Effects of ACASI Voice Choice and Voice Persona on Reports to Questions about Sensitive Behaviors among Young Adults

Kerryann DiLoreto
Jennifer Dykema
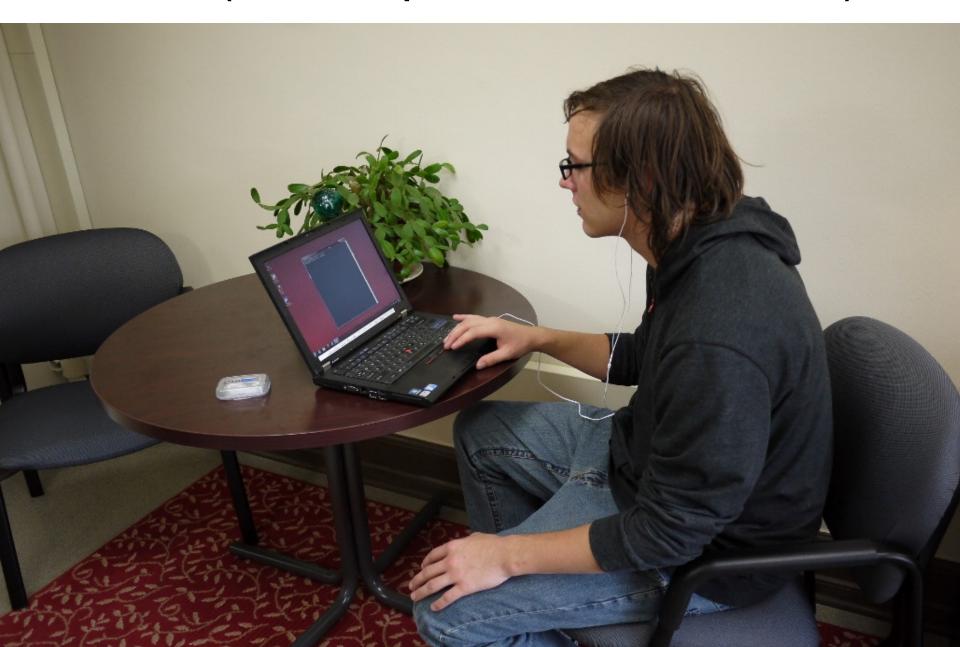Karen Jaques
Nadia Assad

University of Wisconsin Survey Center
University of Wisconsin—Madison

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ACASI (Audio Computer-Assisted Self-Interview)

Preferred method for asking sensitive questions

- Yields higher reports of sensitive behaviors versus CAPI or paper-and-pencil
  - (Tourangeau & Smith 1996; Turner, Ku, et al. 1998)
- Audio can overcome literacy problems
  - (Turner, Forsyth et al. 1998)

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Small body of research raises doubts

- Do respondents actually use audio?
- Does audio affect survey responses?
- Does variation in vocal characteristics of voice – gender, humanness – affect survey responses?

- Concerns about data quality
  - Low level of cognitive processing
  - Meaningful / accurate answers?

Impetus on researcher to support audio use

- Given concerns about data quality and burden, research should identify methods to support audio use

- Experiment
  - Goals
    - Increase propensity for disclosure
    - Lower propensity to turn audio off
  - Design
    - Offer respondents choice of voices
    - Vary voice's "persona"

Survey data: CalYOUTH

- Wave 1 of longitudinal CAPI survey
- Evaluate outcomes among youth (16-17 years) in foster care during transition to adulthood
- Questions about experiences with foster care and courts, education, employment, parenting, relationships, future
- Conducted April-October, 2013
- AAPOR RR1 = 95.3% (727 of 763 interviews completed)

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- RR = 95.3% (727 of 763 completed interviews)

- Analytic sample = 631 Rs
  - Dropped 73 Rs in "involuntary audio" condition
  - Dropped 23 Rs who refused ACASI, had audio problems, asked INT to administer

ACASI experimental design

- Lengthy ACASI module
  - 294 possible questions
- Questions and response categories
  - Shown on screen, read aloud through headphones
  - Pre-recorded using three different female voices

Overview of the design of the ACASI voice experiment

Voice Assigned

(1 of 3 female voices randomly assigned to R)

Start ACASI Module

Voice Chosen

(R choses among 1 of 3 female voices)

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Overview of the design of the ACASI voice experiment

Start ACASI Module

Voice Assigned

(Female voice randomly assigned to R)

Human "Empathetic" Voice

Human "Professional" Voice

Synthetic TTS Voice

Voice Chosen

(Female voice chosen by R)

Human "Empathetic" Voice

Human "Professional" Voice

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Overview of the design of the ACASI voice experiment

Start ACASI Module

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- Human "Empathetic" Voice
- Human "Professional" Voice
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WARMTH ↑

Voice Chosen

(Female voice chosen by R)

- Human "Empathetic" Voice
- Human "Professional" Voice
- Synthetic TTS Voice

WARMTH ↑

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Hypotheses

- When given a choice among the three audio voices
  - More likely to choose human voice
  - More likely to choose empathetic voice
  - Will report higher levels of sensitive behaviors
  - Will leave the audio on for a longer duration
- Empathetic voice will be associated with higher levels of sensitive behaviors
- Rs with lower reading abilities will leave the audio on for longer durations

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Analytic strategy

- Test differences between groups for pairwise contrasts
  - e.g., "Assigned-TTS" vs "Assigned-Professional," "Assigned-TTS" vs "Assigned-Empathetic," etc.
- Examine results separately for males vs females
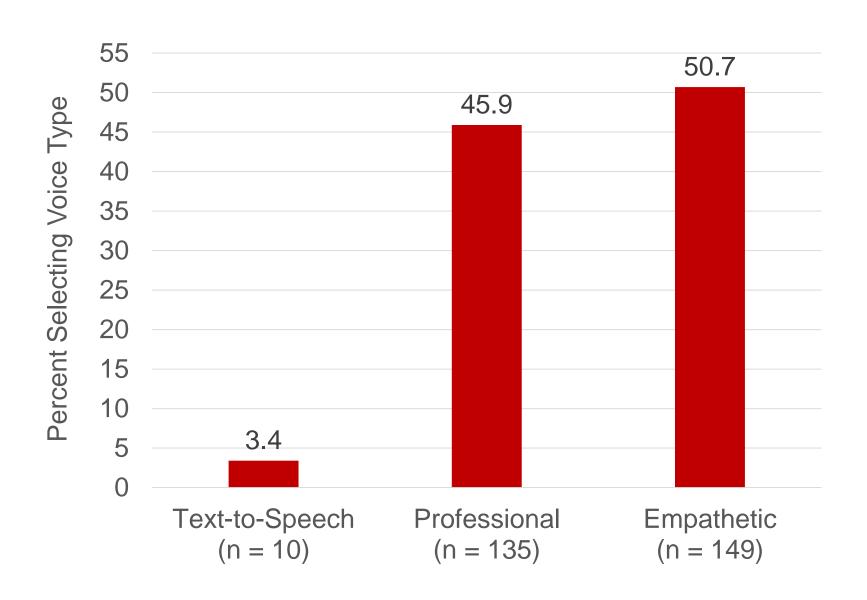- Discuss conventionally significant ($p < .05$) and marginally significant ($p < .10$) results

Outcomes

- **Voice choice**
- Reports of engaging in sensitive behaviors
- Item nonresponse
- Audio use

Percent of respondents selecting each voice type among respondents given the option to choose

Outcomes

- Voice choice
- **Reports of engaging in sensitive behaviors**
- Item nonresponse
- Audio use

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Differences among groups for reports of sensitive behaviors

(1) Sexual orientation not "100% heterosexual" (vs is)

(2) Ever been or gotten someone pregnant (vs not)

(3) Delinquency index (13 items)

(4) Victimization and perpetration index (9 items)

(5) Contact with criminal justice system index (3 items)

(6) Maltreatment index (16 items)

(7) Ever raped or sexually molested (versus not)

(8) Suicidal thoughts or attempts (versus not)

(9) Mental health disorders index (24 diagnoses)
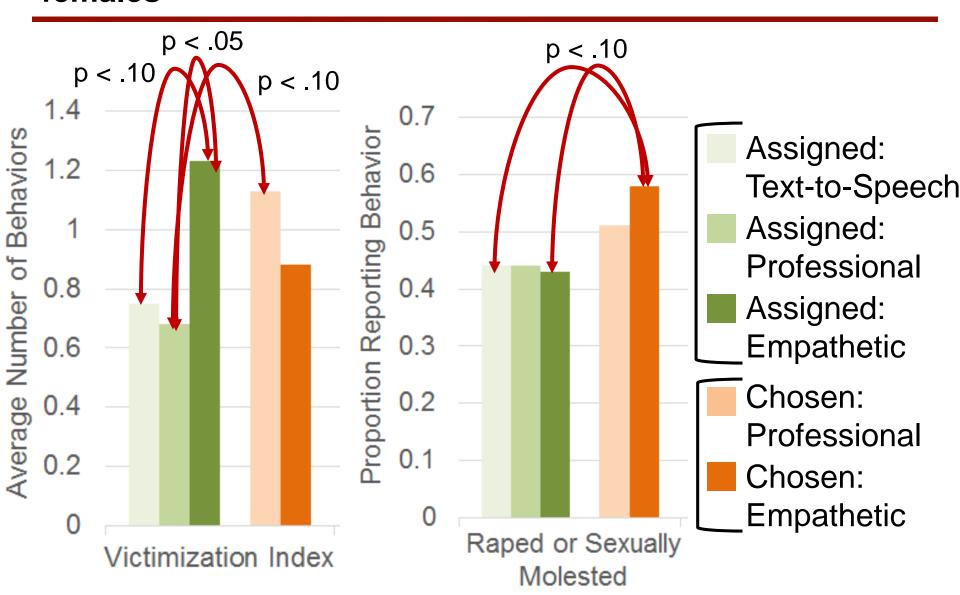
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- Overall -- across 9 topic areas and 294 items – few differences

Sensitive behaviors: Differences among groups for females

Sensitive behaviors: Differences among groups for males

- More sensitive to voice manipulations
  - 1 or more group differences for 5 of 9 topical areas
- Among those in the voice assigned group
  - Higher reports of "not 100% heterosexual" for TTS and empathetic voices
- Among those in the voice chosen group
  - Higher reports of victimization and being raped or sexually molested with empathetic voice
- Remaining differences are between various assigned and chosen groups but no consistent pattern
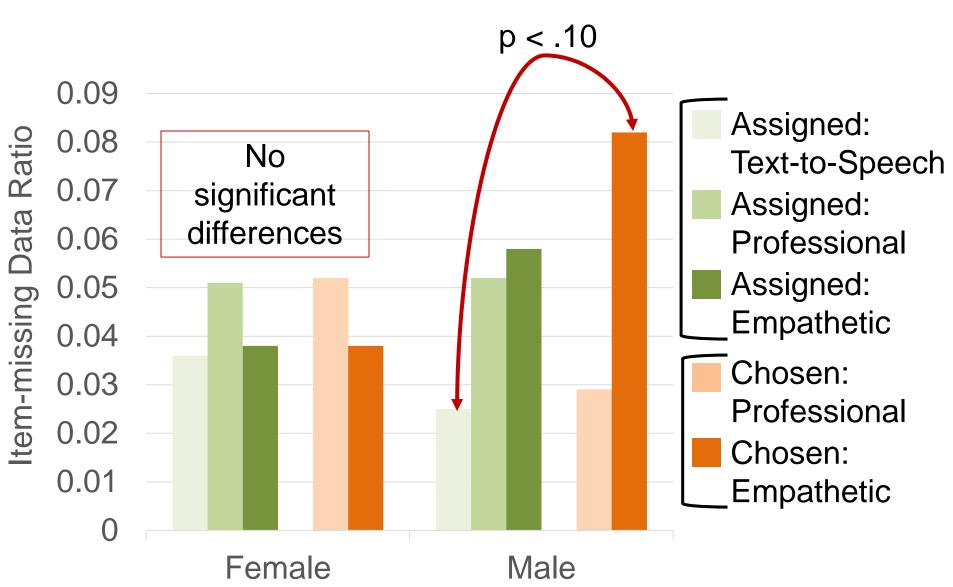
Outcomes

- Voice choice
- Reports of engaging in sensitive behaviors
- **Item nonresponse**
- Audio use

Item nonresponse: Differences among groups by gender

No significant differences

p < .10

Item-missing Data Ratio

Assigned: Text-to-Speech
Assigned: Professional
Assigned: Empathetic

Chosen: Professional
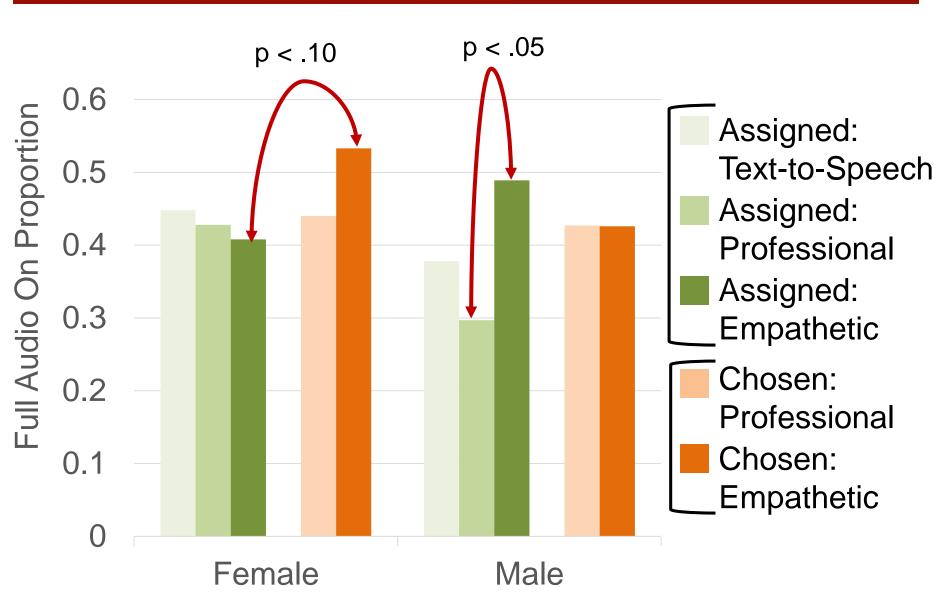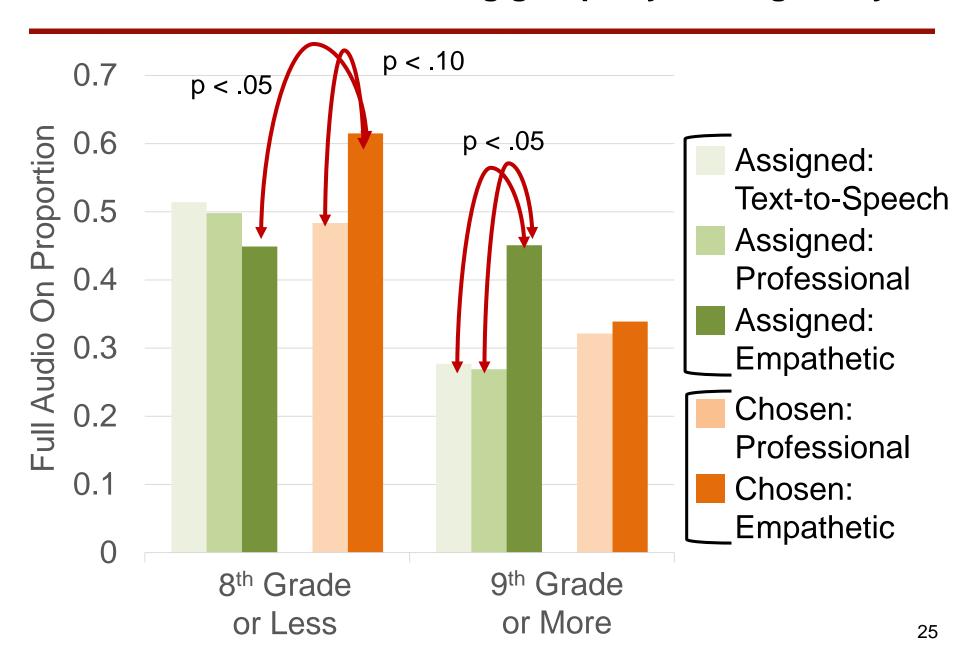Chosen: Empathetic

Female   Male

Outcomes

- Voice choice
- Reports of engaging in sensitive behaviors
- Item nonresponse
- **Audio use**

Audio use: Differences among groups by gender

Audio use: Differences among groups by reading ability

Conclusions

- When given a choice, Rs choose human voices but …

    … the type of voice chosen versus assigned has few significant impacts on outcomes

  - Out of 11 outcomes examined

    - Main effect of "voice choice" versus "voice assignment" only significant for reporting about being raped or molested among females

Conclusions

- Some differences among groups **assigned** to voice
  - Empathetic voice associated with
    - Greater audio use among males and those with higher reading levels
    - Higher reports of victimization among females
    - Higher reports of "non-heterosexual orientation" among males
- Males are more sensitive to voice characteristics
  - Consistent with findings from our previous ACASI experiments

Limitations and implications

- Limitations
  - Results may not generalize to other populations
  - Only manipulated "warmth" of the voices
  - Do not know how Rs in the study perceived the voices
- Implications
  - Couper et al. 2014: Compared similar outcomes to those examined here from NSFG Cycle 7, which used a human recorded voice, to Cycle 8, which used a recorded TTS voice. Conclude "*We find no evidence of any negative impact of TTS on the ACASI module. … Given the success of TS, we recommend its use for ACASI.*"
  - Our analysis suggests that moving exclusively to TTS for ACASI modules may be premature

Next steps

- Evaluate the impact of ACASI audio: differences in participation among voices from wave 1 to wave 2
  - Depending upon their wave 1 experimental group:
    - Rs less likely to agree to wave 2 interview?
    - Rs more likely to decline, or ask INT to administer ACASI module?
    - Rs less likely to leave audio on during ACASI?
- More research aimed at increasing quality of ACASI experience

Thank You!

For copies of this presentation or more information, contact:

Kerryann DiLoreto

kdiloret@ssc.wisc.edu

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Voice Ratings

- We devised a formal independent voice ratings web survey, where internal staff between the ages of 18 and 25 were asked to evaluate each voice on basic demographics and also empathetic and professional characteristics (How friendly, how trustworthy, how comfortable, etc).

- We recorded samples of 6 voices (5 human; 1 synthetic) and selected the 2 human voices that most embodied the empathetic and professional characteristics based on these ratings.

- We also coached each human voice to try to enhance either the empathetic or professional characteristic of their voice prior to recording the samples.

Examples of Voices

- The following audio clips were the exact files that respondents listened to before choosing a voice.

Voice 1 – Empathetic

Voice 2 – Professional

Voice 3 – Synthetic (TTS)