Classroom Presenter: A Tablet PC-based Classroom Presentation System

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http://www.cs.washington.edu/research/edtech/

Beyond Conventional and Computer-based Presentation

Overhead projectors and whiteboards offer instructors the freedom to adapt presentation to suit the audience. Existing computer-based presentation tools such as PowerPoint are less flexible but offer advantages in preparing structured presentations with high-quality examples and illustrations. Classroom Presenter (1) fully integrates these advantages of computer-based presentation systems with the flexibility of handwriting provided by conventional systems and (2) provides novel navigation and handwriting features motivated by experience with the system in real classrooms.

High-quality handwriting directly over slides allows instructors to extemporaneously augment prepared slides.

Handwriting on a separate layer than the slides allows instructor to scroll off handwriting to accommodate additional notes—“virtual mylar.”

Shrinking the current slide expands margin space for additional handwriting without losing presentation context (as shown here).

Separation of Instructor and Classroom views allows instructor’s interface to be tailored for fast, direct access to useful features, including filmstrip view and presentation notes only displayed to the instructor.

Wireless networking allows instructor to move freely about the classroom or even hand off the tablet to students, e.g., to handwrite solutions to in-class exercises.

Toolbar includes choices of pen color and type (marker vs. highlighter), erasing handwriting, switching to whiteboard mode.

Synchronized Filmstrip View displays current slide in context of next and previous slides, including handwriting. Instructor can click on a slide to navigate directly to it.

In-class Studies, Iterative Design

Background Study
course: distance-learning cryptography
setup: PowerPoint and digitizing whiteboard

design lesson: integration of handwriting directly over slides

Pilot Studies
courses: distance-learning database, large, non-distance intro programming
setup: successive versions of Presenter

design lessons: separation of instructor view with handwriting and presentation controls; value of wireless instructor device

Deployment Study
course: large, non-distance intro programming
setup: Presenter

Ongoing Use of Presenter
15 courses, 10 instructors, ~1400 students

Student and Instructor Response

Classroom Presenter has been enthusiastically received by students and instructors.

Student Responses About Presenter (vs. PowerPoint & whiteboard)

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<th>less</th>
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</tr>
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<tbody>
<tr>
<td>Attention to lecture</td>
<td>4%</td>
<td>39%</td>
<td>57%</td>
</tr>
<tr>
<td>Understanding of lecture</td>
<td>2%</td>
<td>52%</td>
<td>46%</td>
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</tbody>
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In interviews, the instructor said handwriting on the Tablet PC was very natural. He said he could give more engaging presentations, because he could draw pictures and provide stimulus for the students. The instructor repeatedly mentioned to the class that he loved using Classroom Presenter, even telling them he wished he could use the system in his other courses to make them better.

Acknowledgments

We thank the many students, teaching assistants, and instructors who provided feedback on the system and participated in studies. We also thank irreplaceable (well, technically replaceable) colleagues at our institutions and in the Microsoft Research Learning Sciences & Technology group.

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