iitOnline+ putting ^ in the classroom

Enhancing the online educational experience via integrated, time correlated comments
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 over time]
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

- 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 to 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

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

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
• \textit{iitOnline} integrates existing technologies to enhance interactivity
• Potential to improve quality of online education
Question and Answer