

Flipping the Classroom: A Customized Menu for Your Learning Style

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PHRM 741 – Pharmacotherapy II

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Description of the Project

PHRM 741 is one of six pharmacotherapy modules taught in the didactic portion of the School of Pharmacy curriculum and is offered in the fall of the second professional year. Pharmacotherapy is a team-taught course where students learn how to manage various disease states utilizing information previously learned in pharmacology and other basic science courses. Various faculty members participate in the course based on their respective expertise in the different content areas. PHRM 741 covers cardiology and, historically, is the most challenging pharmacotherapy module for pharmacy students due to both the complexity and volume of the course material.

Consistent with other disciplines, there has been a recent movement in pharmacy education to “flip the classroom” in an effort to better engage students in the learning process. Opponents to this model within pharmacy education have cited both volume of material and complexity as two of the main reasons a flipped approach would not prove successful. Currently, UUSOP faculty have continued to utilize a traditional lecture approach in each of the pharmacotherapy modules for the aforementioned reasons. As one who is always up for a challenge and exciting student commentary on course evaluations, I decided it was time to provide our students an opportunity to think for themselves and “flipped” the pharmacotherapy classroom.

Over the course of a month, I teach three cardiac concepts in the following order: stable ischemic heart disease (SIHD), acute coronary syndromes (ACS) and heart failure. The underlying pathophysiology of these disease states is a progressive continuum, hence the order in which the topics are presented. SIHD and ACS were taught using the traditional lecture approach and heart failure was taught using a flipped classroom approach over six, 50 minute class periods.

Prior to the flipped classroom experiment, students completed a survey that determined their respective learning style. The Pharmacists’ Inventory of Learning Styles (PILS) survey instrument was utilized as it has been found to be both valid and reliable in the areas of pharmacy practice and education.¹

Students were also asked to self-identify their learning style from the following options: active, auditory, verbal or visual. Both learning style results, as well as a description of each PILS style (Creator, Director, Enactor, or Producer), were posted to Moodle prior to my teaching in the cardiology module. Results were identifiable via a unique code generated by the student to maintain anonymity. Students were encouraged to self-educate regarding their respective PILS learning style in an effort to increase self-awareness regarding how they learn best.

In an attempt to cater to different learners, a menu of learning resources was created for the heart failure series. The following learning resources were made available for students to use as they desired: lecture slides and supplemental handout, objective worksheet (all lecture learning objectives were turned into questions that students were to answer on their own), 2013 ACCF/AHA Guidelines for Management of Heart Failure, an article on cardiac remodeling, a pharmacology review of all agents utilized in the treatment of heart failure, a series of nine videos that covered the major components of the lecture handout, and three patient cases. Care was taken to ensure all tools aligned with the learning objectives for the heart failure series. To minimize anxiety and confusion, students were informed on multiple occasions that the materials provided were all covering the same content, but in a different way. For example, visual learners might prefer the lecture slides whereas auditory learners might prefer the videos. The intent of providing a menu of resources was to allow students to identify deficiencies in their heart failure knowledge base and then select the tool that aligned most closely with their preferred learning style.

This topic was assigned the same amount of contact time as in previous course offerings, but class time was used for interactive discussion and application of knowledge instead of traditional lecture. In an attempt to create an environment of fun and competition, I awarded the student who answered the most challenging question or addressed the most difficult concept discussed that day with a stuffed anatomically-correct heart. The student selected earned bragging and babysitting rights until the next

class meeting. While this seems somewhat elementary, the students found it highly entertaining and the level of engagement in class increased with a “prize” involved!

How the Project Differs From Others in the Field

Reports of flipped classroom experiences have become more prevalent in the pharmacy literature over the past couple of years. This project differs from what is currently being done in that it involves what is often considered the most difficult course in pharmacy curricula, pharmacotherapy, and includes a focus on the student’s individual learning style. Much of the current literature describes the flipped classroom approach in a small-group, elective course setting where the student-teacher ratio is smaller and students already have an understanding of core disease state management. I am not aware of any reports combining a flipped classroom approach with an emphasis on learning styles and a customizable menu of learning resources.

My Opinion: Project Success and Potential for Improvement

The flipped classroom experiment, in my opinion, was both fun and successful! Objectively, exam scores for this module were the highest they have been in the seven years that I have taught this material. Students were given a post-experience survey and the following quantitative data was collected:

- 90% of respondents felt PILS correctly identified their learning style
- 52% of respondents felt this method of teaching improved their learning of the material
- 87% of respondents felt confident in their ability to correctly answer exam questions

Positive qualitative responses collected on the post-experience survey are included below:

- *“I was nervous and a little overwhelmed at first, but once I sat down and looked into the videos and extra resources I feel that I learned a lot! It was beneficial looking over it prior to class.”*
- *“I strongly feel that the exposure to the information in a variety of formats aided in my learning and understanding of the material.”*

Ultimately, I made the decision to flip the classroom in an attempt to both improve exam scores but also to improve the student's ability to apply this information the following semester in the Applied Therapeutics course (PHRM 767). Earlier this spring I received the following unsolicited feedback in an email from a current second-year student: *"I know this might sound kind of cheesy, but I wanted to thank you for the charts/notes from Heart Failure. I just presented a heart failure patient in Applied, and your notes and charts helped me so much! I certainly would not have done as well as I did if I hadn't had the packets from last semester to study. I even noticed the fourth-year pedagogy student who was questioning me look at one of your flow charts from the supplemental packet. My notes from the flipped classroom was also really, really helpful. That learning style definitely proved to help me with long-term retention. Anyway, I just wanted to say thank you for that material and I hope we get another chance to do the flipped classroom!"* In an effort to further discern the impact of this change in teaching methodology and to improve the student's understanding of how their learning style affects their study approach, I plan to develop a survey assessing the impact of the flipped classroom approach on the student's perceived ability to successfully develop a therapeutic drug regimen and care plan in the Applied Therapeutics course.

In summary, this learner-centered approach proved to be a valuable learning experience for my students. Despite the increase in workload for both myself and the students, the change was received positively and ultimately, significant learning seemed to occur based on objective exam findings. I do plan to continue this approach in the years ahead, improving upon the approach based on survey feedback, and will now consider flipping other pharmacotherapy topics that I previously taught using traditional lecture.

References

1. Austin Z. Development and Validation of the Pharmacists' Inventory of Learning Styles (PILS). American Journal of Pharmaceutical Education 2004; 68(2) Article 37.