

Practical Tips for the Use of Video in Usability Research

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Background on John P. Pinto, Ph.D.

- User Research Consultant
- Psychologist by training
 - Perception, cognition, & development
- Interval Research Corp. (1997-2000)
 - Consumer Research & Product Development
- Involved in Data Collection & Observational Research Methodology for 15 years
 - Varied experience creating software tools to help researchers present stimuli, collect data, tag & analyze behavior

Agenda

- Goals
- Uses for Video
- Hardware
- Software
- Editing Workflow
- Random Observations
- Open Discussion

Goals

- Overview of video in user research
 - Pragmatics, methodological issues, etc.
- Slides contain a “brain dump”
 - based on varied experience as a consultant
 - and discussions w/ colleagues
- Ideally, this will facilitate discussion
 - For the audience and for the speaker
 - “Hey, that's a good idea, I hadn't thought of that”

Caveats

- Focus on data collection/presentation issues
 - Rather than “video demos” or prototyping
 - E.g., Starfire video (Sun, ~1992)
- This is a “work in progress”
 - I do not have all the answers
 - I rely on your expertise/experience too
- These slides will be made available on-line
 - <http://www.pintoresearch.com>

Types of User Research

- In-lab user research
 - Early concept testing
 - Paper prototypes
 - Functional prototypes
 - Complete working HW or SW or Web product
- Site visits / field observation
- Remote testing
 - E.g., WebEx
- Focus groups

Data Types

- Background
 - E.g., “Describe what you do now.”
- Ideation
 - E.g., “What do you want?”
- Evaluation
 - E.g., “What do you think of this?”
- Preference
 - E.g., “Which do you prefer?”
- Performance
 - E.g., “Which is faster/easier/better?”

Data Collection

- Data must be collected and tabulated:
 - Qualitative
 - E.g., Summarization of pos & neg feedback
 - Quantitative
 - E.g., Error rates & time to task completion
 - Etc...
- All measures require logging
 - Some can be summarized in notes
 - By participants or observers or “by machine”
 - Video is a useful tool for session logging
 - Especially to record measures not captured in writing

Uses for Video

- Unobtrusive remote observation
 - In the next room & across the country
- Logging test session for later review
 - In real-time or "frame-by-frame"
- Capture multiple perspectives
 - E.g., user reaction/emotion + behavior
- Reliability & validity checks
- Illustration of key findings
 - Qualitative & Quantitative
- Achieving "buy in" for future research

General Workflow for Video

- Videorecord all study sessions
 - Ask team members to attend sessions
 - Live and/or off-line
- During each session, record critical events
 - Task begin/end, errors, feedback, etc.
- Create a highlights tape of critical events
 - Find important spots in the video and pull them

Hardware

- Camera
- Audio
- Computer
- Extras

Hardware - Camera (1 of 3)

- Focus on MiniDV rather than other formats
 - VHS/S-VHS is too big and difficult to edit
 - Hi-8/Digital8 is too obscure
 - Pro formats (e.g. DVCAM) are too expensive
 - MicroMV is too new
- Video Camera Types
 - Consumer models (e.g., Canon ZR60, ~\$500+)
 - Higher end (e.g., Canon GL-2, ~\$2500+)
 - Remote controlled (e.g., Sony EVID30, ~\$1000+)

Hardware - Camera (2 of 3)

- What you get with more \$\$
 - Better quality video image
 - Useful perks such as video sync-rate control
- What you lose with more \$\$
 - Ability to spend on other stuff
- Standard vs. Pro vs. Remote-controlled
 - Beware top-mounted microphones pointing skyward
 - Beware compact models that lack all connectors
 - e.g., ability to do S-Video in/out

Hardware - Camera (3 of 3)

- Tripod mount location
 - Can obstruct tape insertion
- SP vs. LP vs. ExtremeLP
 - 60/90 min & 80/120 min tape sizes
- Manual controls
 - White balance & color correction
 - Shutter speed / video sync

Hardware - Audio

- Extremely important, do not neglect!
- An external mic can vastly improve quality
 - Even with a cheap single-camera setup
- Microphone choices
 - Directional mic
 - Omnidirectional (area) mic
 - Lapel mic
- 16-bit vs. 12-bit audio
 - DV records 2 16-bit tracks or 4 12-bit tracks
 - Choose 16-bit always

Hardware - Computer

- Basic editing typically requires:
 - PC or Mac
 - w/ Firewire / IEEE 1394 / Sony iLink
 - + Big AV-rated Hard Drive
- DV streams = 3.6 MB/sec. or 4.52 min./GB
 - 120 GB drive = 9 hours

Hardware - Extras

- If you need to splice two signals together
 - for PIP, screen capture, etc.
 - Get a mixer (e.g., Videonics MX-1 ~\$1000)
- Have a "live duplicate" VHS deck available
 - Can use this to broadcast video into a nearby room with a cheap coax cable to an attached surveillance TV
- Live sessions can be broadcast over the web
 - RealProducer or QuickTime Broadcaster
 - Save live sessions to disk

Software

- Annotation/logging
- My software solution
- Editing digital video
- Creating DVDs & VideoCDs

Software - Annotation/Logging (1 of 2)

- Specialty Commercial Software
 - The Executive Producer
 - <http://www.imagineproducts.com/>
 - CatDV
 - <http://www.squarebox.co.uk/catdv/>
- Specialty “Academic” Software
 - Noldus Observer
 - <http://www.noldus.com>
 - Transana
 - <http://www.transana.org>
 - vPrism
 - <http://www.lessonlab.com/vprism/>
 - Observational Coding System
 - <http://www.trctech.com/>

Software - Annotation/Logging (1 of 2)

- Usability Session Logging Software
 - Usability Activity Log
 - <http://www.bitdebris.com/products/ulablog.asp>
 - Testlogr
 - <http://www.usabilitysciences.com/>
 - ObServant
 - <http://www.userworks.com/>
 - OVO Logger
 - <http://www.ovostudios.com/>
 - UsabilityWare
 - <http://www.usabilitysystems.com/>

Software - My Solution

- Microsoft Word
 - Cheap
 - Cross-platform
 - Easy to understand
 - Easy for Engineers/Designers to “play along”
 - Macros are powerful and can easily log events
 - Note: It helps to have a well-defined test plan
- Sync timecode w/ real time
 - With a “Big Clock”
 - On all observers’ computers

Software - Editing Digital Video

- Pro
 - Avid Xpress DV (~\$1000)
 - Apple FinalCut Pro / Express (~\$1000 / \$300)
 - Adobe Premiere (~\$500)
- Low-end
 - Roxio VideoWave Movie Creator (~\$50)
 - OEM bundled Software (e.g., Sony)
- Free
 - Apple iMovie
 - Microsoft Movie Maker

Software - Creating DVD/VideoCD

- Windows
 - Dazzle DVD Complete (~\$75)
 - Roxio Easy CD & DVD Creator (~\$80)
 - Adobe Encore DVD (~\$TBD Summer 2003)
- Mac
 - Apple DVD Studio Pro (~\$500)
 - Roxio Toast Titanium (~\$90)
 - Apple iDVD (free)

Editing Workflow (1 of 3)

- Create written/presentation summary first
- Identify what you want, then pull clips
 - Start with your notes
 - Do not “forage”
- Picking Clips
 - Illustrate general findings
 - Trends, examples, etc.
 - Highlight outliers
 - Demonstrate the “whys”

Editing Workflow (2 of 3)

- Highlights video should include
 - Meaningful title slides
 - Don't skimp on slide duration
 - Credits & basic participant profiles
 - "Bumper" slides
 - Optional: MTV-style "badge" in lower corner
 - Keep it "tight" ~20-min max
 - Optional: A video "Appendix"

Editing Workflow (3 of 3)

- Delivery Format
 - DV Master
 - VHS
 - DVD
 - VideoCD
 - Files/clips burned to CD
 - MPEG-1
 - Streaming media files (Real/QuickTime)
 - Clips embedded in a PPT presentation

Random Observations (1 of 3)

- Video in the field
 - Be as unobtrusive as possible
 - Beware noisy environments
 - It's irritating to have to clean up noisy audio
 - Battery life
 - Get additional batteries
 - Keep the LCD closed to conserve power
 - Ask yourself whether extra equipment is required
 - Focus on ease of setup/teardown

Random Observations (2 of 3)

- Highlights tape vs. session tape
- Non-camera video capture
 - E.g., S-video out, “scan converter”
 - Direct to disk recording
 - E.g., Camtasia, SnapzPro
- Remote testing
 - E.g., WebEx
- Research Facility Limitations
 - E.g., Nichols Research
- Portable Labs
 - E.g., <http://www.userworks.com>
 - E.g., <http://www.usabilitysystems.com/>
 - E.g., <http://www.ovostudios.com>

Random Observations (3 of 3)

- Wireless broadcast of video signal
 - E.g., to simplify cabling
 - Limited success/quality
- Remote Wireless Doorbell
 - To communicate w/ observers
- Family-band radio as PA system
 - From observers to facilitator/participant
- Instant messaging as communication tool
- Other Software Solutions?
 - E.g., Can something like CVideo be revised?
 - <http://homepage.mac.com/jeremyroschelle/>

Q&A/Discussion

- What has worked for you in the past?
 - Equipment
 - Software
 - Editing
 - Session Logging
 - General approach & politics