Classroom Technology: ConferenceXP and Classroom Presenter
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Why apply technology to education?
• Create new opportunities for learning
• Address problems in educational process

Education First, Technology Second
• What are the educational problems being addressed?
• What role does technology have in addressing the problems

Microsoft and Microsoft Supported projects in educational technology
• ConferenceXP
  – Platform for educational collaboration
• Classroom Presenter
  – Tablet PC Presentation tools
  – Device enabled classroom
• Tablet PC’s for education
• Digital Study Hall
• Multipoint
• And many more . . .

Today’s talk
• ConferenceXP
• Classroom Presenter
• Tutored Video Instruction

History of this work
ConferenceXP

• How do we allow live courses to be offered at multiple sites?
  – UW CSE Professional Master’s Program
    • Main campus site and Microsoft site
    • Separated by 25 km
  – Distributed courses
    • UW, Microsoft, UC Berkeley, UC San Diego

ConferenceXP

• Internet based video conferencing
• Key goals, technology choices
  – High Bandwidth
  – Multicast
  – Single machine deployment
  – Simplicity of use
  – Platform for collaboration technology research
  – Community based project

Lessons learned and status

• In production use in UW Professional Masters Program since 2002
• Other projects
  – UMass/Galloway, Australia Distance Education, WWAMI Medical Education
• Multicast networking has been a challenge
• Classroom setup especially audio is critical
• Deployment in real classes has been critical for moving the technology forward

Classroom Presenter

• Presentation tool
  – How do we give instructors flexibility when presenting a slide based lecture
  – “PowerPoint sucks the life out of a lecture”
• Classroom Interaction
  – How do we keep students engaged in lecture and provide additional communication channels

Draw something from your home country

To submit your picture, press the button
Where are you from?

Classroom Presenter

- Distributed, Tablet PC based application
  - Instructor, Display, and Student machines
- Synchronized navigation of slide deck
- Instructor ink distributed in real time to all machines
- Student Submissions
  - Slides used to distribute activities to students
  - Student work sent to instructor
  - Instructor shows student work on the public display

Student Attention vs. Time

Classroom Technology Vision

Why use computers to support good pedagogy?

- Improved logistics and reduced overhead
- Electronic activities allow digital integration
  - Efficient display to class
  - Digital record
- Specific operations
  - Anonymous display and submission
  - Aggregation and analysis
- Natural extension of instructor presentation system
Pedagogical Goals

- Strategies used to support classroom instruction
- Influence material being presented
  - Classroom Assessments
- Active Learning
  - Discovery
- Class contributions
  - Misconceptions
  - Collective Brainstorming

Determine the LCS of the following strings

BARTHOLEMEWSIMPSON

KRUSTYTHECLOWN

Submissions

Collective Brainstorm

- Generate student ideas for discussion
- Build a list of ideas
- Analyze and evaluate responses

Special problem: Large Size

- List at least three problems trees must face (& solve) because of their large sizes.

  1.
  2.
  3.

- Additional:

Tutored Video Instruction

- How can we export a course to a site that does not have a qualified instructor for the course?
- Tutored Video Instruction
  - Video Record live class
  - Have facilitator present the class
    - Video stopped for activities and discussion
Tutored Video Instruction with Classroom Interaction

- Joint project between University of Washington, Beihang University, and Microsoft Research Asia
- Offer an undergraduate algorithms course using Tutored Video Instruction
- Instructor is in Seattle
- Time difference prevented a synchronous distance course

Tutored Video Instruction

- Base course on facilitated use of recorded materials
- Materials recorded from a live class
- Facilitator guides discussion around materials
- Gibbons, Science 1977

Course Mechanics

- Lecture recorded at UW using ConferenceXP
- Teaching Assistants at Beihang replayed lecture
- Stopped the video regular for questions and explanation

Role of Tablet PCs

- UW Course used Tablet PCs once a week
- Beihang class had Tablet PCs for activities for every lecture
  - Students did activities
  - Teaching Assistants displayed the solutions
- Teaching Assistants used Classroom Presenter to write on slides to enhance explanations

Teaching Assistant Ink

Student Submissions
Evaluation

• Students performed well
  – Exam results, observation
• Positive survey results
• Interactive class sessions
• Technology and logistics successful
• No negative impact on UW class
• Tablets PCs / Classroom Presenter considered to be very important

Any questions?

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• Classroom Presenter
• ConferenceXP
  – www.conferencexp.net