Does “Anywhere Anytime” Learning Work?

Online/Classroom Hybrid Computer Science Program: A Pilot Project

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Outline

• Hybrid model and infrastructure at UH
• Status, Experience, Assessment
• Best practices, future work
What is a Hybrid Course?

• Full class lectures online as streaming video – access with any PC/Laptop/iPod
  – Recorded with Tablet PCs, Classroom Presenter, Camtasia
  – “VNET” for streaming and management

• Students must attend selected classes
  – Once per module of ~3-5 lectures
  – exams, quizzes, demos, tutorial, and hands-on sessions in class

• Hybrid sections of regular class / pure hybrid class / PC video as study material
But Why, Why Create More Work

- Reaching classroom a challenge for many
  - Houston is very spread out
  - Majority of students work
  - Full time professionals
  - Caretakers of small children

_{Students may have time for coursework, but not for coursework+commutes, or not available at class time._}
But Why, Why Create More Work

- Distance learning and Science/Engg
  - DL Enrollment ~ 10,000 at UH
  - But... very small in Science/Engg

Key factors
- MODEL:
  - Student/Student/Instructor interaction
- TECHNOLOGY
  - Notes not sufficient
  - Camera based video cumbersome and poor quality
Where do we stand

- 6 hybrid offerings of 4 senior-level courses
  - Graphics, Networks, Software Engg, Artificial Intelligence
  - 2 hybrid only, 4 concurrent hybrid sections of in-class courses
  - Dozens more Science/Math courses deliver video as additional material in VNET framework
What did Student Pioneers of Hybrid Courses have to say?

• Detailed feedback through a questionnaire
  – Technology
  – How did they affect studying/exam preparation
  – What improvements would help

• Open discussion after each course

• Presentation at SIGCSE tomorrow/yesterday
Student Feedback

• On Technology for recording and delivery of materials....
Video quality of online lectures?
Streaming vs Downloading

Streaming directly from the server:
- Quick start of video
- ....But delivery depends on the internet connection

Downloading first onto a laptop:
- Smooth playback independent of internet connection
- Works across OSes, e.g., Linux
- Easier to support
- But slower start and more IP issues
Streaming or Downloading?
Student Feedback

• On How the study habits were affected....
  – Was there too much procrastination? Instructors tried to ensure regular progress with homeworks, quizzes etc.
  – How were they studying? From books, notes or videos?
First look at a Lecture Video after Release?
Time spent on textbook because of notes and video lectures?

How did you prepare for exams?
Student Feedback

What value do students attach to PC video lectures versus classroom?
What is your criteria to attend live class vs. video
CHOOSE:
Strictly Regular (no online lectures) OR
Strictly Hybrid (no classroom access)
Student Feedback

How to improve the technology?

Students were queried on the value of 3 possible new features:

1. **Live Webcast**: Students can lecture live and even send questions
2. **Instructor in Video**: A video camera will show the instructor also
3. **Indexed video**: Add index points where a new topic starts
Where do we go from here?

- Expand hybrid offerings
  - Specific commitment to students, MS program
- More feedback and improvements
  - Technology development ongoing
  - Frequency and content of required classes?
- Measure the impact on enrollments, retention, and graduation time
Best Practices/What is learnt?

- Tablet PC video lectures are a great resource
  - Hybrid classes a good fit for many

- Current technology can effectively deliver classroom experience
  - Convenience allows wide adoption
  - Can be improved in many ways
Who does What in the Project

- **Subhlok (PI), Johnson, Vilalta, Subramaniam (co-PIs)** offered hybrid courses
- **Dr. Chapman, Shah, Zheng, and others** developing courses, employing video.
- **Chang Yun and Joanna Li** graduate students working on the project
- **Mr. Salvador and VNET team** provides content management and server support

http://www.cs.uh.edu/~jsteach/start/hybrid_main.html
Or via: www.cs.uh.edu/~jaspal