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# *Engaging and motivating students: Using technology enhanced learning experiences*

*0 - Introduction*

6th International DEE Conference – LSE
Carlos Cortinhas and Juliette Stephenson – September 6th 2011

## Context

- *University*
- Total students: 2001/02 –10,700
  2010/11 –17,952
- International students: 2002/3 - 1,236
  2010/11 - 3,434
- *Business School*
- UG students: 2010/11 – 2,209
- PGT: 2010/11 - 701
- PGR: 2010/11 - 97

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## JISC: Integrative technologies (INTEGRATE) Project

- JISC = **Joint Information Systems Committee,**
- The project was awarded £200.000 in 2008 and intends to address the educational challenges faced by the University of Exeter's flagship Business School as it enters a phase of considerable student expansion and international diversification.
- The Business School anticipates growth in student numbers in the region of 250% by 2014, with approximately 40% of those students coming from international backgrounds.

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## JISC: Integrative technologies (INTEGRATE) Project – Main Goals

- To develop means of **curriculum delivery** that support flexible learning with particular emphasis on the challenge of large numbers and internationalisation
- To **experiment** with and evaluate what might form an appropriate technology-enhanced 'mix' for providing an integrative and skills –rich learning experience
- To promote a **learning ethos** in which students actively participate, engage and feel known, despite the ever- increasing numbers
- To promote a **collaborative community** in which diversity is both valued and well-catered for
- To manage **assessment and feedback** with large numbers

## The Integrate Project

- The Main technology-based tools that have been implemented at the Business School include:
  - **Echo360 (**Lecture capture and streaming system**)**
  - **Flip videos**
  - **SMS (texting)**
  - **Wikis and Learning Logs**
  - **Audience Response Systems (ARS)**
  - **Screencasts and podcasts (using Adobe Captivate)**
  - **Turnitin and Grademark (assessment and feedback)**

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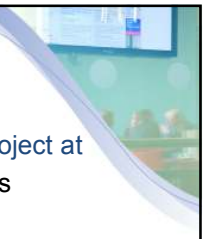
## More information on the JISC project at the University of Exeter Business School can be found at:



http://www.jisc.ac.uk/whatwedo/programmes/elearning/curriculumdelivery/integrativetechnologies.aspx

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***Using technology in learning spaces to promote interactive teaching and learning***

***1 - Audience Response Systems***

Carlos Cortinhas – June 14h 2010

## Audience Response Systems (also known as “clickers”):

- Audience Response Systems
  - Audience response systems are devices that allow interaction between a presenter and his/her audience.
  - From the last academic year, every first year student was given a clicker which he/she will carry with him/her for the remainder of his/her studies.
- TurningPoint is a free software that is built inside Microsoft PowerPoint and allows you to create multiple-choice, multiple-response questions with minimum effort.



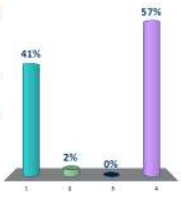
## Main technology-based tools already implemented at the Business School:

- Particularly useful for:
  - Increasing participation and motivation in (large) classes
  - Getting immediate feedback on whether students are learning (1)
  - Getting immediate feedback on students preferences on specific topics (2)
  - Stimulating discussion in large group teaching (3)
  - Conduct Classroom Experiments

ARS and TurningPoint: Example 1

Which of the following is *not* an example of a discrete probability distribution?

1. The purchase price of a house.
2. The number of bedrooms in a house.
3. The number of bathrooms in a house.
4. Whether or not the house has a garage.

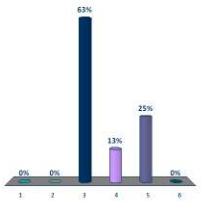





ARS and TurningPoint: Example 2

What is the test statistic for this problem?

1. $z = \frac{\bar{X} - \mu}{\sigma/\sqrt{n}}$
2. $t = \frac{\bar{X} - \mu}{s/\sqrt{n}}$
3. $t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$
4. $z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$
5. $t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left[\frac{s_p^2}{n_1} + \frac{1}{n_2}\right]}}$
6. $t = \frac{\bar{d}}{s_d/\sqrt{n}}$

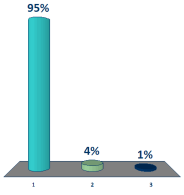





ARS and TurningPoint: Example 3

Would you like this technology to be used more often in lectures?

1. Yes.
2. No.
3. No opinion.

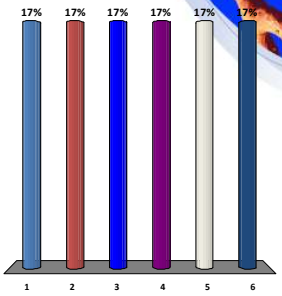


## Are you ?

1. Male
2. Female

## Where is your work based?

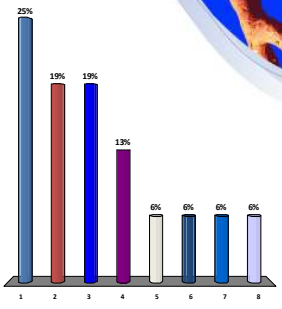
1. England
2. Scotland
3. Wales
4. N. Ireland
5. Other Europe
6. International




## Which of the following are you most familiar with?

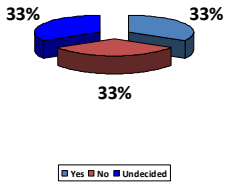
(up to 3 choices, in decreasing order of importance)

1. Echo 360
2. Flip Videos
3. Turnitin and GradeMark
4. Audience Response Systems
5. Use of SMS in classroom
6. Wikis
7. Learning Logs
8. Video Podcasts



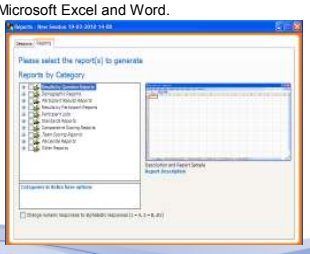
Do you feel the current budget reduction strategy is the right path for the U.K.?

1. Yes
2. No
3. Undecided




## Turningpoint Reports:

- TurningPoint generates a large number of different user reports through Microsoft Excel and Word.

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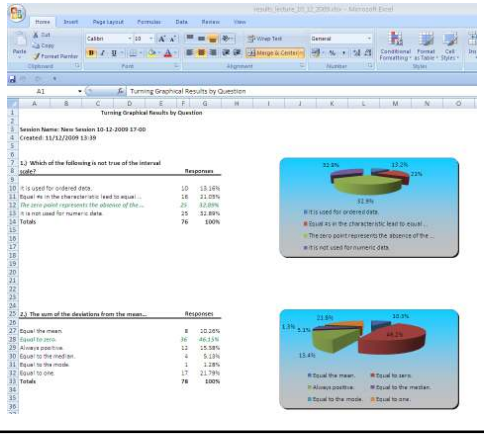

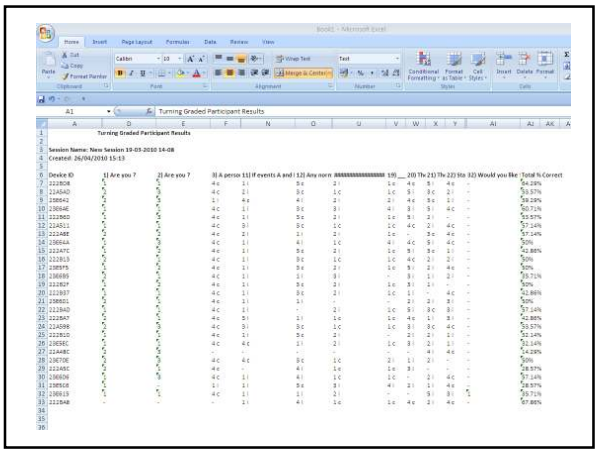
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Turning Graded Participant Results
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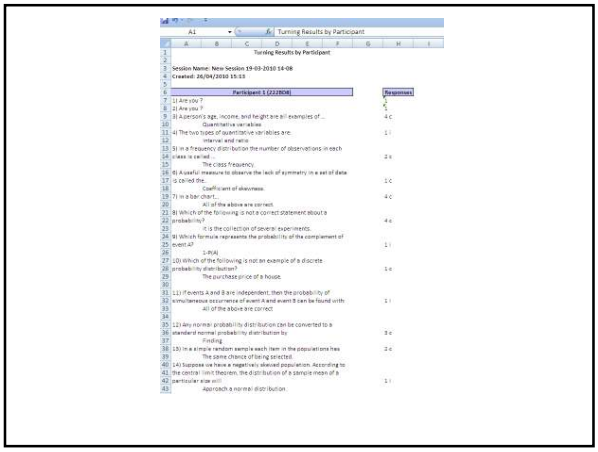
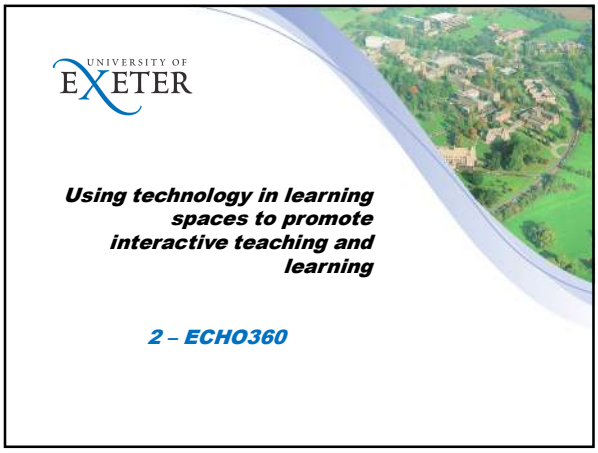

Turning Results by Participant
Turning Results by Participant
Session Name: New Session 19-03-2010 14-08
Created: 26/04/2010 15:13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2 – ECHO360

## Echo 360

- Lecture capture and streaming system.
- Installed in the 3 largest lecture theatres and likely to be expanded in the next academic year.
- Hyperlinks via WebCT courses
- Recordings include the associated PowerPoint slides.

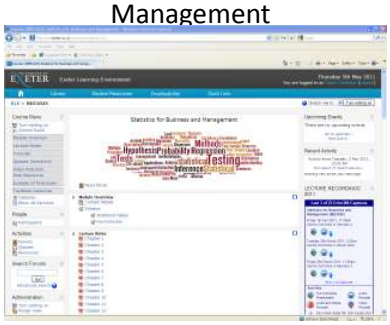
## BEE1024 Mathematics for Economists


- http://echo360.exeter.ac.uk:8080/ess/echo/presentation/a17ad11e-c2ac-4c94-8e71-df923ed52aed

## BEE1029 Economic Principles


- http://echo360.exeter.ac.uk:8080/ess/echo/presentation/5cc279c7-1fb1-42e8-bfa9-90094e3b4aa2

## BEE1025 Statistics for Business and Management



- http://echo360.exeter.ac.uk:8080/ess/echo/presentation/f45fe8db-f702-4587-a73f-fa88946f5991

## Student feedback

- Student-designed questionnaire (207 students)
- Video and interview feedback as well as via ARS (additional 180)
- Quality and ease of use – positive feedback
- Most students reported using the video-recordings about once a month (40%), although 5% used them twice a week, 8% weekly and 16% fortnightly.

## Student reasons for using streamed video

| | *Percentage of Students Who Agree* |
|---|---|
| I use the video recordings lectures to look over material that has troubled me. | 75 |
| I use the video-recorded lectures to write up notes. | 61 |
| I use the video-recorded lectures to aid me with assignments within the module in question. | 47 |
| I see the video recorded lectures as an integral part of my revision. | 58 |
| I use the video recorded lectures as a memory jogging tool whilst revising. | 57 |
| I am less likely to do extra reading if the lecture is video-recorded. | 22 |
| I only watch the video recording of lectures if I have not understood something in the lecture. | 47 |
| I use only the video-recordings to revise. | 18 |

Table 1: Ways in which students use video-streamed lectures

**Streamed lectures: feedback**

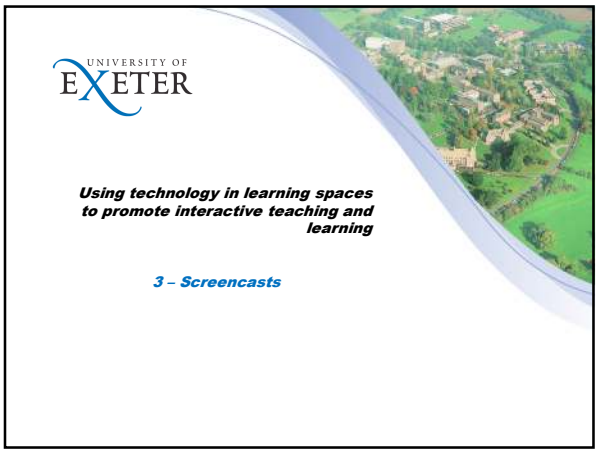
- Over half of students: particularly useful in modules with a high Mathematics content; plus lectures which include case studies.
- Half thought that video-recordings were particularly useful in lectures with large numbers of students

Questionnaire results: Attendance

- Two thirds of students: no impact on attendance in any way.
- Most students: "missing out" if they did not attend.
- Large numbers (87%): the value of attending lectures was more dependent on the lecturer and on the module content.

**Conclusion: Recorded lectures**

- Two thirds of students (surveyed) thought the use of video recordings had enhanced their learning in the modules where it was available.
- Most of the students questioned (82%) wanted to see video recordings in all their lectures in the future.
- Increased expectations.
- Started as pilot project with large first year lectures; now spreading throughout programmes including PGT.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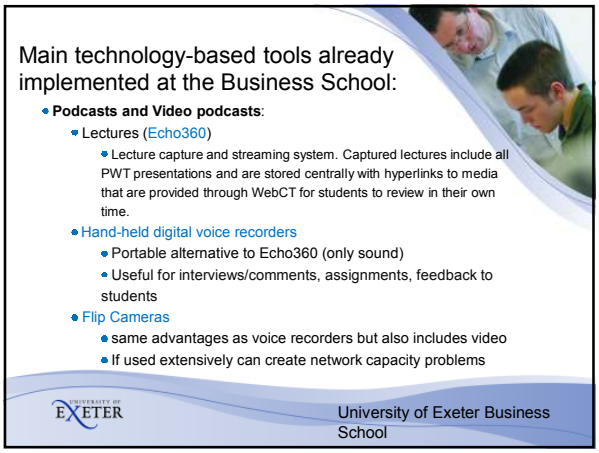
3 – Screencasts


Main technology-based tools already implemented at the Business School:
Podcasts and Video podcasts:
Lectures (Echo360)
Lecture capture and streaming system. Captured lectures include all PWT presentations and are stored centrally with hyperlinks to media that are provided through WebCT for students to review in their own time.
Hand-held digital voice recorders
Portable alternative to Echo360 (only sound)
Useful for interviews/comments, assignments, feedback to students
Flip Cameras
same advantages as voice recorders but also includes video
If used extensively can create network capacity problems
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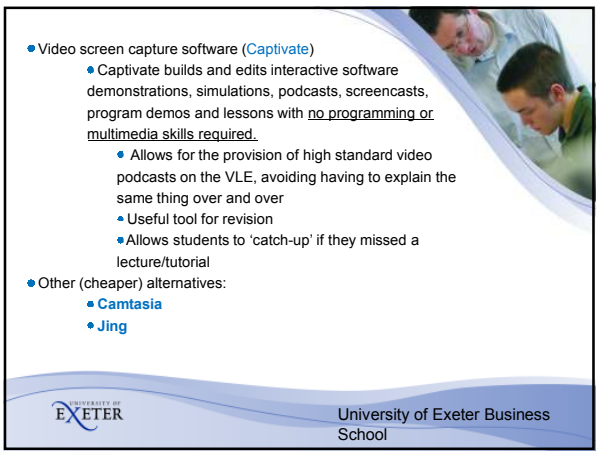
Video screen capture software (Captivate)
Captivate builds and edits interactive software demonstrations, simulations, podcasts, screencasts, program demos and lessons with no programming or multimedia skills required.
Allows for the provision of high standard video podcasts on the VLE, avoiding having to explain the same thing over and over
Useful tool for revision
Allows students to 'catch-up' if they missed a lecture/tutorial
Other (cheaper) alternatives:
Camtasia
Jing
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***4 - SMS***

## SMS: Use of mobile phone technology

- Aim: Enhanced student engagement and participation in large first year lectures.
- Advantages: SMS allows anonymous interaction in real time; building of confidence and sharing of ideas in otherwise intimidating learning space
  - Unlike the 'clickers', SMS allows 'open' rather than 'closed' responses.
  - "the form as well as the function … is also of potential interest" Jones, Edwards and Reid (2009) University of Bath

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## SMS: Use of mobile phone technology

- Technology: Students use their own handsets to text responses to a PAYG number; interface via Nokia PC Suite

- "Technology is accessible, ubiquitous and it works." Nick Mount University of Nottingham

- The messages can then be manipulated in Excel to provide graphical representations of results or put into a word cloud generator such as Wordle to create visual representations

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**Example:**

**Using SMS in BEE1013/5 Philosophy of Economics lecture**

Lecturer asked students the following questions:
Q1. Is Economics a Science?
Q2. What is Science?
Q3. What is the Purpose of Economics?

**Q1. Is Economics a Science?**
52 individual responses No = 11 Yes = 39 n/a = 1
Four responses other than a yes / no
" Yes, because academic economists consider themselves to be scientists"
" Yes. Definitely. You can have a science of everything."

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**Q3. What is the Purpose of Economics?**

| | | |
|---|---|---|
| To understand and learn about the economy, to be able to predict future failures and sucesses and the causes behind them, to focus on markets individually and the general market and to also make discoveries about other economies and why one is different to the other and to use all of this information to improve the world | To understand how money and markets work, and to be able to theorise and explain thisinformation so it can be used to positively impact the economies of the world, enabling greater fiscal responsibility and a decrease in levels of poverty | The purpose of economics is to study the Market and predict what would be the outcome of it by analysing the way it operates. It's purpose is to find the best way to interact with the market outcomes national economies and firms for future events |
| to understand human behaviour, not just markets. it should be linked to psychology to help progress. | The purpose of economics is to establish a solid and ethical basis from which the economy can be run in order to provide the most good to the greatest number of people. | I think it is the process of discoveries about the world and new findings, learning about how the world works and operates and the things within it, creating theories and laws etc |

Cloud generate using Wordle:

**Q2: What is Science…?**

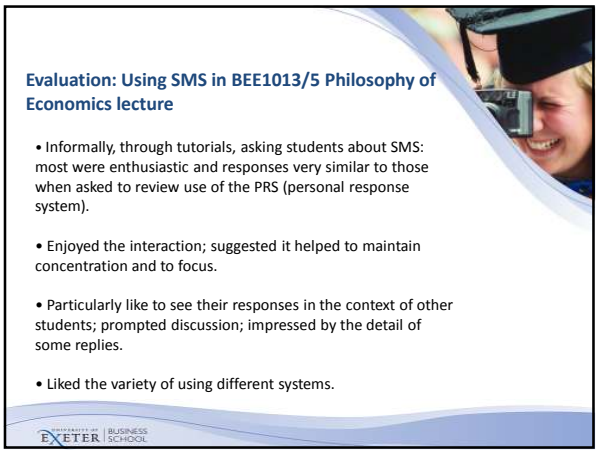
| | | |
|---|---|---|
| Universally accepted rules that explain why and how things happen | I think it is the process of discoveries about the world and new findings, learning about how the world works and operates and the things within it, creating theories and laws etc | The desire to know about the world following a strict methodological framework. |
| Science is about explaining. Scientists try to find regularities, establish axioms, through observation and experimentation, in order to analyse, understate and predict. | Science is the process of gathering data in order to make sound analysis so as to be able to make predictions and facilitate decision making when faced with future problems | Science is the ability to falsify a statement / theory through empirical Testing |
| A method where you can isolate and test variables. Scientific theory is without any bias or assumptions that are not founded on evidence. | Using observed and proved facts to try and gain a reliable theory that explains those facts. | Science is about explaining. Scientists try to find regularities, establish axioms, through observation and experimentation, in order to analyse, understate and predict |


**Student feedback: Use of mobile phones**

| I would be happy to use the following number of texts per week as a learning tool in lectures % | |
|---|---|
| 1- 5 | 32 |
| 5 -10 | 16 |
| 10-15 | 3 |
| 15 + | 15 |
| I am not happy to use texting as a learning tool | 34 |

Table 2: Preparedness for using texts for responding in lectures

- 20% of students surveyed had taken part in one of the exercises that used texting as a learning tool in their lectures
- Of this group, half enjoyed using texting
- Around a third of students agreed that they would like to see mobiles phones used as a learning tool in other lectures


Evaluation: Using SMS in BEE1013/5 Philosophy of Economics lecture
• Informally, through tutorials, asking students about SMS: most were enthusiastic and responses very similar to those when asked to review use of the PRS (personal response system).
• Enjoyed the interaction; suggested it helped to maintain concentration and to focus.
• Particularly like to see their responses in the context of other students; prompted discussion; impressed by the detail of some replies.
• Liked the variety of using different systems.
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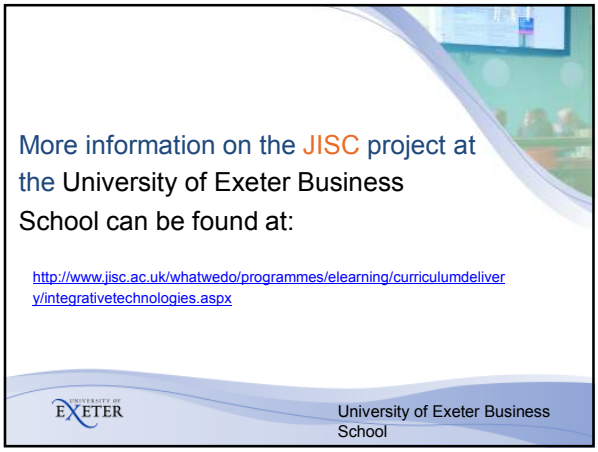
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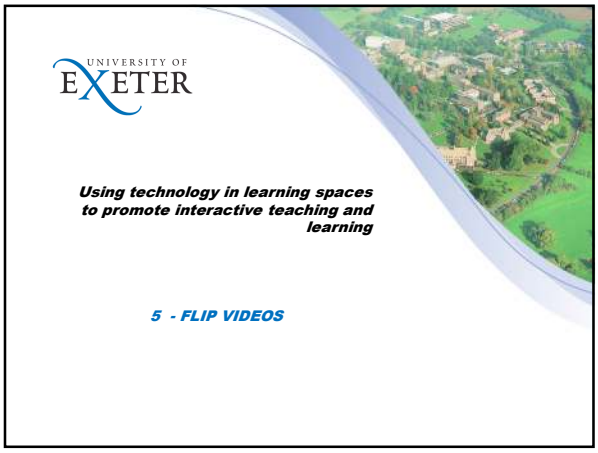
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5 - FLIP VIDEOS

## USING FLIP CAMCORDERS TO SUPPORT LEARNING IN LARGE CLASSES

- '*It's just a basic camcorder, but the Flip has captured the imaginations of millions... Not bad for a gadget that costs less than an iPod and that looks like it's been designed by a child*'. (Telegraph, May 2008)
- '*I have never seen a group of students become so enamoured with a piece of technology*'.

## WHAT IS A FLIP CAMCORDER?


## Context of use:

- BEM1007 Theory of Management (core first year module); Sem1 224 students (2nd 131).
- Weekly tutorial groups (approx 30) split into smaller groups of 4 to 6 students, with a mix of nationalities.
- Aim: to foster a sense of community and strong group relationships; develop professional skills as young managers; maintain academic content.

**WHAT IS VIDEOED BY STUDENTS?**

1. Initial presentation *'to convince all the other groups that actually you are in the best group'*
2. Academically focused presentation

**WHAT IS THE PURPOSE OF THE VIDEO?** For each group…

i) to review their own presentations and improve their skills

ii) to review other group presentations to analyse skills of others

iii) to have a number of academic presentations to revise subject content and to learn from each other's academic research.

**No editing of video is required; no judgements are made on the quality of the video per se.**

## Flip videos (Example: Theory of Management

http://vle.exeter.ac.uk/mod/resource/view.php?id=96238

**FEEDBACK GAINED VIA**:

-Focus groups

-Observation of classes

-Ongoing feedback from the tutor

-Questionnaire survey designed and run by a student group

**FINDINGS**

Attendance at the videoed sessions ran at 98%, far higher than in other taught sessions.

Students claimed they

i) genuinely enjoyed the sessions

ii) did not want to let down their peers

iii) knew their attendance could be easily tracked via the video presentations.

"[Flip cameras] are a good way of ensuring the quality of each presentation [and] ensuring teams are thoroughly prepared"

"Giving ourselves a feedback about our presentation skills and subject knowledge"

"We tend to learn about our styles of presentation and we get an accurate picture of any unconscious errors that we may make. It also allows us to compare ourselves with the general standard."

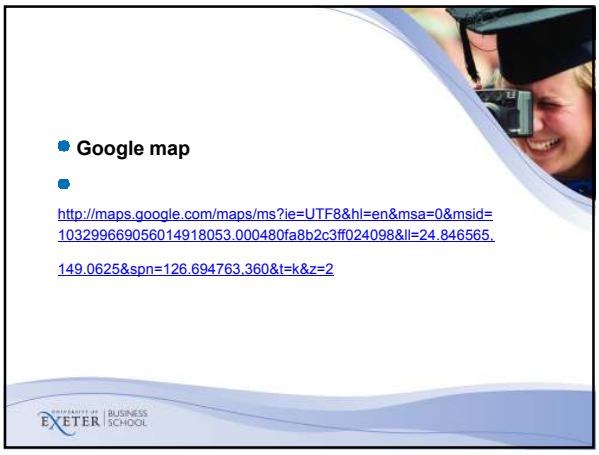
**CONCLUSIONS**

- Issues: technological and organisational
- Recommendations: Many including work towards the tutor and students taking ownership, for long term sustainability.
- Use keen and enthusiastic students as "Student IT Champions"
- Brief staff and students about how to take good video and provide a handout of top tips in order to avoid…

**TO CONCLUDE**

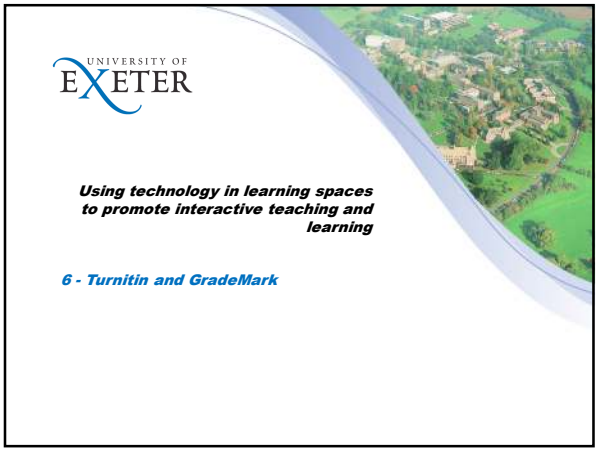
*'When I was presenting my first presentation, I was too nervous even to make a sound… I am now able to contribute ideas and discuss opinions with my group'.* (Chinese student)

*'It was an exhilarating experience as it provided us a unique opportunity of looking back and reviewing the mistakes… Despite the difference in culture and language I have been fully supported by all of the group'.* (Vietnamese student)



- **Google map**
-

http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=103299669056014918053.000480fa8b2c3ff024098&ll=24.846565,149.0625&spn=126.694763,360&t=k&z=2



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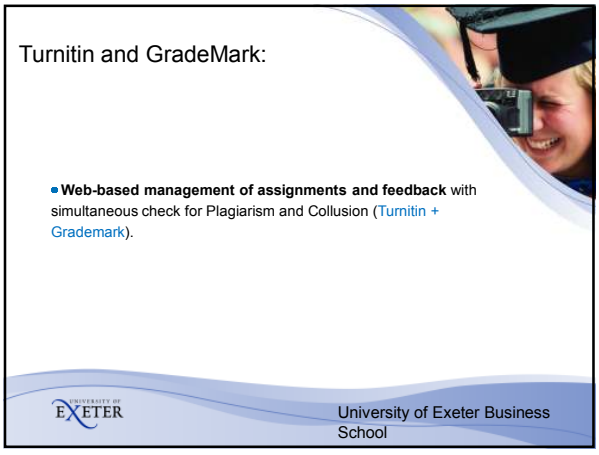
***6 - Turnitin and GradeMark***



Turnitin and GradeMark:

- **Web-based management of assignments and feedback** with simultaneous check for Plagiarism and Collusion (Turnitin + Grademark).

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## Turnitin and GradeMark:

- Main advantages:
  - It is integrated into the Virtual Learning Environment.
  - Avoids the use of large amounts of paper.
  - Simplifies the stages of collecting assignments, handing back feedback and publishing the marks.
  - Allows to save time in giving feedback to large groups.

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## Turnitin and GradeMark:

- Main advantages (continued):
  - It is a powerful tool to check for plagiarism/collusion
    - Allows students to check for collusion and plagiarism in their work, and to correct bad practices before final submission of work.
    - Can be a powerful tool teach their students proper citation methods as well as to safeguard their students' academic integrity.

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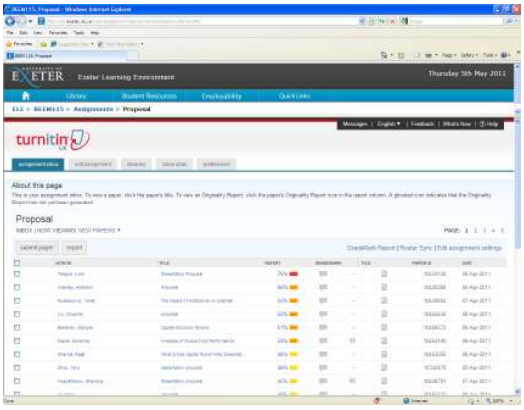




**A definition:**

'Wiki' is the Hawaiian word meaning quick

First used by Ward Cunningham in 1994.

## Key Points

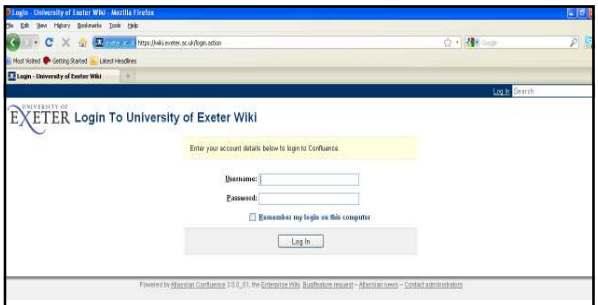
- Wikis are open collaborative spaces, but how open should they be? Where are the boundaries? Who can and can't access wiki spaces?
- Working in the 'wiki way' requires a different culture - a move from independence to interdependence.
- Different types wiki software each enable collaboration in a slightly different way (compare wikipedia and the Exeter system 'Confluence')
- purpose : philosophy : content : process : people : design : technology : pedagogy ....all need to be considered carefully when setting up a wiki.

## Possible uses of the University confluence wiki

- A space for students to share their reflections and learning from a lecture / reading / think-piece
- A place to undertake group assignments, to collaborate on a shared document
- Sharing data from experiments in a central spreadsheet
- Increasing contact and communication between students and lecturer.
- A space for asking and answering questions and queries about a course. Lecturer / guest speaker in the hotseat

Our first large scale trial in the Business School ran from Early Feb – 26th March 2010

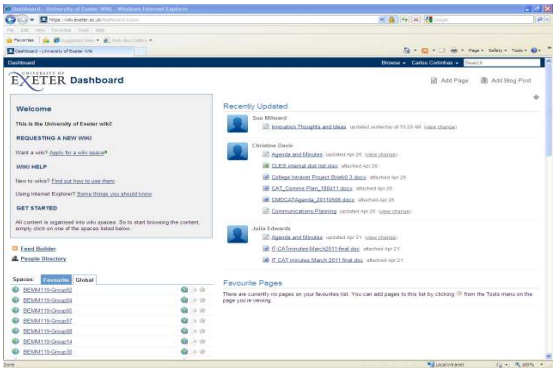
- 465 Masters level students were split into 59 'mini-wiki' groups of 6-8
- Students were deliberately split into multi-national groups
- The initial wiki space was structured into 9 pages to support their online writing
- Students added: text and images, references, attachments and links relevant to the study.
- They were also asked to provide a personal profile, minutes of meetings and reflective statements about the process.

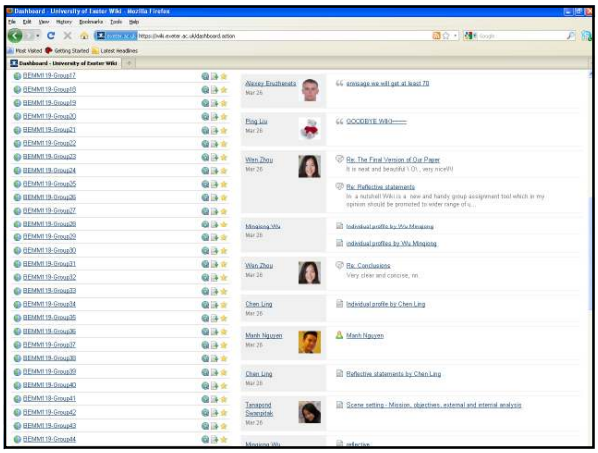



At Exeter we use the Confluence wiki system

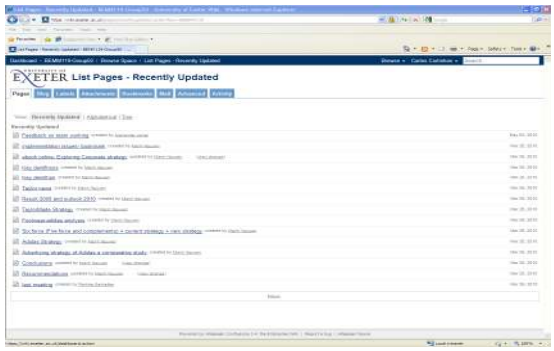
## BEMM119 Strategy Module

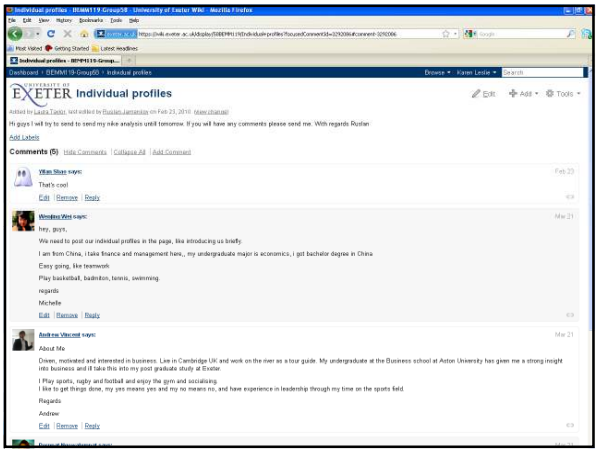

## BEMM119 Strategy Module

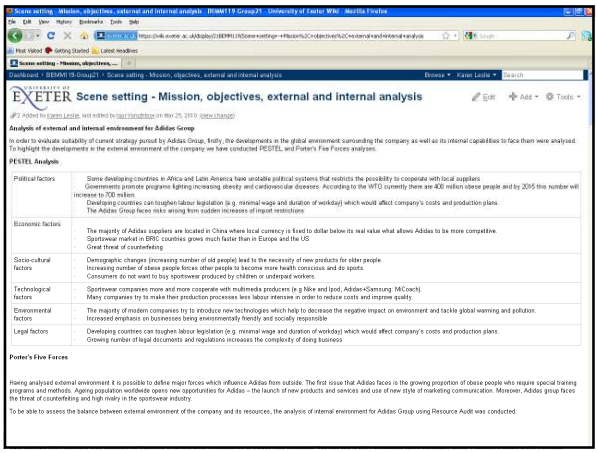


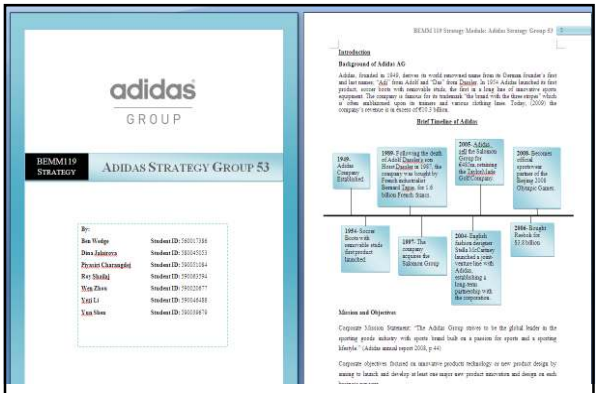


BEMM119 Strategy Module






A final executive summary was produced from the wiki work and submitted for 30% of the course mark

## Student feedback

- 452 reflective statements posted and currently being analyzed in depth.
- Key issues identified so far support findings in literature:
  - Technical issues a major problem to begin with
  - Helps non-native English speakers to overcome communication barriers they may find in face-to-face meetings
  - For campus based courses many students still prefer face-to-face meetings for group work
  - The wiki created competition between members of the team –but did not necessarily produce better work

## Student reflections

"I believe that using a wiki is an excellent way of conducting group work for the Strategy coursework. It enabled our group to communicate our ideas to each other, post our work and it allowed for comments and evaluation of every item of work that was posted".

"At first I personally found it slow to get started on using the Wiki due to having demands from other modules' coursework and also due to a lack of understanding of how to properly use the wiki. However, once I had figured out how to properly utilize it, it made the whole process of working in a multinational group, (something that could potentially have been very demanding) a great deal easier.

## Student reflections

"In a nutshell Wiki is a new and handy group assignment tool which in my opinion should be promoted to wider range of use"

"If I work with Wiki in the future it will be definitely easier for me as I already have this experience".

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***Using technology in learning spaces to promote interactive teaching and learning***

***8 – Learning Journals***

## Main technology-based tools already implemented at the Business School:

- **Learning Journals** on WebCT page:
  - A Learning Journal allows students to keep their own personal notes and reflections on the material they are studying.
  - Learning journals have been used at Exeter to record student's work on a weekly basis, to allow students to interact with each other and share their thoughts on a specific topic.

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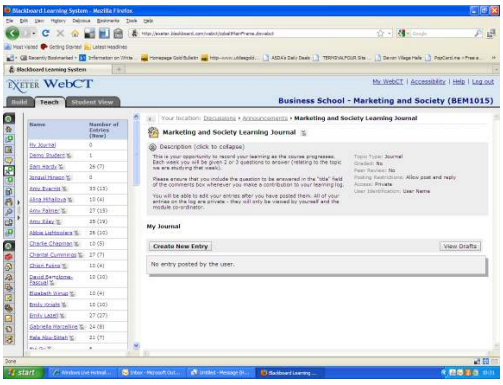
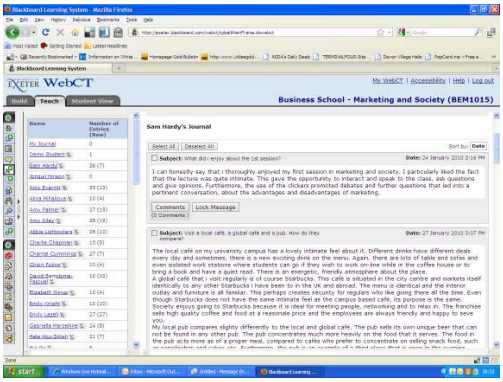
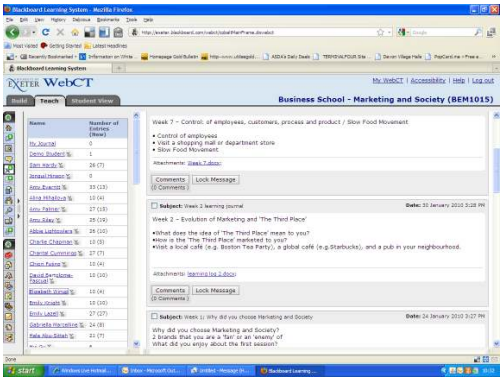



EXETER WebCT
Business School - Marketing and Society (BEM1015)
Sam Hardy's Journal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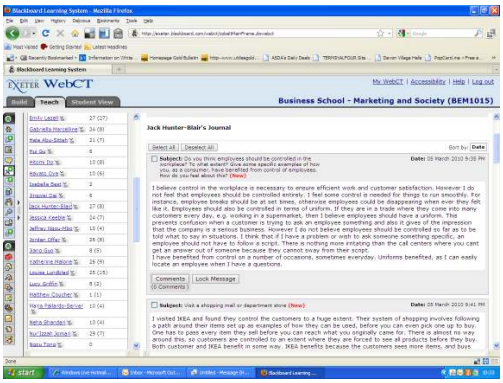
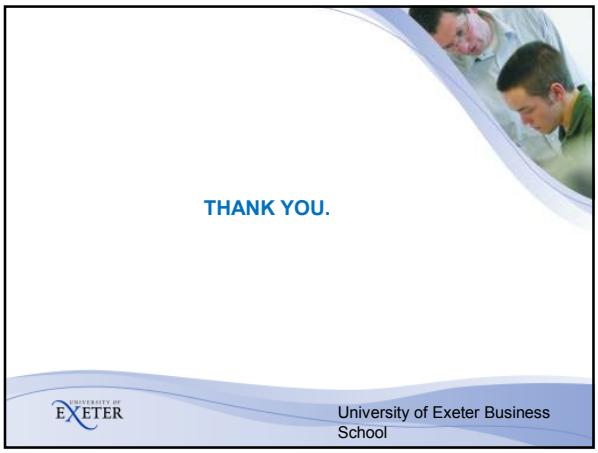

EXETER WebCT
Business School - Marketing and Society (BEM1015)
Jack Hunter-Blair's Journal


THANK YOU.
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