 1.

Data was collected for both the campus and web-based courses via the use of a Microsoft Excel spreadsheet. A separate spreadsheet was used for each pathway. The data collection criteria listed in Table 1 was plotted in the columns from left to right at the top of the spreadsheet while each day of the fall semester was plotted in consecutive order in rows from top to bottom in the first column of the spreadsheet. To ensure accuracy of data collection, all the work performed by the instructor was completed during one time period at the end of each day. The data was then compiled at the end of the course.

RESULTS

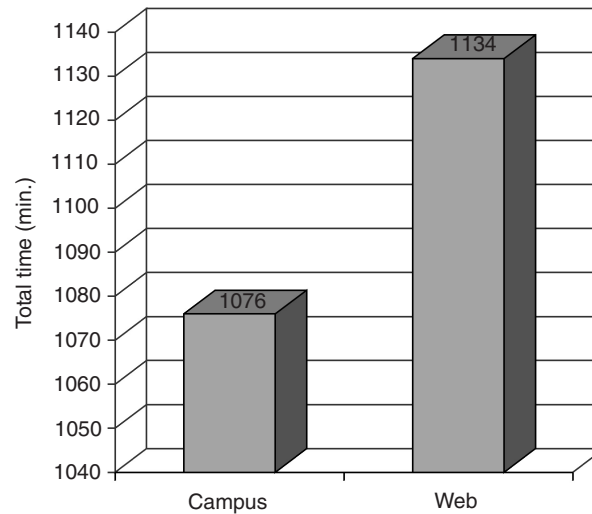
A total of 25 students were enrolled in the campus-based elective course while 16 students participated in the web-based course. The total amount of time accumulated throughout the semester to teach, maintain and evaluate the campus-based course was 1076 minutes versus 1134 minutes to teach, maintain and evaluate the web-based elective course. This represents a 5.4% increase in total workload to teach the web-based

TABLE 1. Workload inclusion criteria.

Time spent on course activities (recorded in minutes)	
Campus-Based Pathway	Web-Based Pathway
In-class activities with students (includes proctoring examinations)	Reading e-mails*
Copying handouts and examinations	Sending individual student e-mails
Recording class assignments	Sending class e-mails
Reading e-mails	Discussion board activities
Sending individual student e-mails	Phone conversations
Sending class e-mails	Office visits
Phone conversations	Grading (examinations and term-papers)
Office visits	
Grading (examinations and term-papers)	

*Includes recording class assignments as they are sent via email

FIGURE 1. Total faculty workload in web-based vs. campus-based pathways as measured in minutes.

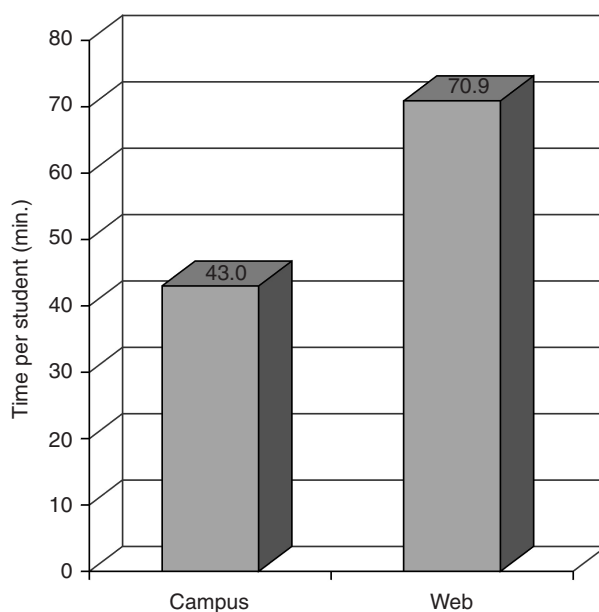


course (see Figure 1). When comparing the workload per student, the campus-based course consumed 43.0 minutes per student versus 70.9 minutes per student throughout the semester in the web-based course. This represents a 64.5% increase in workload per student (see Figure 2).

A secondary objective of the study was to determine the source of the total workload for each pathway. For the campus-based course, a total of 1076 minutes was consumed of which 834 minutes (77.5%) was allocated to in-class activities, 213 minutes (19.8%) to grading term-papers and examinations, 27 minutes (2.5%) to reading and sending e-mail, and 2 minutes (0.002%) to office visits. By comparison, the web-based course consumed a total of 1134 minutes, of which 929 minutes (81.9%) was allocated to reading and sending e-mails, 135 minutes (11.9%) to grading term-papers and examinations, and 70 minutes (6.2%) to the discussion boards. A summary of the total time allocation for each pathway is provided in Figure 3. The compiled results of the inclusion criteria for both pathways are provided in Tables 2 and 3.

The total number of days that were included in the data collection period was 122 days. The web-based course required the instructor to perform at least one minute of work activity on 31% (38/122) of these days. This compares with the instructor performing work for the campus-based course on 21% (25/122) of the possible data collection days.

FIGURE 2. Faculty workload per student in web-based vs. campus-based pathways as measured in minutes.



DISCUSSION

Several articles have been published addressing the issue of faculty workload as it relates to on-line courses. Much of what has been reported thus far has been based on anecdotal perceptions, rather than prospectively designed studies. Many articles report that the course development and maintenance of a web-based program dramatically increases instructor workload (1,3-8). One study, however, did conclude that instructor workload was less with a web-based course compared to a similar campus-based course (3).

A survey conducted by the National Education Association in 2000 indicated that of the faculty who have taught a distance education course, 53% said they spent more hours per week preparing and delivering the course material compared with teaching a campus-based course (1). In addition, the survey found that the top concern for faculty teaching courses in this pathway was that they would have to do more work for the same amount of pay. Another article reports that faculty workload increased 2 to 3 times when teaching on-line courses versus traditional

FIGURE 3. Percentage of total workload allocation in the web-based vs. campus-based pathways.

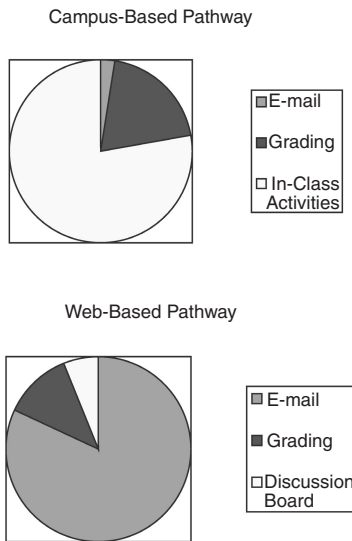


TABLE 2. E-mail and other workload variables in campus vs. web-based students.

Workload variable	Web-based course (N = 16) Total (per student)	Campus-based course (N = 25) Total (per student)	Difference Total (per student)
Number of e-mails received	230 (14.4)	14 (0.6)	216 (13.8)
Number of individual e-mails sent	63 (3.9)	11 (0.4)	52 (3.5)
Number of class e-mails sent	12 (7.3)	0 (0)	12 (7.3)
Number of phone conversations	0 (0)	0 (0)	0 (0)
Number of office visits	0 (0)	1 (0.4)	-1 (-0.04)

classroom courses (5). This report also states that these increases in workload led to faculty burnout and a discontinuing of some online course offerings.

One published study in the area of pharmacy education showed that teaching a non-traditional web-based pharmacy course accounted for a

TABLE 3. Workload time measured in minutes in campus vs. web-based students.

Workload time (minutes)	Web-based course (N = 16) Total (per student)	Campus-based course (N = 25) Total (per student)	Difference Total (per student)
Time spent reading e-mails*	741 (46.3)	11 (0.4)	730 (46)
Time spent sending individual e-mails	117 (7.3)	16 (0.6)	101 (6.7)
Time spent sending class e-mails	71 (4.4)	0 (0)	71 (4.4)
Time spent on phone conversations	0 (0)	0 (0)	0 (0)
Time spent on office visits	0 (0)	2 (0.1)	-2 (-0.4)
Time spent on discussion board**	70 (4.4)	0	70 (4.4)
Time spent copying handouts and exams	0	107 (4.3)	-107 (-4.3)
Time spent on activities in the classroom	0	560 (22.4)	-560 (-22.4)
Time spent recording class assignments	0	85 (3.4)	-85 (-3.4)
Time spent proctoring exams	0	82 (3.3)	-82 (-3.3)
Time spent grading term-papers	82 (5.1)	126 (5.0)	-44 (0.1)
Time spent grading exams	53 (3.3)	87 (3.5)	-34 (-0.2)
Total time	1134 (70.9)	1076 (43.0)	58 (27.9)

*For web students this includes recording class assignments as they were sent via e-mail

**Web-based students only

***Campus-based students only

three-fold increase in instructor workload compared with a same traditional classroom course (9). The amount of time per week spent in individual student consultation accounted for a majority of the increase instructor workload for this study.

This study showed that instructor workload did increase when teaching an on-line course compared with teaching a traditional campus-based course. It did not, however, show a 2 to 3 time increase in workload as others have reported. Rather, this study showed that instructor workload per student increased almost 65% when teaching on-line versus teaching a traditional campus-based course.

The results of this study can be used in several ways. Pharmacy or other higher education programs can use this information when determining feasibility of web-based pathway implementation at their institution. In addition, faculty administration can use this information when assigning course loads to faculty to make practical decisions on the overall workload of the faculty member. This study also found that the majority of the workload for web-based instructors comes from receiving and sending

e-mail communications to students. Pharmacy programs considering a web-based pathway and the administration of these programs must take this into consideration when assigning faculty to web-based courses. Faculty teaching web-based courses must be effective at teaching via on-line format for the course to be successful. Additional faculty development in the area of on-line teaching and technology may be necessary prior to the implementation of a web-based program. This is evident in this study as a majority of the workload involved with teaching this web-based course came from receiving and sending e-mail.

A major limitation involved with this study deals with the technology efficiency of the instructor. Having an instructor who is efficient and productive working with e-mail and discussion boards may significantly affect workload compared with an instructor who is not as technologically proficient. Other limitations to this study include the number of students in each class was not identical and the class was an elective course which may differ in workload from a required courses.

CONCLUSIONS

Instructor workload is an important issue when teaching any course. A side-by-side comparison of identical courses showed that instructor workload for an elective one credit hour pharmacy course demonstrated a 64.5% increase in workload when teaching web-based students compared with teaching campus-based students. Most of the workload involved with the web-based course came from receiving and sending e-mail while workload from the campus-based course came from in-class activities. Pharmacy programs considering implementing a web-based pathway can use this information to determine the feasibility of implementing an on-line program as well as assigning specific faculty to teach on-line courses. This study may offer a format for similar studies to be designed as more studies in this area need to be completed to confirm these results.

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