Tablets, screencasts and webconferencing for on-line and face-to-face learning and teaching

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Overview

• Annotations in live classes
• Screencasting
• Synchronous communication
• Hardware alternatives
• The Tablet PC project
• In a library environment
An Example: Make \( t \) the subject

\[
y = \frac{2e^t + e^{-t}}{e^t - 3e^{-t}}
\]

\[
y = \frac{e^t(2e^t + e^{-t})}{e^t(e^t - 3e^{-t})}
\]

\[\Rightarrow \quad y = \frac{2e^{2t} + 1}{e^{2t} - 3}
\]

\[\Rightarrow \quad (e^{2t} - 3)y = 2e^{2t} + 1
\]

\[\Rightarrow \quad e^{2t}y - 3y = 2e^{2t} + 1
\]

\[\Rightarrow \quad e^{2t}(y-2) = 1 + 3y
\]

\[\Rightarrow \quad e^{2t} = \frac{1 + 3y}{y-2}
\]

\[\Rightarrow \quad 2t = \ln \left( \frac{1 + 3y}{y-2} \right)
\]

\[\Rightarrow \quad t = \frac{1}{2} \ln \left( \frac{1 + 3y}{y-2} \right)
\]
Why write on the computer?

• Keep record of all writing in class
• Can refer back
• Can make available to students
• Can record development as video
• Students focus on one screen

Going wireless
Recording classes

- Web/iPod/iPhone video files

Student support via screencasts

Operations Research

CAMTASIA STUDIO.

Jing

Loch (submitted)
Short snippets
Screencasts to address stuck places in maths support centres
with University of Limerick, Loughborough University

MASH Centre
http://tinyurl.com/SwinMASH

Loch (submitted)
MSOR screencasting project
Master Level maths, with the Open University, UK

Synchronous online tutorials
How effective is explaining mathematics on the phone?

Loch & McDonald (2007)
Synchronous online tutorials

Private space?
Hardware alternatives

Swinburne University of Technology, Melbourne, Australia

Loch & Phillips (in progress)

The Tablet PC Project (L&T Fellowship)

Staff component:

<table>
<thead>
<tr>
<th>Year</th>
<th>1 tablet PC</th>
<th>7 tablet PCs</th>
<th>29 tablet PCs</th>
<th>70+ tablet PCs</th>
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<tbody>
<tr>
<td>2005</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>1</td>
<td>8</td>
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<tr>
<td>2010</td>
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Approx 5,500 students taught in S1 2009: All faculties, plus library

30+ lecturer (and librarian) interviews transcribed, email feedback, forum posts, reflections, publications

Student tablet PC component: 30 mini tablets

Swinburne University of Technology, Melbourne, Australia
From staff interviews

Tables have
• led to more engagement with technology in general
• made lectures more dynamic
• are more than just a communication tool
• have led to a change in teaching approaches

“Have you obtained unexpected results?”
• In terms of how the use has invigorated my teaching. […] For the first time in years I have felt excited about my teaching and that is reflected in how I interact with students. So then they get excited (Faculty of Sciences academic)

• Yes, whilst we thought the Tablet PC would increase student learning we were surprised by how much the Tablet PC increased our own engagement with technology (librarian)
“Has your teaching approach (pedagogy) changed?”

• More collaborative
• Students are now more involved in contributing
• Freed from dot-point slides
• Yes. I appreciate how much students prefer having you write
• It has helped achieve my goal to close the 'soft' information gap between on and off campus students
• I have become more visual in the way that I teach

First year Finance

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<th>PV</th>
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<td>$1000/1</td>
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<tr>
<td>$1000</td>
<td>2</td>
<td>$1000/2</td>
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<tr>
<td>$1000</td>
<td>3</td>
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<td></td>
<td></td>
<td>Total PV</td>
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</table>

Phillips & Loch (submitted)
Thermodynamics

MBC2101 Tutorial Sheet 6
7. Net Problem (5th edition) (5th edition) 6.84. A refrigerator is to remove heat from the cooled space at a rate of 300 kilowatts to maintain its temperature at -8 °C. If the air surrounding the refrigerator is at 25 °C determine the minimum power input required for this refrigerator. (0.023 kW)

\[ T_L = -8^\circ C; \ T_R = 25^\circ C \]

\[ \dot{Q}_L = 300 \text{kW} \]

\[ \dot{W}_{net} = \frac{\dot{Q}_L}{\text{COP}_R} = \frac{300}{8.03} = 37.36 \text{kW} \]

Biodiversity & Conservation

THE NUMBAT

Andy Le Brocque

Swinburne University of Technology, Melbourne, Australia
German language teaching

Hausaufgabe besprechen KB S96-97

bedeuten = to mean
Bedeutung = meaning

kein + Nomen = z.B. Ich habe kein Auto.
nicht + Verb = z.B. Ich kann nicht Auto fahren.

Gabriela Pohl
Swinburne University of Technology, Melbourne, Australia

The Library

Mind Map

Kaye England/ Ranald Simpson
Swinburne University of Technology, Melbourne, Australia
The Library

• Screencasts for faculties
  URL

• 3 librarians interviewed

Experiences made in the library

Librarian 1

F2F classes
• Screencasts of information literacy classes
• Students are given the (wireless) tablet PC to write
• Clickers and tablets in some classes

“Students are building the list, not the librarian”

“For the first time we did actually have students coming in saying, “We’ve heard about these classes. Are there going to be more?”
Experiences made in the library

Librarian 1

Distance/online learning
• Tablet recording saved a lot of time
• Before - general topic: Breeze (run time 25 mins)
  Now - very focused screencasts: Jing, Studio (10-15 mins preparation for 5 min screencast)
  Eg, reference enquiries for off campus students
• Students have asked if they can forward the link to others who also struggle

Experiences made in the library

Librarian 2

FTF classes
• Tablet and clickers, no wireless projection
• Would be good to have wireless connection
• Collaborative learning environment aided by tablet PC

“for us as trainers […] it was exciting and I think that the students sensed that”

“so it certainly makes you more aware and maybe not so afraid to try new things because trying new things can be good.”

Swinburne University of Technology, Melbourne, Australia
Experiences made in the library

Librarian 3

FTF classes
- Tablet and clickers, no wireless projection
- Mind maps
- Group work. Groups come to the front to share their work

“for us when that tablet PC came up it was almost like a little bit of a rainbow…take our classes to the next level”

“I was really surprised at how the tablet PC enabled Indigenous students [do develop] an affinity with the ability to draw and to interact with that.”

Impact of the technology

- “I’m far more engaged with technology and technology-enhanced learning”
- “tablet PC as a catalyst for change”
- “I was really dissatisfied with the way that [my classes] were working. […] having access to the tablet PC just got my thinking moving in the right direction”
- “it enabled me to review what I was doing and to chuck out old stuff”
Where to now?

• Start a research group as a sub-group of the Engineering and Science Education Research (ESER) group
• Get everyone together who has an interest in tablets/screencasting/other technologies
• Provide help to start ed tech research

⇒ collaboration leads to more research output