Enhancing the online educational experience via integrated, time correlated comments
Presenters:

Ori Rawlings
Chris Osswald
Antoinette Smith
Jason Petsod
Outline

- Introduction
- Team Development and Performance
- Project Work
- Problem Solving Technique
- Achievement
- Conclusion
- Question and Answer
Introduction
Motivation

[Graph showing the increase in U.S. Distance Education Enrollments (millions) from 1994 to 2008.]
Motivation

• Failure to mimic benefits of real world classroom
  • Limited student interaction
• Opportunity to improve online education
Proposed Solution

• Develop a rich video commenting system
• Integrate commenting system with streaming online lectures
Hypothesis

- Integrated rich commenting will improve online interaction
- Student interaction improves student performance
- Thus, our system will improve online education
Semester Objectives

- Design and implement online education system
- Measure and verify system usability
- Develop a deployment and integration plan
Team Development and Performance
Establishing Values

- Identifying best practices
- Reinforcing best practices
- Reflecting on our performance
Team Organization

- Novel three-phase approach
  - Phase I – Planning
  - Phase II – Implementation
  - Phase III – Documentation
Team Organization

Phase I: Planning
Phase II: Implementation
Phase III: Documentation
Phase I – Planning

- Define team organization
- Project Plan
- Team values and expectations
- Future milestones
- Requirements gathering
Phase I – Planning

August 24th

September 11th

- Sub-teams:
  - User Liaison Planning Team
  - School Liaison Planning Team
  - Development Planning Team
Phase II – Implementation

- Further requirements gathering
- Survey students, faculty, and administration
- System development
- Interface design
- Usability testing
Phase II – Implementation

- Sub-teams:
  - User Liaison Team
  - School Liaison Team
  - Development Team

September 12th

November 14th
Phase III – Documentation

- Complete work integration
- Prepare system documentation
- Produce IPRO deliverables
Phase III – Documentation

• Sub-teams:
  • Development/Integration Team
  • Deliverables Team
    - Brochure/Poster
    - Presentation
    - Final Report

November 15th – December 7th
Project Work
Related Work

- Microsoft Research Annotation System (MRAS)
Project History

- toca, LLC
- ethnoKEN™
- eduKEN
Studies Performed

- Preliminary Questionnaire
- Usability Testing
Preliminary Questionnaire

• Objective
  • Determine desired functionality from students, faculty, and administration

• Process
  • Researching survey design
  • Eliciting subjects
  • Administering online
Preliminary Questionnaire

- Results

- 27.3% more interactive
- 18.2% improve video quality
- 15.2% make operating system independent
- 9.1% make easier to use
- 9.1% other
- 6.1% standardize teaching
- 6.1% increase online course offerings
- 6.1% download lectures

ipro 327  fall 09
track 2: information technology
Usability Testing

• Objective
  • Measure usability of developed prototype

• Process
  • Researched usability metrics and methods
  • Developed surveys and task sequence
  • Elicited volunteers
  • Incorporated feedback
Usability Testing

- Results

The majority (≥80%) of users found our interface excellent, easy to use, and satisfying.
Major Impacts and Risks

- Impacts
  - Improved online education
  - Improved video indexing and search

- Risks
  - Compromising personal data
  - Compromising intellectual property
**Major Challenges**

- Potentially disruptive innovation
- Measuring success
- Equitable distribution of work
Ethical Issues

- Institutional Review Board (IRB)
- Non-Disclosure Agreement with toca, LLC
- Intellectual property of professors
Project Continuation

• Spring 2010
  • Deployed in classrooms
  • Beta testing and usability improvements
  • Privacy policy
• Later semesters
  • Measure educational impact of system
Problem Solving Technique
Research

- Technical
  - MRAS
  - Designing UIs
  - Model-View-Controller
  - User Authentication
  - Ruby on Rails
  - JavaScript/AJAX

- Soft Skills
  - Team Communication
  - Designing Surveys
  - Principles of Document Design
  - Good Writing Habits
  - Presenting Results
Methods

- Iterative prototyping
- Design patterns
- Version control
- Unit testing
- Brainstorming
- Survey research
- Usability testing
Innovative Approaches

- Phase-based team organization
- Wiki-based communication
Achievement
System
Significance

- 12.2 million people enrolled in distance education worldwide
- Opened up market to toca, LLC
- 58 students at IIT in Spring 2010
Conclusion
• Online education lacks student interactivity
• iitOnline integrates existing technologies to enhance interactivity
• Potential to improve quality of online education
Question and Answer