iPad Technology Implementation in a Medical Gross Anatomy Laboratory: A Quality Improvement Pilot Study

2nd Annual BSOM Medical Education Day
April 20, 2016
Taj Nasser, MS2
Kody Pratson, MS2
Acknowledgement and the Team

• Anatomical Gift Program at BSOM
• Dr. Kelly Harrell, Director of Gross Anatomy and Embryology course
• Office of Medical Education
• Zach Frabitore, MS2
• Shelby Powers, MS2
• Jim Eubanks, MS2
• Jack Williams, MS2
• Wooten Jones, MS2
Background
How?

source
Assessment (5 P’s)

- **Purpose**: Improve learning environment and achieve the best possible student satisfaction.
- **Patients** (students): First year BSOM medical students.
- **Professionals**: MD, PhD, PA, PT, DMD, CRNA
- **Processes**: Dissection quality/efficiency, accessibility of information, faculty availability and requirement for student assistance.
- **Patterns**: student satisfaction, preferences, and academic impact.
Aim

• **Global**: We aim to catalyze effective learning in the Gross Anatomy lab at the Brody School of Medicine. The process begins with iPad introduction along with beneficial applications and ends when the needs of medical students are met. By working on this process we expect to facilitate a more efficient and valuable learning experience and increase medical student satisfaction. It is important to work on this now because we need a better educational environment in the lab.

• **Specific**: Develop a more effective and efficient learning environment in the Gross Anatomy lab to increase medical student satisfaction by introducing iPad tablets equipped with beneficial applications by the end of the Fall semester of 2015.
Plan – P
Do – D
Study – S
Act – A

Key:
Oval – Start or end of the process
Rectangle – Step in the process
Diamond – Decision point

Student arrives at Brody

Lab notes and overview in class?

Yes

Dissection guidelines discussed in class

No

Head to lab and wear appropriate attire

Clean up and exit lab

Yes

Direct to lab and wear appropriate attire

No

Chalk talk?

Yes

Faculty guides students

No

Questions for Faculty?

Yes

Continue dissection

No

Begin dissection with team

Faculty guides students

Yes

Questions for Faculty?

No

Complete dissection

Additional objectives?

Yes

Observe anatomical models, prosections, etc.

No

Dissection guidelines discussed in class

Join group and faculty for brief overview
Develop a more effective and efficient learning environment in the Gross Anatomy lab to increase medical student satisfaction by introducing iPad tablets equipped with beneficial applications by the end of the Fall semester of 2015.
Implementation

- Internet-accessible iPad Air 2® tablets
- Online dissector
- Essential Anatomy 5 application
- Abundant resources
- Ease/comfort of use
Pilot Study: Introduction

• **Purpose**: Characterize the impact of iPad implementation on student perceptions of learning in a first-year Medical Gross Anatomy and Embryology course.

• **Hypothesis**: The implementation of iPads with reference applications would improve student perceptions of learning and faculty availability during laboratory sessions.
Pilot Study: Methods

• A voluntary 20-item, pre-implementation questionnaire was completed by students (n=84).
  – Students rated levels of agreement to statements regarding the lab component of the course.
• iPads distributed during the 2\textsuperscript{nd} half of the course.
• Post-implementation questionnaire completed by students (n=70) after course concluded, again asked to rate levels of agreement over same statements.
Pilot Study: Major Findings

Survey Questions that demonstrated significant different between pre- & post- questionnaires

- "Estimate the average amount of time faculty spends with your dissection table during a typical 2-hour lab"
- "I feel like the amount of time indicated in question #7 is adequate to sufficiently answer my questions"
Pilot Study: Major Findings

- Significant difference in Student’s perception of time of faculty availability during scheduled dissection time before (M = 2.1, SD = 0.10) and after (M = 2.4, SD = 0.09) implementation; t(69) = 2.93, p = 0.005.
- Significant difference in Student’s rating of if that time of faculty assistance was sufficient before (M = 3.4, SD = 0.14) and after (M = 3.7, SD = 1.09) implementation; t(69) = 3.08, p = 0.003.
Pilot Study: Significance & Future Direction

- Findings suggest iPad implementation resulted in a significant increase in student perception of faculty availability and student satisfaction during the lab component of the course.

- Future studies
  - Student and Faculty satisfaction
  - Academic impact of iPad use.
  - Effect of additional applications.
References

- Dartmouth Instituted For Health Policy and Clinical Practice: (2010). www.clinicalmicrosystem.org
QUESTIONS???