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# The Reliability of Children's Survey Responses

## The Impact of Cognitive Functioning on Respondent Behavior and Data Quality

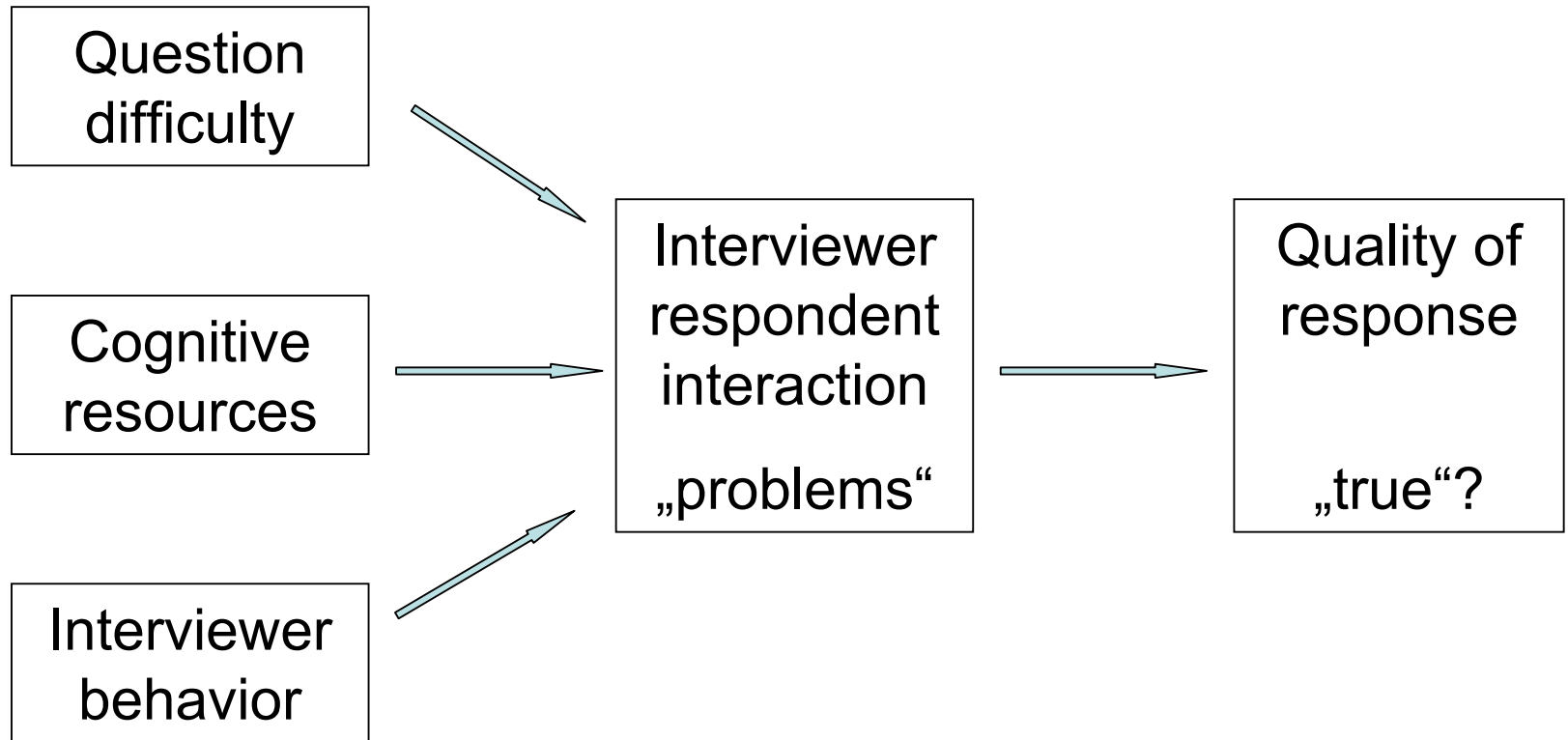
Marek Fuchs

University of Kassel, Germany

[marek.fuchs@uni-kassel.de](mailto:marek.fuchs@uni-kassel.de)

- Research question
  - Are survey responses from children and juveniles reliable?
  - To what extent is the quality of the survey responses related to
    - Question difficulty
    - Interviewer behavior
    - The child's cognitive capacity

- Assumed model



- This model was confirmed with children age 8 thru 10
  - Poor cognitive functioning correlates with problematic respondent
  - Problematic respondent behavior decreases the validity of the responses

- However ...
  - Is this an age-related problem?
  - E.g., young children also lack social skills
  - Accordingly, we will compare a younger group (8-10) and an older group (12-14)

- Hypothesis

- Age: The older group shows fewer problems when answering survey questions, regardless of their cognitive functioning
- Cognition: Children with less developed cognitive resources show more problems when answering a survey question, regardless of their age

- **Methods**
  - N = 144 children age 8-10
  - N = 73 children age 12-14
  - Female, male and minorities represented
  - Face-to-face interviews in the respondents' home
  - Previously used questions, total 120 items
  - 25 to 35 minutes
  - Cognitive testing of children
  - All interviews were video-taped

- Behavior coding of video tapes
  - 4 coders (reliability .70 to .90)
  - 206 cases with complete data
  - about 24,000 records
  - 22 interviewer behaviors
  - 20 respondent behaviors
    - Question understanding problems
    - Mapping problems



# Results

	8 and 9 years	10 and 11 years	12 thru 14 years	Total
R provides inadequate answer (%)	11	9	7	9 ***
R shows uncertainty (%)	1	1	1	1
R provides early response (%)	2	2	3	2 **
R refuses (%)	0	0	0	0
<b>Implicit problems</b>	<b>13</b>	<b>12</b>	<b>10</b>	<b>12 ***</b>
R asks for explanation (%)	4	3	3	3 ***
R asks to repeat question (%)	1	1	0	1 ***
R provides DK (%)	2	3	2	2 ***
<b>Explicit problems</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>6 ***</b>
<b>Total problems</b>	<b>19</b>	<b>17</b>	<b>13</b>	<b>16 ***</b>
IW probing (%)	16	17	14	16 ***
# of turns per question	3.3	3.3	3.2	3.3 ***
<b>Paradigmatic Q-A-sequences (%)</b>	<b>55</b>	<b>55</b>	<b>63</b>	<b>57 ***</b>
<b>Accordance rate (subset) (%)</b>	<b>72</b>	<b>72</b>	<b>70</b>	<b>71 +</b>

+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

## Interview duration across age groups

	8 and 9 years	10 and 11 years	12 thru 14 years	Total
IW time	1204	1155	1085	1153 **
IW time per question	10.4	10.0	9.2	9.9 *
R time	567	632	512	568 *
R time per question	4.9	5.5	4.4	4.9 *
<b>Total duration</b>	<b>1771</b>	<b>1786</b>	<b>1597</b>	<b>1721 **</b>

+ p < .1; \* p < .05; \*\* p < .01; \*\*\* p < .001.

## Cognitive functioning across age groups

	8 and 9 years	10 and 11 years	12 thru 14 years	Total
Memory test	140	130	120	128 ***
Digit memory test	13	14	16	15 ***
Vocabulary test	16	19	25	19 ***
Intelligence test	28	29	33	30 ***

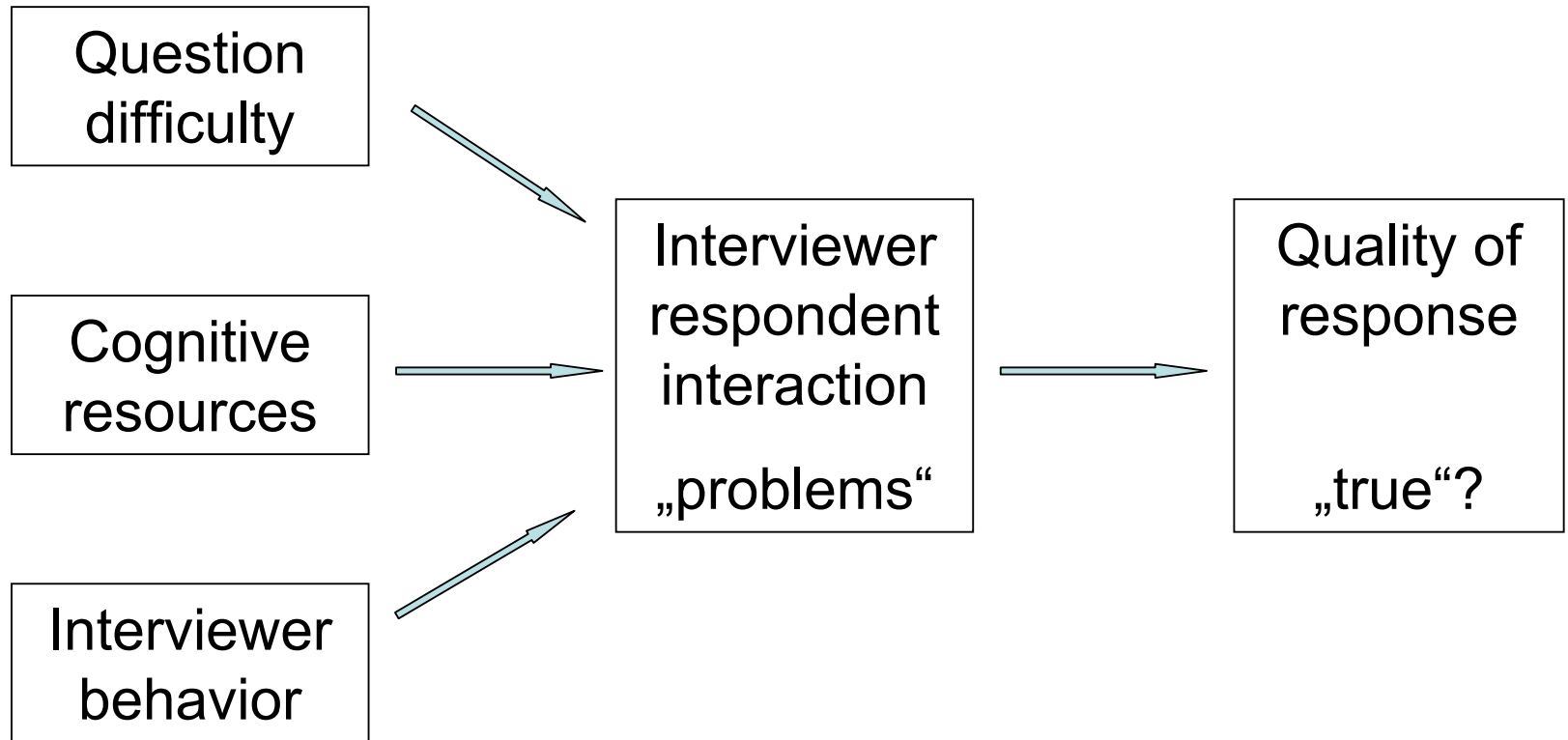
+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

# Results

	Low	Intermediate	High	Total
Memory				
Implicit problems	14	11	11	12 ***
Explicit problems	7	5	6	6 ***
Paradigmatic Q-A-sequences	55	59	57	57 ***
Accordance rate	69	71	75	71 ***
Vocabulary				
Implicit problems	13	12	10	12 ***
Explicit problems	7	5	5	6 ***
Paradigmatic Q-A-sequences	53	59	61	57 ***
Accordance rate	71	71	73	71 +
Intelligence				
Implicit problems	12	13	11	12 **
Explicit problems	7	6	5	6 ***
Paradigmatic Q-A-sequences	56	57	59	57 ***
Accordance rate	70	73	71	71 *

+ p < .1; \* p < .05; \*\* p < .01; \*\*\* p < .001.

- Assumed model



# Results

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## Accordance rate by implicit problems and question difficulty

	Implicit problems	No implicit problems	Total
Easy	75	72	74 +
Intermediate	67	63	66 +
Difficult	67	58	65 +
Total	72	67	71 **

+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

# Results

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## Implicit problems by age and working memory

	8 and 9 years	10 and 11 years	12 thru 14 years	Total
Low	16	13	7	14 ***
Intermediate	12	10	10	11
High	11	12	10	11
Total	14 ***	12 *	10 **	12 ***

+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

# Results

## Multilevel logistic regression – Implicit problems

	All	Age 8-9	Age 10-11	Age 12-14
Question level				
Difficulty	.36 ***	.40 ***	.28 ***	.38 ***
Respondents level				
Gender (male)	.26 **	-.15	-.16	.53 ***
Age	-.07 *			
Memory	-.01	-.06 +	-.05 +	.04 *
Vocabulary	-.01	.01	.01	-.03
Intelligence	.01	.03	.03	.01
-2 Log Likelihood	-8,149.24	-3,514.48	-2,360.18	-2,263.02
Level 2 variance	.39	.30	.37	.33

+ p < .1; \* p < .05; \*\* p < .01; \*\*\* p < .001.



- Problematic respondent behaviors
  - Children are prone to many problematic behaviors which do not show up in the data set
  - Strong age effect
  - Moderate impact of cognitive resources
  - Visible interaction effect
    - Cognitive resources work differently
    - Depending on age

- Future research
  - Assessment of question characteristics
  - Controlling for socio-demographic variables
  - Interviewer behavior
    - General approach
    - Resolving problems

End

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Thank you

[marek.fuchs@uni-kassel.de](mailto:marek.fuchs@uni-kassel.de)