

Tablet PCs: A Flexible Tool for Mathematics Instruction

Michael Lafreniere
Ohio University–Chillicothe

Gregory D. Foley
Ohio University–Athens

35th Annual AMATYC Conference
Las Vegas, NV
November, 2009

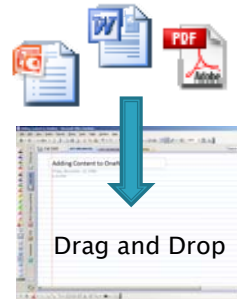
Outline

- ▶ From Stone to Silicone Tablets
- ▶ Possible Ways to Use a Tablet PC
 - Multiple **Linked** Representations
 - Possible Uses
 - In-Class Instruction
 - Supplemental Group Tutorials
 - Online Support
- ▶ Sketchcasting



Multiple Linked Representations (with OneNote)

- ▶ Microsoft Office
 - “Review” Ribbon
 - Start Inking Command
- ▶ Linked Possibilities
 - Notebook Layout for Each Course
 - Pre-Defined Pages
 - Adding Content to OneNote
 - Copying, Pasting, Resizing Symbols

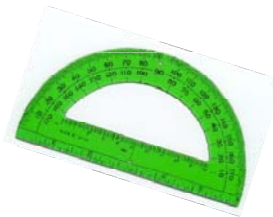
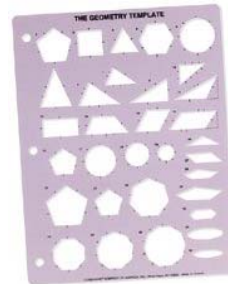


Snipping Tool

3

Multiple Linked Representations (with OneNote)

- ▶ Linked Possibilities
 - Searching through Ink
 - Making more White Space
 - Geometry on a Tablet
 - Built-in Features
 - Compass, Straight-Edge, etc.



4

Possible Uses

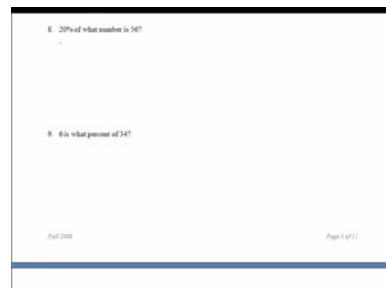
- ▶ In Class Instruction
 - Single Tablet/Screen
 - Multiple Tablet/Multiple Screens
 - Projector – Portrait vs Landscape
- ▶ Supplemental Group Tutorials
 - Tablet Workstations for Students
 - Connected Problem-Solving



5

What is Sketchcasting?

- ▶ Sketchcasting is...
 - a new way to communicate something online by recording a sketch
 - optionally with your voice speaking
- ▶ Sketchcasting is...
 - Based on principle: the whiteboard
 - sketch something to get a concept across
 - Sketchcasting was coined by Richard Ziade in July 2007

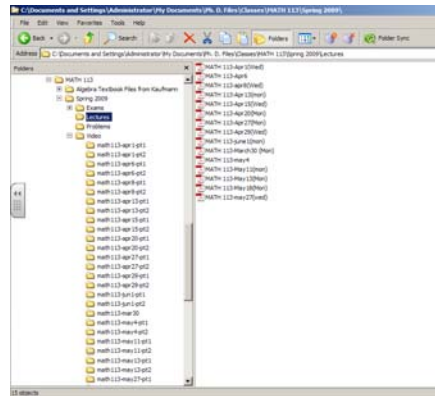


Above: Sketchcast Example of Homework Review

6

Why Sketchcasting?

- ▶ Benefit to Academia (Faculty and Students)
 - Archiving of classroom presentation for...
 - Future creation of content modules
 - Replay by students at a later time
 - Students online can experience same content as in-class students



7

Why Sketchcasting? (cont.)

- ▶ Maintains flexibility
 - For instruction by faculty
 - For students desiring access to higher education learning (in a more representative format of what occurs in a traditional classroom)



8

Sketchcasting Basics

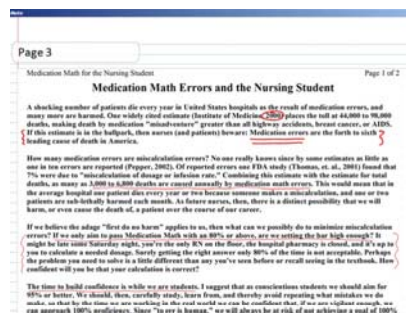
- ▶ Ideal Tools
 - Computer (Tablet PC)
 - Microphone
 - Software Program for Sketching
 - Paint
 - Journal
 - OneNote
 - Online Whiteboard Websites
 - Software Program for Capturing Computer Screen
 - Camtasia Studio
 - Jing
 - Windows Encoder
 - Adobe Captivate
- ▶ Demo (This lecture is a Sketchcast)



Source: <http://sketchcast.com/about>

Uses for Sketchcasting

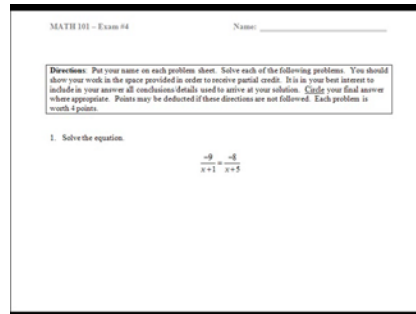
- ▶ Lecturing
 - Capturing and Distributing Notes
 - Real-time content module creation while you teach your classes
 - Another option - create lectures and post prior to class as though this is homework - then do problems in class



Above: Lecture Sketchcasting with imported notes

Uses for Sketchcasting

- ▶ Office Hours Online
 - Scriblink
 - Adobe Connect
- ▶ Demonstration of Problem Solving
 - Homework Problems and Solutions
- ▶ Exam Review
 - Instead of class time, put playback of exam online.



Above: Exam Review Sketchcasting

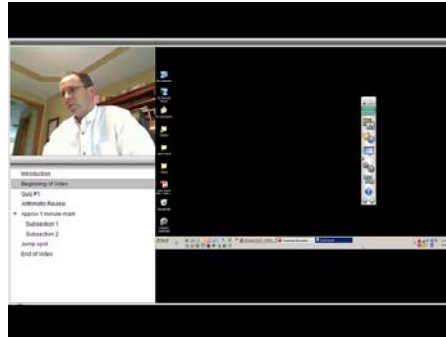
Sketchcasting for Students

- ▶ Pens for non-tablet PCs
 - Bamboo
 - Livescribe
- ▶ Pen-Enabled Monitors
 - Wacom
- ▶ Potential Uses
 - Collaborate easier in online environments
 - Create Jing solutions for Wiki solutions manual



Managing Online, Hybrid, In-Class

- ▶ Decision to Consider
 - Live or Archived Retrieval (Synch vs Asynch)
- ▶ Sketchcasting with additional tools
 - Streaming while Sketching
 - Classroom Presenter
 - Elluminate
 - Wimba
 - DyKnow
 - Adobe Connect
- ▶ Demo



Above: Sketchcasting with PIP, TOC, Captions & Quizzes

13

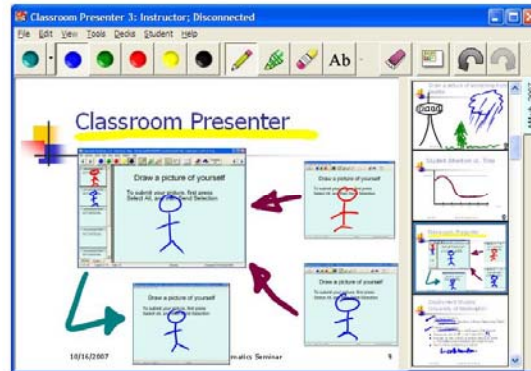
IT Support Needs

- ▶ Hybrid / Online Course Development Support
 - Evaluation Committee
 - Training Availability – Sharing by other Faculty
- ▶ Server Needs
 - Off-Site Server Hosting (list benefits of this)
- ▶ Classroom Technology

14

Links

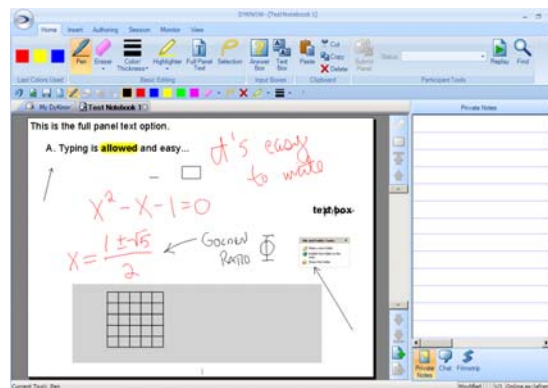
- ▶ Classroom Presenter (free)
 - classroompresenter.cs.washington.edu



15

Links

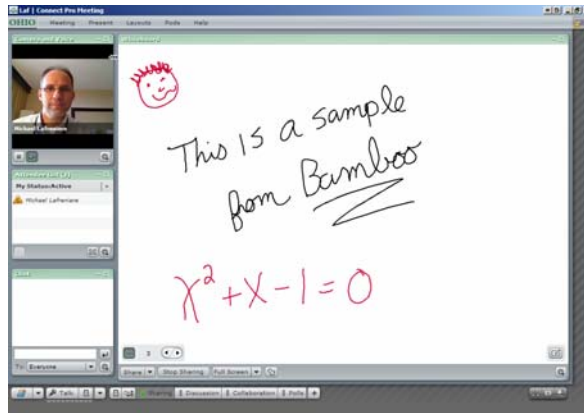
- ▶ DyKnow Vision
 - www.dyknow.com



16

Links

- ▶ Adobe Acrobat Connect Pro
 - www.adobe.com/connectpro



17

Links

- ▶ Online Whiteboards
 - Eluminate.com
 - Scriblink.com



18

Links

- ▶ Live Video Streaming
 - Ustream.com



19

Equipment List

- ▶ Gateway Tablet PC
- ▶ Dell Tablet PC
- ▶ Wacom Tablet DTF-521
- ▶ Sennheiser Wireless Microphones EW-100G2
- ▶ Villagetronic ViBook

- ▶ Microsoft OneNote 2007
- ▶ DyKnow Vision Software
- ▶ Adobe Acrobat Connect Pro
- ▶ Camtasia 6.0

20

Tablet PCs: A Flexible Tool for Mathematics Instruction

Michael Lafreniere
lafrenie@ohio.edu

Gregory D. Foley
foleyg@ohio.edu

35th Annual AMATYC Conference
Las Vegas, NV
November, 2009

The screenshot displays the DYKNOW software interface. The main workspace contains the following text and annotations:

- Text: "This is the full panel text option."
- Text: "A. Typing is **allowed** and easy..."
- Handwritten red text: "It's easy to write"
- Equation: $x^2 - x - 1 = 0$
- Equation: $x = \frac{1 \pm \sqrt{5}}{2}$
- Text: "Golden Ratio" with a symbol Φ
- A grid is visible at the bottom of the workspace.

The software interface includes a menu bar (Home, Insert, Authoring, Session, Monitor, View), a toolbar with various editing tools (Pen, Eraser, Color/Thickness, Highlighter, Full Panel Text, Selection, Answer Box, Text Box, Paste, Copy, Delete, Submit Panel, Status, Replay, Find), and a right-hand sidebar for "Private Notes". The status bar at the bottom indicates "Current Tool: Pen" and "Modified | 1/1 | Online as: lafrenie".

The screenshot displays a software interface for a meeting. On the left, there is a video feed of a man named Michael Lafreniere. Below the video is an 'Attendee List (1)' showing 'My Status: Active' and 'Michael Lafreniere'. At the bottom left, there is a 'Chat' window. The main area is a 'Whiteboard' with a red smiley face drawing at the top left. The handwritten text on the whiteboard reads: 'This is a sample from Bamboo'. Below this, the quadratic equation $x^2 + x - 1 = 0$ is written in red. The interface includes a top menu bar with 'Meeting', 'Present', 'Layouts', 'Pods', and 'Help'. A bottom toolbar contains icons for 'Talk', 'Sharing', 'Discussion', 'Collaboration', and 'Polls'. The number '3' is visible in the bottom right corner of the whiteboard area.