



# The Flipped Classroom: A Reasonable Approach to PA Education?

Diana Noller, MSPT, MMS, PA-C  
Joseph Zaweski, MPAS, PA-C

---

# The Flipped Classroom Concept

- Instructional content traditionally delivered in the classroom (lecture) is provided in an easy to access format to review on one's own time
- Class time then allows for interactive participation and timely feedback
- Focus is on using classroom time for **application** of the material through
  - Case studies
  - Simulation
  - Team based learning
  - Games
  - Small group discussion

# Relevance of the Flipped Classroom to Today's Learner

- Attention span when passively listening for a typical adult is < 15 min<sup>1</sup>
- Majority of PA students are comfortable using technology
- With the volume of medical knowledge expanding, students will need to develop skills in accessing and managing informational resources
  - Important when promoting concept of life long learning

# Does the flipped classroom work?

- Meta-analysis by the Dept. of Education concluded that “on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction”<sup>2</sup>
- Outcomes improved when instructional methods were blended<sup>2</sup>

# Why it works

- Promotes self-paced learning
- Facilitates active learning
  - Enhances retention and understanding of material<sup>3</sup>
- Makes students more adaptable
- Provides real-time feedback in the classroom

# A Trial of the Flipped Classroom in PA Medicine Curriculum

- Portion of Neurology lectures were provided to students in an online format using Adobe Captivate ®
- Online lectures were ~ 15 minutes in length (a total of 6 lectures)
- Class time was spent in two ways
  - Question-answer sessions using a clicker response system
  - Discussing the application of material using case-based scenarios

# Questions the group will be discussing

- How do you apply appropriate credit hours to flipped classroom work?
- Does this method create additional student and faculty workloads? If so, how much?
- How do you ensure student compliance with out-of-classroom assignments?
- Which topics work best for implementation?
- What is the best format to deliver out-of-classroom course content? How may this vary depending upon the subject matter?
- How are student questions best addressed in an asynchronous learning environment?

# Student Survey of Online Lectures

Please rate the ease of using the Captivate online lectures

- |                        |            |
|------------------------|------------|
| ● <b>Easy to Use</b>   | <b>81%</b> |
| ● Somewhat difficult   | 17%        |
| ● Moderately difficult | 2%         |

# Student Survey of Online Lectures

I listened to each of the online lectures prior to the in-class review session

- |         |     |
|---------|-----|
| ○ True  | 83% |
| ○ False | 17% |

# Student Survey of Online Lectures

Being able to revisit the online lectures was helpful

- Strongly agree 51%
- Somewhat agree 44%
- Somewhat disagree 5%

# Student Survey of Online Lectures

I used the online lectures to help me prepare for the exam

- |                  |     |
|------------------|-----|
| ● Strongly agree | 46% |
| ● Somewhat agree | 39% |
| ● Disagree       | 12% |
| ● Unanswered     | 3%  |

# Student Survey of Online Lectures

The **online** lectures were **no more helpful** than the podcasts of in-class lectures

- Strongly agree 7%
- Somewhat agree 24%
- Somewhat disagree 42%
- Strongly disagree 27%

# Student Survey of Online Lectures

I needed to study **online** lecture material **more than** the material provided in-class in order to understand the topics sufficiently

- Strongly agree 3%
- Somewhat agree 24%
- Somewhat disagree 29%
- Strongly disagree 44%

# Student Survey of Online Lectures

I understand the material covered in the **online** lectures (paired with the review sessions) **more than** I would have by in-class lectures alone

- Strongly agree 22%
- Somewhat agree 51%
- Somewhat disagree 27%
- Strongly disagree 0%

# Student Survey of Online Lectures

The in-class review session covering the online lecture material was essential to my understanding the material covered in the online lectures

- Strongly agree 7%
- Somewhat agree 51%
- Somewhat disagree 37%
- Strongly disagree 5%

# Student Survey of Online Lectures

It was difficult for me to pay attention to the online lectures when compared to in-class lectures

- |                     |     |
|---------------------|-----|
| ● Strongly agree    | 3%  |
| ● Somewhat agree    | 12% |
| ● Somewhat disagree | 34% |
| ● Strongly disagree | 51% |

# Student Survey of Online Lectures

I felt just as prepared to answer questions on the exam that covered online lecture material as I did questions covering material that was presented during an in-class lecture

- |                     |     |
|---------------------|-----|
| ● Strongly agree    | 61% |
| ● Somewhat agree    | 29% |
| ● Somewhat disagree | 10% |
| ● Strongly disagree | 0%  |

# Student Survey of Online Lectures

- “I found it much easier to pay attention listening to the online lecture than many of the in class lectures”
- “Going over it once on my own and then having the review session was more helpful in retaining the information”
- “I liked that the online lectures had scheduled time during the day instead of adding it to the schedule in addition to in-class sessions”

# Student Survey of Online Lectures

- “the material covered with the online lectures was not as difficult to understand as some of the diseases covered in class”
- “the use of online lectures is really dependent on the specific content type”
- “overall the lectures were okay, but I would still prefer to be in class”
- “I enjoy in class learning because its easier for me to remember when I’m studying for the exam, so I definitely would not want these to serve as a replacement for in class learning”

# Student Performance Comparison

- Identical test questions given in 2012 and 2013 exams
- Average score for test questions covering lecture material presented as a flipped classroom

**2012**

**88.6%**

**2013**

**90.4%**

# Summary

- Material must be brief and concise
- Time during the day should be blocked to accommodate added work
  - Do not add more work to current in-class schedule
- In-class time for “flipped” material should incorporate a different learning technique such as case studies or team based learning

# References

1. Straumanis J. What we're learning about learning and what we need to forget. *Society for College and University Planning*. July-Sept 2012; 6-11.
2. Prober C, Heath C. Lecture halls without lectures-a proposal for medical education. *The New England Journal of Medicine*. May 2012. Vol 366;18; 1657-1659.
3. Ruiz J, Mintzer M, Leipzig, Rosanne. The impact of e-learning in medical education. *Academic Medicine*. March 2006. Vol 81; 3; 207-212.