Video Data Collection, Processing, and Coding

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Presentation Outline

• Project Overview: Measures of Effective Teaching: Extension

• Challenges and Solutions:
  ▪ Video Data Collection
  ▪ Receipt Control and Review
  ▪ Post-Data Collection Processing

• Similarities and Differences Posed by New Technologies
Project Overview

Measures of Effective Teaching – Extension

• Collect 16000 classroom videos from 330 teachers over 2 academic years
• Receipt and review video, link to hard copy artifacts, allow teacher review
• Deliver video to coding partner (University of Michigan)
Video Data Collection: Challenges

• Camera selection/deployment
  ▪ Video: must see board, teacher, students
  ▪ Audio requirement: must hear teacher and as many students as possible
  ▪ Easy to use and durable
  ▪ Supportable from home office

• Active consent: need 100% parental consent

• Video capture
  ▪ Variety of environmental considerations: placement, lighting, etc.
  ▪ Accompanying artifacts
• Evaluated available commercial options
• Eventually adopted “Best Buy” solution
  ▪ 2 Commercial Kodak PlayTouch cameras
  ▪ Wide angle lens for classroom camera
  ▪ 2 Revolab wireless microphones
  ▪ All customized into a single “kit” with one power source, charging for microphones, very portable…
• Key drivers: COTS + price
Video Data Collection: Solutions
Camera Selection/Deployment (cont’d)
Video Data Collection: Solutions
Camera Selection/Deployment (cont’d)

- Custom ship/store case
- Quick start materials
- Sent training teams to schools
Video Data Collection: Solutions Video Capture

Developed guidelines for camera placement, sample:

**Equipment Placement – Horseshoe**

- The camera unit should be placed either next to the front right desk or front left desk.
- May need to tilt Board camera slightly in order to capture tall boards.
Video Data Collection: Solutions
Video Capture (cont’d)

Other Issues

• Synchronization
• Incremental incentives
• District schedules
Comparison Between Video and CASIC Data Collection

Similarities
• Need consent
• Facilitate data collection using supporting field materials
• Scheduling issues

Differences
• Consent at 100%
• Hardware: cameras
• Training
• Scheduling video capture in classrooms
• Staffing and support
Receipt Control and Review: Challenges

• Receipt all packet contents
• Validate student consent
• Link videos to study ID
• Review video captures for quality
Capture packets arrive daily containing:

- Transmittal Form
- Student Roster
- 2 SD cards
- Supporting Materials (lesson plans, handouts, etc)

Each packet’s contents receive the same Receipt Control Number (RCN) which serves as study ID (the link that ties the materials all together).
Receipt Control and Review: Solutions

Validate Student Consent

• “Active” student consent required
• Each teacher has copies of student roster, attached to transmittal form
• Student roster may note new students
• Home office staff compares roster to student consent forms kept on file
• Consent problems hold a video from further processing
Receipt Control and Review: Solutions
Review Videos for Quality

- Problem: what is an acceptable video?
- Board cam rubrics

![Board QC Criteria](image)

- Classroom cam rubrics

![Classroom QC Criteria](image)
Receipt Control and Review: Solutions
Review Videos for Quality (cont’d)
Comparison Between Video and CASIC Receipt Control

**Similarities**
- Supplemental hard copy
- Standard consent issues
- Receipt control

**Differences**
- Video shipped rather than sent
- Assign IDs after the fact
- QA Review
Post Data Collection Processing: Challenges

- Data delivery
  - Raw video files
  - Metadata
  - Transcoded web-ready video files
- Video available for review on web
Post Data Collection Processing: Raw video data delivery

Objective:

• Provide raw video to University of Michigan for archive.

Key Consideration:

• 7 GB of video, plus additional files
Video Services in the cloud: why?

1. Storage
2. Processing
3. Bandwidth
Post data collection processing: Solutions
Web-enabled video

• Video Services in the cloud: what
  ▪ Upload
  ▪ Transcode
  ▪ Host
  ▪ Delivery

• Player

• Workflow
Post Data Collection Processing: Web-Enabled Video

Must upload the video files
Post Data Collection Processing: Web-Enabled Video (cont’d)

Video transcoding
Post Data Collection Processing: Web-Enabled Video (cont’d)

Custom player
Summary: The Life Cycle of a Video

- Captured in classroom
- Mailed to Westat
- Receipted and reviewed
- Copied to external drive and shipped
- Uploaded to thePlatform via Aspera
- Transcoded to .MP4
- Streamed over Internet
- Moved to Amazon
# Questions and Contacts

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