Promoting Student Engagement with Classroom Presenter

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Student Attention vs. Time

Draw a picture of something from Pennsylvania

What will the higher education classroom look like ...
- If all students have computational devices
  - Laptops, Tablets, Ultra light tablets, PDAs, Cell Phones, Gameboys . . .
- If the devices are all connected
- If the devices are integrated into classroom instruction

Wide range of potential classroom applications
- Presentation
- Demonstration
- Simulation
- Accessing external resources
- Note taking
- Feedback
- Active learning
- Peer communication

Classroom Technology Vision
Classroom Presenter

Distributed, Tablet PC Application
Initial development, 2001-2002 at MSR
Continuing development at UW
Collaboration with Microsoft
CP3 under development
CP3 Beta released, May 30, 2007

Simple application
Ink Overlay on images
Export PPT to image
Real time ink broadcast
UI Designed for use during presentation on tablet
Presentation features
Instructor notes on slides
Slide minimization
White board

Deployment Studies
University of Washington

- Computer Science
  - Algorithms, Data Structures, Software Engineering, Digital Design
- College of Forestry
  - Environmental Science and Resource Management
- Classroom set of HP 1100 Tablet PCs
- Average of one activity based lecture per week
  - Remaining lectures standard slide based lectures
- One to three students per tablet

Key results

- Successful classroom deployments
- Regular use throughout term
- Generally positive evaluation by all participants
- Effective tool for achieving instructors’ pedagogical goals
- Lecture – Activity model
  - Alternating lecturing with activities
  - Avg. 4 activities per lecture (50 min. classes)
  - 4 min work time, 2 min discussion time per activity
  - 50% of class time associated with activities

Classroom Activities

- Pedagogical Goals
- Classroom Activities

Discussion Artifact

- Use student generated example to explore different aspects of a topic
- Assess overall understanding
- Diagnose misconceptions
Western Pennsylvania Precipitation and Temperature

Temperature
Daily average, degrees F
Use Blue

Precipitation
Inch per month
Use Red

Student Submission

Discovery Activity
- Have students derive a concept from an example

Topological Sort
- Given a set of tasks with precedence constraints, find a linear order of the tasks
  - Label vertices with integers 1, 2, ..., n
  - If v precedes w, then l(v) < l(w)

Find a topological order for the following graph

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.
Problem Introduction

- Have students explore an instance of a problem before topic is introduced

Determine the LCS of the following strings

BARTHOLEMEWSIMPSON
KRUSTYTHECLOWN

Submissions

Determine the LCS of the following strings
BARTHOLEMEWSIMPSON
KRUSTYTHECLOWN

Challenge problems

- Competition in getting solutions
- Simultaneous work
- Submission and discussion

Handwriting Recognition: Identify the following words

Recognition results
Submission examples

Find a topological order for the following graph

Find a minimum value cut

Determine the LCS of the following strings

Collaboration

One to three students per tablet
Interaction between students often encouraged
Instructors would survey and occasionally comment on student work during activity phase
Student work a key part of classroom discussion
Anonymity

- Work displayed on public display without any identification
- Limited information about submission displayed on the instructor machine
- Anonymous display valued by the students
- Students often believe the instructor can identify their work
- Tagging behavior observed

Results

- Comparison with classroom networks
  - Classroom response systems, “clickers”
  - Single display of rich responses versus aggregated, finite responses
  - Support different classroom goals
- Comparison with paper based activities
  - Most of the activities can be done with paper!
  - Improved logistics with digital system
  - Anonymity
  - Key is ability to incorporate into public display

Classroom Presenter 3

- Beta Release – May 30
- 3.0 Release – any day now!
- Current builds available from
- Most significant changes from CP2
  - Support for TCP/IP networking
  - Improved ink support
  - Direct import of PPT (no need for deckbuilder)
- For more information contact
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Any questions?

For more information, contact Richard Anderson
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History of Classroom Presenter

- Developed has a presentation tool for a distributed classroom project
- Motivation
  - Address instructors complaints about using PPT for distance learning courses
  - Replace Netmeeting for PowerPoint and SmartBoard with application to integrate slides and ink
- Initial work done while on sabbatical at Microsoft prior to release of Tablet PC
10 reasons why Classroom Presenter is better than PowerPoint

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Classroom Presenter 3.0

- From scratch rewrite of CP 2.0
  - Aging code base
  - Clean up the code architecture
  - Discard unnecessary features

- Improvements
  - TCP/IP Networking
  - Improved Ink Performance
  - Direct Import of PPT