A Medical Student – Driven iPad Initiative

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Anatomy Fellow & OMS III
*Kirksville College of Osteopathic Medicine – A.T. Still University*
...the first class participating in the iMedEd Initiative *scored an average of 23 percent higher on their national exams* – taken at the end of the second year of medical school – than previous UC Irvine medical school classes, despite having similar incoming GPAs and MCAT scores."

Dr. Ralph V. Clayman
Dean of the UC Irvine School of Medicine
Overview

- KCOM iPad Initiative
- How to use iPad in school
- Impact on our education
Purpose of Initiative

• To investigate the use of the iPad as a tool to enhance the learning experience

• Prepare today’s medical students to be better-equipped physicians of the future

• To reduce the volume of printed course materials
Pre-Pilot Student Interest (n=311; Nov. 2011)

- Interested: 83%
- Not Interested: 17%
Pre-Pilot Student Interest (n=311; Nov. 2011)

*Interest was gauged via electronic surveys

- 83% Interested
- 17% Not interested

- 40% Change study method
- 29% Prefer paper
- 15% Prefer other tablet
- 9% Lack iPad ownership
- 7% No interest
- 17% Prefer other tablet

*Interest was gauged via electronic surveys
Phase I – Focus Group

• Purpose:
  • To determine iPad’s potential as a medical education tool
  • Investigate potential Apps for medical students
Phase I – Focus Group

- 24 students who already owned iPads
  - Volume purchase license
  - App purchasing at reduced cost
  - Grant from Academic Affairs to purchase Apps
Phase I – Focus Group

• App investigation inspired a list of preferred medical student Apps:
  
  • Notability
  • iCatcher
  • Goodplayer
Phase II – The Pilot Group

• Selection criteria:
  1. A prior study method of paper & pencil
  2. Limited technologic aptitude
  3. Willingness to participate in weekly surveys
  4. Willingness to attend weekly training meetings
Phase II – The Pilot Group

• 24 students received iPad2-16 GB devices
• Weekly training sessions were held
• YouTube videos on kcomipads account
  • App instructionals
  • iPad basics
Printing Breakdown

• **Student Printing**
  - Free printing provided to students in the campus library

• **Campus Printing**
  - Printed course materials that are provided to the student by the school
Phase II – The Pilot Group

Results

• At one week, **student printing decreased** from an average of 57 pages/week/student to four pages/week/student
  • These figures were independent of print materials provided by the school

• Within three weeks all participants experienced **increased organization** & **enhanced effectiveness** while studying
## Estimated Total Annual Printing Cost

<table>
<thead>
<tr>
<th>Expense</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Education Printing Budget</td>
<td>$25,000.00</td>
</tr>
<tr>
<td>All Other Departments Printing Budget</td>
<td>$25,000.00</td>
</tr>
<tr>
<td>Printer replacement each year</td>
<td>$25,000.00</td>
</tr>
<tr>
<td>Printer Maintenance</td>
<td>$10,000.00</td>
</tr>
<tr>
<td>Student Printing in Library</td>
<td>$17,321.00</td>
</tr>
<tr>
<td><strong>Total Cost per Class per Year on Campus</strong></td>
<td><strong>$102,321.00</strong></td>
</tr>
<tr>
<td><strong>Total Cost per Class Completing 2 years on KCOM campus</strong></td>
<td><strong>$204,642.00</strong></td>
</tr>
</tbody>
</table>

Monetary values are not exact; however, an attempt was made to make low estimate so as not to over-inflate these values.
## Cost Comparison

<table>
<thead>
<tr>
<th>Paper &amp; Pencil</th>
<th>iPad (if purchased by institution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Student printing in library = $34,641‡</td>
<td>• Eliminate free student printing in library</td>
</tr>
<tr>
<td>• Printed B&amp;W course materials = ~$170,000‡</td>
<td>• Eliminate B&amp;W printed course materials</td>
</tr>
<tr>
<td>• Total printing cost = <strong>$204,641‡</strong></td>
<td>• $600 X 172 iPad3s per class = <strong>$103,200‡</strong></td>
</tr>
</tbody>
</table>

‡All monetary figures apply to a class of 172 completing its first two years on campus.
Potential Savings

If school purchases iPads:

• Potential savings = $101,442

If students’ fees purchase iPads:

• Potential savings = $204,642

**All monetary figures apply to a class of 172 completing its first two years on campus.**
Results from March 2013 (n=101)

Current Student Printing at KCOM

- 0-20 pages per week: 64%
- 20-40 pages per week: 12%
- 40-100 pages per week: 12%
- 100+ pages per week: 13%

Pie chart showing the distribution of printing activities among current students at KCOM.
Student satisfaction with iPad for note taking

Results from March 2013 (n=101)

- 50% Extremely Satisfied
- 26% Somewhat Satisfied
- 9% Neutral
- 10% Somewhat Dissatisfied
- 5% Extremely Dissatisfied
Note Taking Before iPad
Notetaking Demo with iPad

- Blackboard Mobile Learn App
- Notability
- Dropbox
Popular Apps

• **iCatcher**
  - Podcasts of all lectures accessible to stream or download
  - Listen back at .5X-2X

• **GoodPlayer**
  - Allowed streaming of various types of video
    - i.e. Flash and other formats do not play on iPad
    - App is no longer used much, due to KCOM’s conversion of video materials to mp4
Textbook Apps

• iBook & iAuthor
  • Photos can be easily enlarged by student
  • Professors can embed formative quiz-type questions that provide instant feedback to the student

• Inkling
  • Interactive
  • Video content embedded

• Kno
  • More traditional format – similar to print texts
Pros & Cons of Textbook Apps

**Pros:**
- Portable/lightweight
- Interactive
  - Quizzes
  - Notecards
  - Videos

**Cons:**
- Many different e-Book Apps
  - Wide range of App quality
  - Inability to consolidate all books into one App
Impact on Learning

- **Efficiency**
  - Entire medical school curriculum at fingertips 24/7 (Cloud)
    - Podcasts, books and notes
  - Content is searchable
  - Coursework provided in color
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• Take advantage of more study opportunities
  • Better use of time (i.e. bus or train)
  • Immersive environment

• Allows personalization of study methods
  • Note-taking
  • Apps for Board preparation
    • UWorld & Combank

• Interactive platforms for textbooks
Better-prepared Future Physicians

• *It's not about how much information you can cram into your brain, but it's how much information you have at your fingertips that counts!!*

• *We must be familiar with current technology in order to use it in future practice*
In the Clinics - Better Prepared Physicians

- Reference while rounding on patients
  - Medscape
  - ClinicalKey or UpToDate
  - Epocrates
  - Read by QxMD
- Apps
  - Resuscitation!
  - Littman's
- Plug-ins:
  - Ultrasound probe
  - Stethoscope
- EMR documentation
- Patient communication
- Meets HIPPA regulations
Our Expectations

• Enhancement of the **learning experience**
  • Personalize study material
  • Fosters collaboration between faculty and students
Our Expectations

• Enhancement of the learning experience
  • Personalize study material
  • Fosters collaboration between faculty and students
• Potentially increase board scores in first class of full-implementation
• Enhance our abilities as future physicians
• Great potential for financial savings
• Reduction of carbon footprint
Contributions

• Dr. Margaret Wilson, DO, Dean of KCOM
• Dr. Stephen Laird, DO, FACOS, MHPE, Associate Dean for Academic Affairs
• Susan Coon, MABC, Director of Academic Affairs
• Jean Varnold, KCOM Information Technologies & Services Manager
• Brian Krusniak, BSE, MBA, Assistant Vice President – Information Technologies & Services
• KCOM/ATSU Students & Faculty

• Original KCOM iPad Committee:
  • Talon Anderson, BS, Biomedical Science Graduate Student, KCOM/ATSU
  • Michael McGrew, BS, Biomedical Science Graduate Student & OMS-I, KCOM/ATSU
  • Kevin Sagers, BS, OMS-II, KCOM/ATSU
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To view the KCOM iPad Initiative’s iPad instructional videos, visit YouTube and search for kcomipads channel.