

4-1-2017

Flipped Out: Teaching New Pharmacy Students Drug Literature Searching and Evaluation Using Online Instruction, Mini Lecture, and Active Learning

Wendy Wu

Wayne State University, ab6840@wayne.edu

Veronica E. Bielat

Wayne State University, ag6887@wayne.edu

Recommended Citation

Wu, Wendy and Bielat, Veronica E., "Flipped Out: Teaching New Pharmacy Students Drug Literature Searching and Evaluation Using Online Instruction, Mini Lecture, and Active Learning" (2017). *Library Scholarly Publications*. 130.
<http://digitalcommons.wayne.edu/libsp/130>

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FLIPPED OUT: Teaching New Pharmacy Students Drug Literature Searching and Evaluation Using Online Instruction, Mini-Lecture and Active Learning



Wendy Wu, Information Services Librarian, Shiffman Medical Library
Veronica Bielat, Information Services Librarian, Wayne State University Library System

BACKGROUND:

PharmD Program @ Wayne State University

- 4-year curriculum
- Fully accredited by American Council on Pharmacy Education
- Incoming class of 100 students

The Course: Drug Literature Evaluation and Foundations of Research (PHA 4125)

- PharmD freshmen requirement
- Evolved from lecture-based Medical Informatics PHA 3040
- Librarian taught F2F how to search & evaluate drug information
- Students answered drug related clinical inquiries with team-based in-class activities

Flipped Classroom: An Innovative Approach

- Integrates active learning techniques highlighted in 2016 ACPE standards
- Promotes critical thinking and self-directed learning
- Learning materials accessible any time before class session builds knowledge prior to class
- Class activities fosters collaborative learning and improves class participation
- Student apply key concepts with immediate feedback from pharmacy instructor, librarian and peers

Collaborative Design Team:

- Subject Matter Expert (Medical Librarian), Library's Instruction Coordinator, Library Instructional Designer (Graduate Student)

Benefits of Collaborative Design

- Less time, better product
- Leverage subject and design expertise
- Use instructional design strategies to improve student outcomes
- Build professional knowledge and skills

OUTCOMES:

Assessment: Class quiz and exam, feedback, online surveys and classroom observation

- Exam Score: 9.1% improvement on literature searching
- Postcourse Evaluation: 79.3% students embraced flipped course and agreed classroom activities increased their understanding of the materials
- PubMed Video Survey: Students reported more confidence in the PubMed Searching skills
- In class observation: active engagement in class activity, asked more questions

Impact on Student Learning

- Applied critical thinking skills obtained in pre-class video and guide viewing for team-based activities in class
- Confidence to employ database advanced features to find medical literature with specificity and sensitivity
- Better retention demonstrated through improved quiz and mid-term exam scores
- Students reported improved class experience

Student feedback:

Apply the info I learned to my future practice

Videos helped me understand material and rewatching the video reinforced what I learned

Class activity was the most informative part - putting the skills demonstrated and learned into action

Faculty feedback:

Students got engaged in class more actively

Short videos allowed students to maintain focus, confusing portions of the video could be revisited

Mini lecture is helpful to enforce key points

IMPLEMENTATION OF LEARNING MATERIALS:



View and Complete Before Class

- Short videos on PICO and effective literature searching using Case Scenario (YouTube videos)
- Drug databases and App Guides (LibGuides)
- Assessment Quiz



Class Session

- Mini-lecture to highlight keypoints from videos and resources
- Team-based literature retrieval Scavenger Hunt
- Answers to clinical questions using different sources collected via Blackboard



Post-Class Session

- View and grade students' scores with faculty
- Summative Exam questions in mid-term to evaluate retention of knowledge and skills



CONCLUSION:

The flipped classroom model had a positive impact on our instructional goals. We were engaged in active teaching, achieved better student learning outcomes and met ACPA accreditation standards. We will continue seek collaboration with faculty and engage in innovated techniques to support student development of critical thinking and independent learning skills through active learning, collaborative learning and flipped classroom models.

FUTURE IMPROVEMENTS BASED ON STUDENT FEEDBACK:

- Improve video navigation with Table of Contents
- Provide alternative formats for videos, such as handouts with video screenshots
- Provide 5-minute short videos on each key individual drug database to highlight features
- Continue working with faculty to update learning materials several months before class