RERC on Telerehabilitation

Communication Technology

Richard C Simpson, PhD, ATP
Team Members

- Andy Jinks
- Ed LoPresti
- John Coltellaro
- Heidi Koester
- Becky Bidelman
- Josh Jones
- Evan Knutson
- Allie Davidson
- Sarah Holmes
- James Fialho
- Shelley Matta
- Chris Constantino
- Jessica Stulz
- Margaret Munsch
- Kolu Jarboi
Two Studies

- **R5: AAC**
  - Three groups
    - Standard
    - Mixed
    - Remote
  - 66 remote sessions

- **R6: Comp Access**
  - Two groups
    - Standard
    - Remote
  - 56 remote sessions
Remote Station

- Laptop
- Up to 3 cameras
- Chat-60 VOIP speakerphone
- Verizon 4G card
- Assistive Technology
VISYTER

- Multiple video streams is unique
- Technical issues
  - Video
  - Sound
  - Recording
- Still not ready for consumer use
TeamViewer

- Desktop sharing
- Single video stream
- Cross-platform
- Free for research
- No remote system sounds
- Can’t reboot remote system
Camera Positioning

- Hard for clinician to see screen of AAC devices
  - Screen sharing isn’t always an option
  - Camera can block client’s view
Camera Positioning
Internet Access

• 4G wireless cards
• All potential subjects have internet access in their homes.
• 2 subjects had internet access in nursing home rooms
Observations

• 15-30 minutes to set up equipment
  – Too complicated for most clients to do on their own

• Clients really like staying home

• Our setup uses a lot of video streams
  – Bandwidth can be an issue
  – Computer power can be an issue
Observations

• Duplicate AAC devices on both sides of connection
• Need for darkened background to view dynamic display of devices
• Challenge with incorporating eye gaze technology in remote sessions
Incident Reports

• Video Problems
  – Interruption/Distortion: 9 sessions
  – One camera: 6 sessions

• Audio Problems
  – Interruption/Distortion: 5 sessions
  – No audio: 14 sessions
• I was comfortable being evaluated through this means
• The results... would be as accurate as in person
• All areas of my lifestyle were considered

• The technology did not interfere
• Video and audio was acceptable
• Video conferencing saved me monetary expenses
• I would be willing to use this again
TRQ

AAC

- Comfortable: 5.6
- As accurate: 5.4
- Complete: 5.4
- Interference: 5.3
- Video and audio: 5.5
- Monetary expense: 5.8
- Use again: 5.8

Computer Access

- Comfortable: 5.2
- As accurate: 5.2
- Complete: 5.2
- Interference: 5.1
- Video and audio: 5.1
- Monetary expense: 5.3
- Use again: 5.4