Pros and Cons of Pre-recorded Lectures via Echo360 Lecture Capture System for Undergraduate Teaching:

Perspectives of Both Students & Teachers

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Background

- Medical and biomedical undergraduate programmes require physiology as part of the core curricula.
- Physiology courses also serve as foundational prerequisites for upper-year study.

<table>
<thead>
<tr>
<th>Programmes (Year 1- 2011-2012)</th>
<th>Student number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Medicine</td>
<td>173</td>
</tr>
<tr>
<td>Bachelor of Pharmacy</td>
<td>28</td>
</tr>
<tr>
<td>Bachelor of Nursing</td>
<td>200</td>
</tr>
<tr>
<td>Bachelor of Biomedical engineering</td>
<td>52</td>
</tr>
<tr>
<td>Bachelor of Chinese Medicine</td>
<td>34</td>
</tr>
<tr>
<td>Bachelor of Science (Human Biology and Food &amp; Nutritional Science)</td>
<td>69</td>
</tr>
</tbody>
</table>
Challenges for students

- Heavy course content (lectures, tutorials and practical work)
- Diverse educational background of majors
- Varied levels of experience
- Different pace of learning
- Maintain motivation to learn?
- Satisfied with the course?

Challenges for teachers

- Constrained lecture time
- Students’ passivity
- Engage and enhance
- Make learning self-directed
- Make learning suitable to learners of different pace
- Self revision
Adoption of Echo360 lecture capture system

- Year 1 students from a Master of Nursing program (~80 students)
- Students are from heterogeneous background.
What is Echo360?

• A “playback” technology
• Making lecture content readily accessible
• Capture whatever is on your computer
• Simultaneously record your screen, your voice and image
• Publish to *Blackboard Learn* platform
Features of Echo360 recording system

- Capture live lecture “or” *pre-record in controlled environment*
- Visual and audio recordings viewed via desktop computer, laptop, ipad, android tablets, smart phones etc.
- Viewer can replay, skip, rewind or fast-forward
An example of lecture recording online

The nervous system

- The nervous system has two main divisions.

1. The central nervous system (CNS) is made up of the brain and spinal cord

2. The peripheral nervous system (PNS) is made up of mostly of nerves that carry signals into and out of the CNS.

- A nerve is a communication line made from cable-like bundles of neuron fibers tightly wrapped in connective tissue.

Jump to different sections of the recording by selecting a Scenes

Tool bar to navigate pause/remind/forward

Main window for current Powerpoint slides or PC content
Summary: % of pre-recorded lectures

<table>
<thead>
<tr>
<th>Course Name (Course Code)</th>
<th>Student Number</th>
<th>Number of Recorded Lecture Hours</th>
<th>Total Number of Lecture Hours</th>
<th>Percentage (%) of Recorded Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Nursing Science (NURS1601)</td>
<td>202</td>
<td>12</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Bachelor of Pharmacy and Bachelor of Biomedical Engineering (PHAR1431)</td>
<td>88</td>
<td>11</td>
<td>26</td>
<td>42</td>
</tr>
<tr>
<td>Bachelor of Science (Human Biology &amp; Food and Nutritional Stream) (MEDN3070)</td>
<td>82</td>
<td>8</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>Bachelor of Chinese Medicine (BCME1600)</td>
<td>32</td>
<td>12</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Master of Nursing Science (NURS6209)</td>
<td>77</td>
<td>16</td>
<td>35</td>
<td>46</td>
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</table>
More students were using rich media links than vodcast links in the same course.
Survey via student response system (clickers): Pharmacy 2012

50% responded agreed Echo360 recorded lecture is useful for self revision.

Do you find *Echo360 recorded lectures* useful for your revision?

- **A** Yes
- **B** No
- **C** I have not listened yet and cannot decide
- **D** I don’t think it is necessary
Echo360 survey 2012

- Collection period: 28 Nov – 22 Dec
- Respondents: students of medicine and pharmacy
- Response rate: 71/249 = 28.51%

![Percentage of viewed materials by students](chart.png)
Student evaluations

- Asked to rank 16 learning effects
- 5 Likert scale (1=strongly disagree; 5 = strongly agree)

**Top 5 learning effects observed by students**

<table>
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<th>Learning effect(s)</th>
<th>Mean</th>
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<td>Substantial benefits to learning</td>
<td>4.46</td>
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<tr>
<td>Learn more independently</td>
<td>4.29</td>
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<tr>
<td>Have better understanding</td>
<td>4.56</td>
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<tr>
<td>Able to catch up courses</td>
<td>4.50</td>
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<td>Good revision materials</td>
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**Focused group interviews**

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<th>Why recordings were beneficial to you?</th>
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<td>“I need more time to understand the content by listening to the recording for several times.”</td>
</tr>
<tr>
<td>“Video can supplement on the ppt. Easy for me to revise.”</td>
</tr>
<tr>
<td>“I could not jot down all the things taught during the lecture but I can catch up with all the things through the videos.”</td>
</tr>
<tr>
<td>“Sometimes I want to review the points I don't understand.”</td>
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</table>
Benefits to *Students*

- To revisit lecture recordings for
  - Missing class
  - Self revision
  - Complex concepts and ideas
  - Picking up things missed in class
  - Taking comprehensive notes after lectures
- Simple output formats allows easy viewing
- Flexible and convenient
- Students need not struggle between looking at the slides and taking notes
Benefits to *Teachers*

- Help *reinforce* learning objectives and highlight key concepts of a topic
- Provide self-evaluation
- Help improve teaching skills (new teaching staff and PI)
Why some teachers said NO?

- Unfamiliar with the system’s ease of use
- Reserved about recording their own lecture materials (copyright issues?)
- Cost issues (for pre-recording only)
- Possible effects on student attendance
- Adequacy of capture boxes
- Uniqueness of teacher
Students’ attendance

• Did not show a significant decrease in student attendance rate
  • Compulsory attendance in some courses
  • Live lecture still confers a number of educational benefits:
    • Interaction between classmates and teachers
    • First-hand information
    • Live discussions
    • Capability to ask questions
    • Meetings or interaction with others
Other applications of pre-recorded materials

- Pre-lab talks
- Welcome videos (course introduction)
- Screen captures (demonstrate animations with a step-by-step explanation)
- Case studies
- Online courses
- Student presentation
Acknowledgements

School of Biomedical Sciences

• Internal one-off budget for Echo360 pre-recording

Team members

• Prof Paul Lam (CLEAR, CUHK)
• Dr WS Chan
  (Office of Educational Services, Faculty of Medicine)
• Miss Tracy Tai (CLEAR, CUHK)
Thank you.