



Research

Evaluation of synchronous versus live instructional delivery methods on student academic outcomes and perceptions at a multi-campus school

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Abstract

Objectives: To compare student academic performance from live and synchronous case-based active learning sessions between a satellite and main campus. The secondary objective was to evaluate student perception of instructional delivery methods.

Methods: Students were taught infectious diseases through patient cases delivered either synchronously to both campuses or live at each campus. Student performance was assessed by examination grades. Student perception of content delivery methods was evaluated using a survey.

Results: Students performed better on examinations that pertained to content that were delivered live. The average examination grade for live and synchronous course material was 72.2% and 62.2%, respectively. In the main campus, 81.5% of students preferred live lectures. In the satellite campus, 66.7% of students preferred synchronous education. Overall, students agreed that synchronous cases helped them prepare for graded assessments.

Conclusions: Both campuses differed in their preference of instructional delivery methods. Though there was a higher examination score with the live cases, this could be due to the nature of the disease states tested and the small number of synchronously taught cases. Further evaluation of these delivery methods need to be done to confirm these results and to better utilize resources as multi-campus universities continue to grow.

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Introduction

Over the past ten years, many colleges and schools of pharmacy have created multi-campus programs in order to meet workforce needs, improve access to clinical resources, and expand pharmacist presence in rural areas.^{1,2} According to the Accreditation Council of Pharmacy Education, as of December 2012, 32 colleges or schools of pharmacy in the United States had established multi-campus or web-based programs in 41 distinct locations.³ Because of this trend,

various instruction delivery methods have been employed and evaluated to ensure consistency, quality, and equivalency between campuses.^{4–8}

The most common methods of instruction delivery utilized at these multi-campus programs include some form of asynchronous or synchronous delivery. Asynchronous modalities include faculty from the main campus teaching at the main campus that is recorded and the students at the satellite campus can view the lecture once it is posted on a secure website. Asynchronous education could potentially avoid faculty from the main campus having to teach the same material twice for both campuses and therefore could reduce faculty time. However, asynchronous education could also limit interaction between faculty and students at the satellite campus and prohibit interaction among

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students at both campuses. This form of education also hinders faculty from utilizing active learning as part of their teaching methods. Synchronous education can involve a faculty member teaching at the main campus with the satellite campus present live through an interactive video conferencing system. This method may be more costly but allows students from the satellite campus to feel more engaged in the course and allows them to interact with faculty as well as the students from the main campus.

Regardless of the instruction delivery methods utilized it is important to ensure that there is equivalency in student performance at each campus and to monitor student perception and preference. Our university was one of the 32 schools to open a distance satellite campus. We adopted a hybrid instructional delivery method where asynchronous methods were used for the majority of our content, but these lectures would be supplemented by live support from faculty present at the satellite campus. In addition to the faculty at the satellite campus we also had the ability to use video conferencing when discussion or interaction was needed.⁹ Since the inception of this new site, the school has been able to consistently demonstrate equivalent performance on graded assessments, grade point averages (GPAs), and course averages between campuses.¹⁰ The University of Florida distance education program utilizes a similar hybrid instructional delivery method and also found no difference in GPAs for both campuses.⁸ The Texas Tech University Health Sciences Center utilizes synchronous instructional delivery with interactive video conferencing for their satellite campus and also found no difference in course average or GPA based on the campus.⁶ Another study at the University of Georgia assessed student performance in a pharmacokinetics course that was taught live at two campuses in the first year, half live and half synchronously in the second year, and all synchronously the third year. The synchronous education was an interactive video conference. This study found that regardless of instructional delivery, student performance did not change.¹¹

There are many factors that play a role in the student preference of instructional delivery. A previous analysis of our main and satellite campus found that there was a significant difference in the time allocation to viewing video lectures and attending classes. As all lectures are presented live and taped from the main campus it was intuitive that 50% of the students on the main campus stated that they spent 10–20 hours per week attending classes. On the other hand, 58% of students at the satellite campus stated that they spent 10–20 hours per week watching taped lectures.¹⁰ A study in Alabama compared their 2011 first-year pharmacy students to their 2013 first-year pharmacy students with regard to their likelihood of substituting attending class for watching the taped lecture. They found that in the 2013 class 63.6% of students would forego attending class to watch the taped lecture three or more times per week compared with 0% in the 2011 class. In addition however, this study also found that the 68% of the

main campus students watched the taped lecture three or more times a week compared to 41% at the satellite campus. In the same study it was found that students preferred the taped lectures as a replacement for attending class as well as to review for quizzes and examinations.¹² Another study from the Texas Tech University Health Sciences Center evaluated student preference of instructional delivery between synchronous via interactive video conferencing and asynchronous where the lectures are taped at the main campus for students to view via internet at the satellite campus. This study determined that, regardless of campus, students preferred live lectures. Due to the comments made by the students it seemed mostly due to the time it took to view the lecture via internet and the lack of interaction between the faculty and the students from the satellite campus. Other comments included the lack of time management on the student's part to view the lecture in a timely manner.¹³ Overall, there seems to be a growing interest for students to view lectures that are taped instead of attending classes. Some reasons as to why students would prefer live versus taped lectures include technology as well as the interactions with the faculty.

With the minimal data currently available to determine the best approach for teaching a multi-campus pharmacy curriculum based on outcomes and student preference, we aimed to better understand how students perform and what instructional delivery they prefer between live lectures and synchronous technology.

Objective

The objective of this study was to evaluate student academic outcomes based on two modalities of instructional delivery (live versus synchronous) and to assess student perceptions and preferences for the various modalities utilized in an infectious disease course.

Methods

In 2007, we opened a distance satellite campus 45 miles away from our main campus. We enrolled 40 students at the satellite campus and 120 at the main campus using the same admissions criteria. Since the inception of the new campus, the required didactic portion of our curriculum has been taught asynchronously by recording lecture content on the main campus and subsequently posting it on a secure website, Mediasite, for the distance campus students to view via internet. Classes and activities that require significant interaction between and among faculty and students, such as case-based active learning sessions, electives, small group presentations, are delivered synchronously via interactive video conferencing. We also have faculty at the satellite campus who are utilized to supplement course material and engage student participation.⁹

Our Microbiology and Antibiotics (MICAB) course is a yearlong, required second-year course. The course is

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