

## SignQUOTE

Qualitative Usability Online Testing Environment

A Remote Testing Facility  
for Eliciting Signed  
Qualitative Feedback

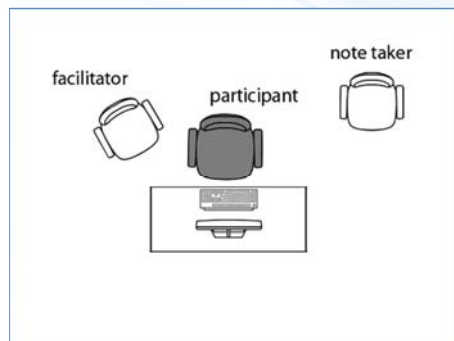


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## Sign Synthesis: State of the Art

- Still in a formative state
- Requires regular feedback from users
- Requires rich feedback from users
  - quantitative data is not sufficient

## Face-to-Face test setup



## Face-to-Face testing



## Face-to-Face challenges

- Language barrier
- Scheduling
- Cost

## Face-to-Face challenges

- Travel expenses (parking)
- Recruitment
- Locality
- Alternative: Deaf conventions

## Remote testing

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- Language barrier
- Scheduling
- Cost
- Travel expenses (parking)
- Recruitment
- Locality

## Language Barrier

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- Low literacy rates in US Deaf population
- ASL is preferred to English
- In the US, remote testing platforms use English.
- Qualitative feedback in English

## Remote Testing Wish List

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- Highly visual, not textual
- All language is signed language
- Webcam recording
- Easy navigation

## New! SignQUOTE

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### Sign

Qualitative

Usability

Online

Testing

Environment

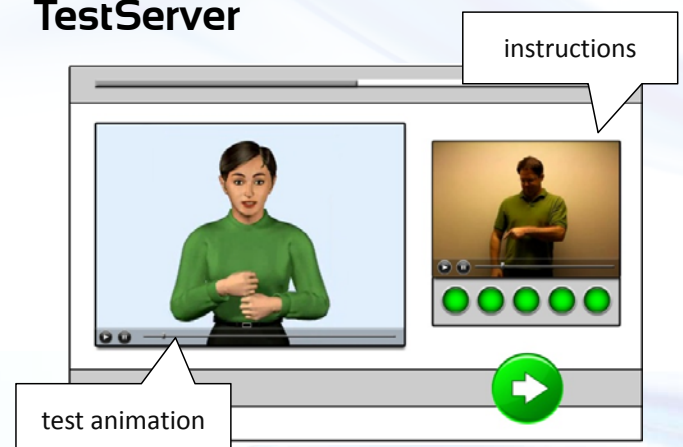
- Remote system
- Configurable
- Cross-platform
- Asynchronous

## SignQUOTE

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- Interface entirely in Sign
- Test at any time
- Simultaneous sessions OK
- Reduces cost

## TestServer



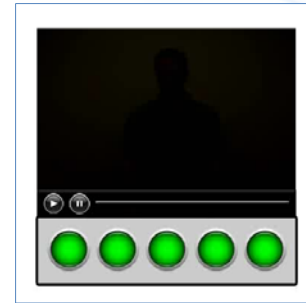
## TestServer

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- Test participant interacts with TestServer.
- To begin, participant opens URL in a browser.
- All interaction is in signed language.
- Uses *indexing* to obviate need for labels.
- Webcam captures responses to open-ended questions.

## Indexing

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## Webcam

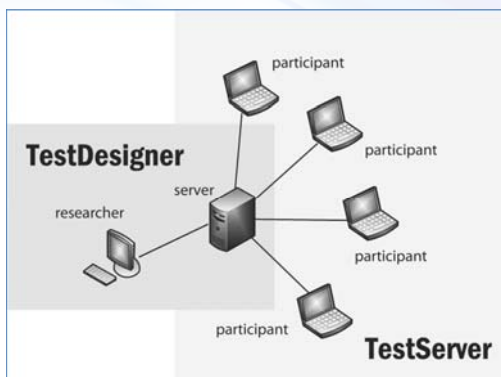
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- For open-ended questions
- Instruction: "Record your feedback."
- Response area now shows a webcam control.
- Recordings are destroyed when the study is complete.

## TestServer



## Architecture

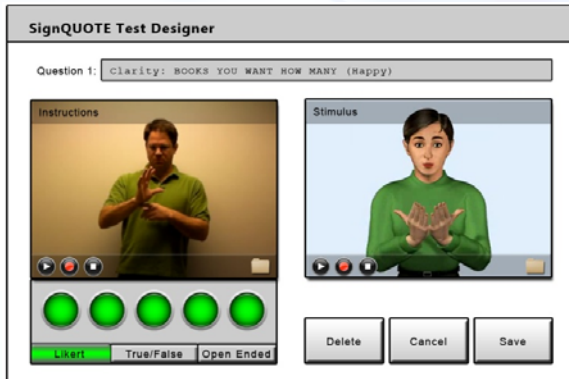


## TestDesigner

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- Create, edit, deploy tests over the Web
- Upload test animations, recorded instructions, pre-test questionnaire and informed consent as video files.
- Any number of questions
- Formats:
  - Likert, True/False, Open-Ended

## Screen shot



## Confidentiality

- Hire certified interpreter to voice the recorded videos.
- Audio record the interpreter's voicing and take notes.
- Researchers never need see participant's face.
- Recordings are destroyed when the study is complete.

## Technical details

- Written in Adobe Flex
- Runs on Apache server
- Data collection via PHP
- Uses Red5 or WowZa Media Server2 for video streaming
- Recorded videos in FLV form

## Evaluation of SignQUOTE

- First phase: Usability testing  
Is the interface self-explanatory to participants?
- Second phase: Examining collected data  
How does the data collected by this technology compare to data collected face-to-face testing?

## Usability Test

- Evaluating learnability, ease of navigation and functionality with participant's OS, browser.
- Tests either face-to-face or with Skype
- Participants given URL and told to visit site.
- No other instructions, but encouraged to ask questions, give feedback.

## Usability Test

- Participants viewed an Informed Consent and four animations.
- Participants answered two open-ended, two close-ended questions about each animation
- At conclusion, participants answered a few debriefing questions.

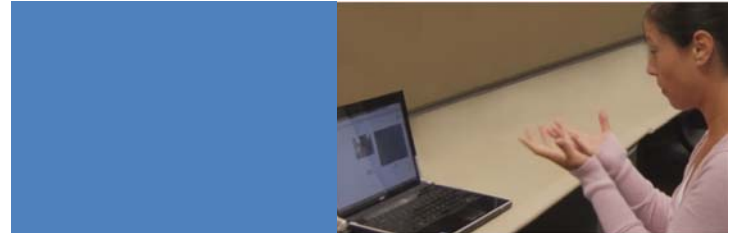
## Findings

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- Functionality issues on Apple OS (fixed)
- Add video controls for scrubbing(done)
- Indexing was easily understood
- 100% agreement with statement 'ASL is better than English for this type of test.'



## Comparing Face-to-face and SignQUOTE



## Comparison

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- Had data from a previous face-to-face test (Schnepp, 2010)
  - 20 participants
  - Viewed 5 animations of ASL sentences
  - 4 questions per animation (two close-ended, two open-ended)
- Conducted same test using SignQUOTE
  - 22 participants
  - Same stimuli, same questions

## Examined

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- Quantitative data (as a check)
  - Judging affect
  - Judging size of a cup
- Qualitative data
  - Repeating the sentence just viewed.
  - Suggestions for improvement

## Quantitative Data

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Animation number	Face to Face Median	Remote Median	Mann-Whitney
1 (affect)	3	4	.38
2 (affect)	2	1	.21
3 (size)	5	4	.85
4 (size)	4	4	.30
5 (size)	5	5	.57

- Differences not statistically significant

## Qualitative data

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- Comparisons are tricky!
- Elicitation
  - percentage of participants who made suggestions for improvement
- Overlap
  - Agreement between face-to-face, SignQUOTE suggestions

## Qualitative data

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- Elicitation
  - percentage of participants who made suggestions for improvement
- Overlap
  - Agreement between face-to-face, SignQUOTE suggestions
  - $\#(f2f \cap remote) / \#(f2f)$

## Elicitation

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	Face-to-face	SignQUOTE
Animation 1	50%	68.18%
Animation 2	65%	68.18%
Animation 3	35%	50.00%
Animation 4	55%	68.18%
Animation 5	40%	63.64%

- More suggestions from SignQUOTE
- But not significantly so

## Overlap

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Animation 1	50% (2 / 4)
Animation 2	40% (2 / 5)
Animation 3	33% (1 / 3)
Animation 4	50% (3 / 6)
Animation 5	33% (2 / 6)

- Consistent with other comparisons of remote and face-to-face testing.

## Lessons Learned

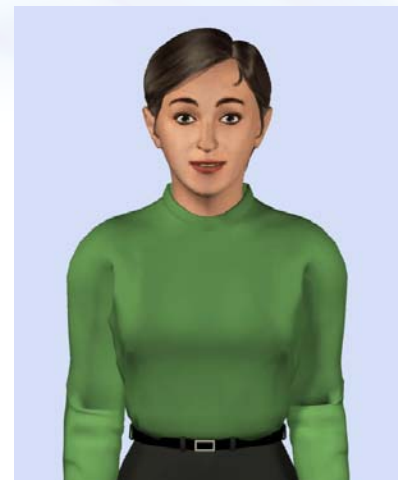
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- Recruiting
  - Similar to face-to-face recruiting
  - Pre-test questionnaire to qualify participants
- Use short video clips
- A complement, not a replacement, for face-to-face testing

## Results

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- Lower cost, fewer scheduling challenges
- Tests occur more often.
- Improvements happen more quickly.



## It's Open Source

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- Via the GNU Affero General Public License
- Download at [asl.cs.depaul.edu/sign](http://asl.cs.depaul.edu/sign)

## Special Thanks

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- Jeff Karova
- Brianne DeKing

**Thank You!**