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## Chapter 11: Virtual Interviewers, Social Identities, and Survey Measurement Error. Appendix 11

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Chapter 11: Virtual Interviewers, Social Identities, and Survey Measurement Error

Appendix 11

Frederick Conrad, Michael Schober, Daniel Nielsen, and Heidi Reichert

Full book reference:

Olson, K., J. D. Smyth, J. Dykema, A. L. Holbrook, F. Kreuter, B. T. West. 2020.

*Interviewer Effects from a Total Survey Error Perspective*. Boca Raton: CRC Press.

## Appendix A

Table A11A.1 Proportion of race-related items for which race of interviewer effects are observed across eleven published studies.

<b>Citation</b>	<b>% Race-related items</b>	<b># Items</b>	<b>Mode</b>
Campbell (1981)	82%	9 out of 11	FTF
Cotter, Cohen & Coulter (1982)	69%	9 out of 13	Telephone
Hatchett and Schuman (1975)	75%	3 out of 4	FTF
Liu (2016)	36%	5 out of 14*	Telephone
Liu & Wang (2015)	67%	4 out of 6**	FTF (CASI)
Reese et al. (1986)	67%	4 out of 6***	Telephone
Schaeffer (1980)	100%	4 out of 4	FTF
Schuman & Converse (1971)	39%	21 of 54	FTF
Webster (1996)	100%	1 out of 1**	FTF
Williams (1968)	86%	6 out of 7	FTF
Wolford et al. (1995)	76%	19 out of 25	Telephone

\*three of the effects are observed for Asian vs. non-Asian interviewers asking Asian-related questions

\*\*at least some effects are observed for Hispanic vs. Anglo/White interviewers asking Hispanic-related questions

\*\*\*effects are observed for Mexican-American versus Anglo (White) interviewers asking Mexican-American-related questions.

Table A11A.2 Virtual interviewer assignments and linked example videos, N=1,735

Virtual Interviewer race and gender	Virtual Interviewer face and voice	N (%)	Eeriness Rating <sup>a</sup> Mean (SD)	Humanness Rating <sup>b</sup> Mean (SD)
<a href="#">AA-M 11</a> : African American male	Face Model 1 (Voice A)	108 (6%)	-0.5 (3.3)	0.3 (3.0)
<a href="#">W-M 11</a> : White male	Face Model 1 (Voice A)	108 (6%)	0.8 (3.1)	-0.9 (3.2)
<a href="#">AA-F 11</a> : African American female	Face Model 1 (Voice A)	108 (6%)	-0.4 (3.2)	0.0 (3.0)
<a href="#">W-F 11</a> : White female	Face Model 1 (Voice A)	108 (6%)	0.2 (3.0)	-0.5 (3.2)
<a href="#">AA-M 21</a> : African American male	Face Model 2 (Voice A)	108 (6%)	0.0 (2.7)	-0.1 (2.8)
<a href="#">W-M 21</a> : White male	Face Model 2 (Voice A)	108 (6%)	0.7 (3.1)	-0.2 (3.1)
<a href="#">AA-F 21</a> : African American female	Face Model 2 (Voice A)	108 (6%)	0.0 (3.1)	0.2 (2.9)
<a href="#">W-F 21</a> : White female	Face Model 2 (Voice A)	108 (6%)	0.8 (2.8)	-0.9 (2.9)
<a href="#">AA-M 12</a> : African American male	Face Model 1 (Voice B)	109 (6%)	-0.5 (3.1)	0.4 (2.8)
<a href="#">W-M12</a> : White male	Face Model 1 (Voice B)	109 (6%)	0.8 (3.0)	-1.1 (3.1)
<a href="#">AA-F 12</a> : African American female	Face Model 1 (Voice B)	109 (6%)	-0.5 (3.1)	-0.2 (3.1)
<a href="#">W-F 12</a> : White female	Face Model 1 (Voice B)	109 (6%)	-0.3 (3.0)	-0.4 (3.0)
<a href="#">AA-M 22</a> : African American male	Face Model 2 (Voice B)	108 (6%)	-1.2 (2.8)	0.3 (2.9)
<a href="#">W-M 22</a> : White male	Face Model 2 (Voice B)	109 (6%)	0.2 (3.2)	-0.1 (3.2)
<a href="#">AA-F 22</a> : African American female	Face Model 2 (Voice B)	109 (6%)	-0.6 (2.9)	0.6 (3.0)
<a href="#">W-F 22</a> : White female	Face Model 2 (Voice B)	109 (6%)	-0.2 (3.3)	-0.4 (3.2)

<sup>a</sup>Eeriness was rated on -5 to 5 scale, with -5 representing "Totally Reassuring" and 5 representing "Totally Eerie"

<sup>b</sup>Humanness was rated on -5 to 5 scale, with -5 representing "Totally Non-human" and 5 representing "Totally Human"

Table A11A.3. Debriefing questionnaire about respondents' experience administered textually after the primary data were collected

1. Please rate your virtual interviewer on the following scales:

-5	+5
1a. <i>totally reassuring</i>	<i>totally eerie</i>

-5	+5
1b. <i>totally nonhuman</i>	<i>totally human</i>

2. How comfortable were you with your virtual interviewer at the start of the session?

1	5
<i>Not at all comfortable</i>	<i>Very comfortable</i>

3. As the interview progressed, did your comfort with the virtual interviewer increase, decrease, or stay the same?

- 1 Decrease
- 2 Stay the Same
- 3 Increase

4. How natural was the interaction with the virtual interviewer?

- 1 Not at all natural
- 5 Very natural

5. I felt that the virtual interviewer was...

- 5a.
- 1 Impersonal
  - 5 Personal

- 5b.
- 1 Distant
  - 5 Close

- 5c.
- 1 Inexpressive
  - 5 Expressive

- 5d.
- 1 Insensitive
  - 5 Sensitive

6. How often did you feel that you were able to answer the questions honestly?

Always (4), most of the time (3), some of the time (2), never (1)

7. What is your age?  
NUMERIC (3-DIGIT)  
0-110

999 MISSING

8. What is your highest level of educational attainment?

- 1 Some high school or less
- 2 High school graduate (including equivalency)
- 3 Some college (no degree)
- 4 Associate degree
- 5 Bachelor's degree
- 6 Graduate or professional degree

9. In which of the following context(s) have you used avatars (that is, animated agents/talking heads)? Please choose all that apply.

Online computers games  
Personal computers games  
Instant message  
Email  
Cell phones  
Help assistants (like Clippy from Microsoft Office)  
Other:

10. How often, on average, do you use a computer?

- 1 Never (skip next 2 questions—survey complete)
- 2 Once a month or less
- 3 Once every two weeks
- 4 One or two days a week
- 5 Three or four days a week
- 6 Five to seven days a week

11. Is there anything else you would like to mention about your experience with the virtual interviewer?

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Table A11A.4 Respondent – Virtual interviewer gender and race assignments, and match conditions N=1,735

<b>Respondent Gender</b>	<b>Virtual Interviewer Gender</b>	
	Female N (%)	Male N (%)
Female	436 (50%)	434 (50%)
Male	432 (50%)	433 (50%)
<b>Respondent Race</b>	<b>Virtual Interviewer Race</b>	
	African American N (%)	White N (%)
African American	435 (50%)	433 (50%)
White	432 (50%)	435 (50%)
<b>Respondent/Virtual Interviewer Match Condition</b>	N (%)	
Gender match only	433 (25%)	
Race match only	434 (25%)	
Race and gender match	436 (25%)	
Mismatch on gender and race	432 (25%)	

Table A11A.5 Respondent characteristics, N=1,735

<b>Characteristic</b>	<b>Mean (SD) [Range] Or N (%)</b>
Age, years	49.6 (14.8) [18, 90]
Gender	
Female	870 (50%)
Male	865 (50%)
Race	
African American	868 (50%)
White	867 (50%)
Race and Gender	
African American Male	433 (25%)
African American Female	435 (25%)
White Male	432 (25%)
White Female	435 (25%)
Education	
Some high school or less	32 (2%)
High school graduate (including equivalent degree)	349 (20%)
Some college (no degree)	607 (35%)
Associate degree	189 (11%)
Bachelor's degree	369 (21%)
Graduate or professional degree	189 (11%)
Computer use	
Never	0 (0%)
Once a month or less	3 (<1%)
Once every two weeks	3 (<1%)
One or two days a week	24 (1%)
Three or four days a week	84 (5%)
Five to seven days a week	1,621 (93%)



Table A11A.6 Questionnaire administered to respondents. *VI* administered questions through 32; beyond that point the questions were administered textually because they involved *VI* choice.

1. After the video is played for each question, a NEXT button to advance to next question should be displayed as well as the response options for the question. And questionnaire will only advance once they have clicked next.
2. Question-specific instructions are in italics below corresponding question.
3. Video file naming convention- 1<sup>st</sup> digit. (Race)- (B)lack or (W)hite

2<sup>nd</sup> digit. (Gender)-(F)emale or (M)ale

3<sup>rd</sup> digit. (Face Model)- Either (1) or (2)

4<sup>th</sup> digit. (Voice)-Either (1) or (2)

5<sup>th</sup> and 6<sup>th</sup> digits. Question Number

For example-BF1101.flv is black female, face model 1, voice model 1, question 1

4. Allow R to replay video multiple times.
5. Response options are mutually exclusive unless otherwise specified. E.G. checkbox

#### Questionnaire

1. Hello, I conduct interviews for the University of Michigan's Institute for Social Research and today I am going to ask you a series of questions on different topics. When you are ready to begin, click "Start."

*After video plays, display "Start" button*

2. First, I would like to ask you some questions about some leisure or recreational activities that you do during your free time.

*Users Click "Next" and are taken to next page*

3. How often do you read the newspaper? Everyday, a few times a week, once a week, less than once a week, or never?

*After video plays, display textual response options: "Every day," "a few times a week," "once a week," "less than once a week," "never"*

4. How often do you watch world or national news programs? Everyday, several times a week, several times a month, rarely, or never.

*After video plays, display textual response options: "Every day," "a few times a week," "once a week," "less than once a week," "never"*

5. We would also like to get your feelings about some groups in American society.

*Users Click "Next" and are taken to next page*

6. When I read the name of a group, we would like you to rate it with what we call a feeling thermometer. Ratings between fifty and one hundred degrees mean that you feel favorably and warm toward the group. Ratings between zero and fifty degrees mean that you don't feel favorably towards the group, and that you don't care too much for that group. If you do not feel particularly warm or cold towards a group you would rate them at fifty degrees.

*Users click "Click for List of Groups" and are taken to next page*

7. How would you rate whites using the feeling thermometer?

*After video plays, display text box where R answers.*

**Prog Note.**

Only numerical answers from 0-100 allowed.

8. How would you rate blacks using the feeling thermometer?

*After video plays, display text box where R answers*

**Prog Note.**

Only numerical answers from 0-100 allowed

9. Here is another list of groups. Please read over the list and click next to the groups you feel particularly close to -- people who are most like you in their ideas, interest and feelings about things.

*Users Click "Next" and are taken to next page*

- 10.

1. Poor people
2. Liberals
3. Blacks
4. Men

5. Business Men and Business Women
6. Conservatives
7. Women
8. Working Men and Working Women
9. Whites
10. Middle Class People

After video plays, display list of groups with check box next to each group.

### **Prog Note**

Capture all boxes checked.

11. Some people feel that government in Washington should make every possible effort to improve the social and economic condition of blacks. Others feel that the government should not make any special effort to help blacks because they should help themselves. Where would you place yourself on this scale, or haven't you thought much about this?

*After Video plays, display scale below with buttons next to responses*

1. *Government should help blacks.*
- 2.
- 3.
- 4.
- 5.
- 6.
7. *Blacks should help themselves*
8. *Haven't thought much about this.*

12.

Some people say that because of past discrimination it is sometimes necessary for colleges and universities to reserve openings for black students. Others oppose such quotas because they say quotas give blacks advantages they haven't earned. What about your opinion – are you for or against quotas to admit black students?

*After video plays display buttons for "For" or "Against"*

### **Prog note.**

*If Respondent clicks "For", respondent goes on to question 13. If respondent clicks*

*"Against" respondent goes to question 14.*

13. Do you favor quotas *strongly* or *not strongly*?

*After video plays display buttons either "Favor not strongly" or "Favor Strongly"*

14. Do you oppose quotas *strongly* or *not strongly*?

*After video plays display buttons either “Oppose not strongly” or “Oppose Strongly”*

15. Some people say that because of past discrimination blacks should be given preference in hiring and promotion. Others say that such preference in hiring and promotion of blacks is wrong because it gives blacks advantages they haven't earned. What about your opinion? Are you for or against preferential hiring and promotion of blacks?

*After video plays display buttons for “For” or “Against”*

**Prog note.**

If Respondent clicks “For”, respondent goes on to question 16. If respondent clicks

“Against” respondent goes to question 17.

16. Do you favor preference in hiring and promotion strongly or not strongly?

*After video plays display buttons either “Favor not strongly” or “Favor Strongly”*

17. Do you oppose preference in hiring and promotion strongly or not strongly?

*After video plays display buttons either “Oppose not strongly” or “Oppose Strongly”*

18. I am now going to ask you a few questions about Gender issues in the United States.

*Users Click “Next” and are taken to next page*

19. Thinking of men as a group, would you say men have too much influence, just about the right amount of influence, or too little influence in society.

*After video plays, display textual response options: too much influence, just about the right amount of influence, or too little influence in society*

20. Thinking of women as a group, would you say women have too much influence, just about the right amount of influence, or too little influence in society.

*After video plays, display textual response options: too much influence, just about the right amount of influence, or too little influence in society*

21. Men have more of the top jobs because they are born with more drive and ambition than women, or, men have more of the top jobs because our society discriminates against women.

*After video plays, display textual response options: “men are born with more drive and ambition than women” or “our society discriminates against women.”*

22. If a man and a woman have children, do you think that taking care of the children *should* be mainly a woman's responsibility or that it should be a man's responsibility as much as a woman's?

*After video plays, display response options: “should be mainly a woman's responsibility” and “should be a man's responsibility as much as a woman's”*

23. And how do you think men and women actually divide child care: do you think most women are actually responsible for taking care of the children, or do you think most men take equal responsibility.

*After video plays, display textual response options: "most women are actually responsible for taking care of the children" or "most men take equal responsibility"*

24. If women want to change their position in America, which of the following do you think is the best way for them to do it: (1) women should organize as a group with men and women, OR (2) each woman should work to get ahead on her own, OR (3) women should organize as a group with other women?

*After video plays, display textual response options: "women should organize as a group with men and women" "each woman should work to get ahead on her own" "women should organize as a group with other women"*

25. Next I am going to ask you some questions that may seem a little personal. Please remember that your answers to these questions are strictly confidential.

*Users Click "Next" and are taken to next page*

26. How would you describe your weight? Very underweight, slightly underweight, about the right weight, slightly overweight, or very overweight?

*After video plays, display these five options as clickable tabs-Very underweight, slightly underweight, about the right weight, slightly overweight, very overweight*

27. The following question is about your sexual partners. We define sexual partner specifically as someone with whom you have had either vaginal or anal intercourse.

*Users Click "Next" and are taken to next page*

28. Please report the number of sexual partners you have had in your lifetime.

*After video plays, display a text box allowing respondent to answer, allow only positive integers*

29. Considering every kind of sexual activity, please report the number of sexual partners you have had in your life time.

*After video plays, display a text box allowing respondent to answer, allow only positive integers*

30. People's income comes from lots of different sources such as wages, or salaries, pensions, social benefits, savings, investments, and so on. Please give us an estimate of your household's total net income, from all sources.

*After video plays, display a text box, preceded by adjustable device for currency; \$,€,£.*

31. How long of a period does that cover.

*After Video plays, display options with check boxes R Clicks. One Week, Two weeks, Four weeks, Calendar Month, Year, Other (text box R can write in Response)*

32. We have just a few more questions for you. Please read the instructions carefully.

**TEXT FROM THIS POINT FORWARD**

33. In this next section we will ask you some questions about the interview you just completed and your feelings about this kind of interview in general.

34. First, how satisfied were you with the interviewing agent who asked you the survey questions?

*Very Dissatisfied, Somewhat Dissatisfied, neither Dissatisfied nor Satisfied, Somewhat Satisfied, Very Satisfied*

35. How much did you like the interviewing agent overall?

*Did Not Like at All, Somewhat Liked, Liked Very Much*

36. How comfortable were you answering questions asked by the interviewing agent?

*Very Uncomfortable, Somewhat Uncomfortable, Neither Uncomfortable nor Comfortable, Somewhat Comfortable, Very Comfortable*

*Text Box below instruction.*

37. Please rate your virtual interviewer on the following scales:

38a. *-5* *+5*  
*totally reassuring* *totally eerie*

38b. *-5* *+5*  
*totally nonhuman* *totally human*

39. How comfortable were you with your virtual interviewer at the start of the session?

1 2 3 4  
5  
*Not at all comfortable* *Very comfortable*

40. As the interview progressed, did your comfort with the virtual interviewer increase, decrease, or stay the same?

- 1 Decrease
- 2 Stay the Same
- 3 Increase

41. How natural was the interaction with the virtual interviewer?

Not at all natural 1 2 3 4 5 *Very Natural*

42. I felt that the virtual interviewer was...

42a.

Impersonal				Personal
1	2	3	4	5

42b.

Distant				Close
1	2	3	4	5

42c.

Inexpressive				Expressive
1	2	3	4	5

42d.

Insensitive				Sensitive
1	2	3	4	5

43. How often did you feel that you were able to answer the questions honestly?

Always (4), most of the time (3), some of the time (2), never (1)

44. How much did you enjoy interacting with the virtual interviewer?

45. How frustrating was it to be interviewed by the virtual interviewer

46. If you were to provide this kind of information again, would you rather:

*Be interviewed by a person?*

*Be interviewed by an interviewing agent?*

*Answer textual questions (like this one) by clicking the mouse?*

*Other? (please specify) \_\_\_\_\_*

47. If previous answer is "be interviewed by an interviewing agent" then ask

Would you prefer to be interviewed by?

*The same interviewing agent?*

*A different interviewing agent of your choosing?*

*A different interviewing agent chosen by the survey system?*

*[Display video files – with initial frame displayed -- for 8 interviewing agents in a 4(C) x 2(R) matrix; by clicking in a cell, R can play video. There are two complementary*

*matrices of interviewing agents distinguished by voices. Pick the matrix containing the head-voice combination assigned to respondent. Ideally, the heads will be randomly positioned in the matrix]*

48. Please click each of these interviewing agents so that you can answer some questions about the agents.

**Prog note.**

[Only one video file should be able to play at a time. Please capture clicks so it is possible to determine if all of the files have played]

Matrix A

	Gender		M		F	
	Race		B	W	B	W
Face Model 1	1	1	2	2	1	
Face Model 2	2	2	1	1	2	

Cell entries = voice

Matrix B

	Gender		M		F	
	Race		B	W	B	W
Face Model 1	1	2	1	1	2	
Face Model 2	2	1	2	2	1	

Cell entries = voice

[When an agent is clicked, this will play a video file in which the agent presents the following:]

49. Hello, I conduct interviews for the University of Michigan's Institute for Social Research and today I am going to ask you a series of questions on different topics.

50. If you could choose one of these interviewing agents to ask you questions for a future interview, which one would you choose? You will not actually take part in an interview; we just want to know which agent you would choose if you were going to participate in an interview. Please check in the box below the interviewing agent you choose to conduct an interview.

*Check boxes should now appear next to each of the models. R only allowed to click one.*

51. Why you would choose that interviewing agent? Please describe your thinking.



52. What is your age?

NUMERIC (3-DIGIT)

0-110

999MISSING

53. What is your highest level of educational attainment?

1 Some high school or less

2 High school graduate (including equivalency)

3 Some college (no degree)

4 Associate degree

5 Bachelor's degree

6 Graduate or professional degree

54. In which of the following context(s) have you used avatars (that is, animated agents/talking heads)?

Please choose all that apply.

Online computers games

Personal computers games

Instant message

Email

Cell phones

Help assistants (like Clippy from Microsoft Office)

Other:

55. How often, on average, do you use a computer?

1 Never (skip next 2 questions—survey complete)

2 Once a month or less

3 Once every two weeks

4 One or two days a week

5 Three or four days a week

6 Five to seven days a week

56. Is there anything else you would like to mention about your experience with the virtual interviewer?

57. Those are all the questions that we have for you. Thank you for participating in our survey.

Table A11A.7 Respondent gender and race choices, N=1,735

	<b>Choice of Virtual Interviewer Gender</b>	
<b>Respondent Gender</b>	Female N (%)	Male N (%)
Female	520 (60%)	350 (40%)
Male	512 (59%)	353 (41%)
	<b>Choice of Virtual Interviewer Race</b>	
<b>Respondent Race</b>	African American N (%)	White N (%)
African American	688 (79%)	180 (21%)
White	416 (48%)	451 (52%)