Classroom Interaction in a Distance Learning Course

Center for Collaborative Technologies at University of Washington
http://cct.cs.washington.edu/

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Challenges of International Distance Learning
Language and Culture
Distance
Time Zones
Academic Schedules

Technical Challenges
Ensuring Adequate Bandwidth
Classroom Audio/Video
Supporting Classroom Interaction

Computing for the Developing World Course (Spring 2008)
Masters-level Course
Students from three sites participated:
• University of Washington (Seattle)
• Microsoft (Redmond)
• Lahore University of Management Science (Lahore, Pakistan)

Goals:
Real-time interaction between sites
High quality audio/video

ConferenceXP
Started at Microsoft Research in 2001
Transferred to UW in 2007 with Center for Collaborative Technologies
Used to support high quality multi-site video conferencing in UW Professional Masters Program since 1997

Classroom Presenter 3
Tablet PC based classroom interaction system
Developed at University of Washington

Student Submissions
Instructor’s slides broadcast to student devices
Slide based activities embedded in lecture
Students answer activities with digital ink and send results wirelessly back to instructor
Instructor selectively shows student work on public display
Student work displayed anonymously

Networking Details
Lahore University sent and received 500 kbps (All audio and one medium quality video in each direction)
UW and Microsoft sent and received up to an additional 4 Mbps between each other (Two additional high quality videos)
Lectures originated from all three sites

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Typical Two-Site Distance Learning Setup

Lahore University

Microsoft

Setup with Lahore University

Sample Classroom Activities

What could go wrong?
• What are the potential difficulties with a large scale P2P-based system?
• How do you ensure security?
• How can you ensure privacy?
• What are some potential solutions to these problems?

How has cell phone usage increased over time?

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Classroom Presenter is free for educational and non-commercial use. It is available from:
http://classroompresenter.cs.washington.edu/

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Students at all three sites participated by annotating slides with ink and text.