Scale Direction Effects in Agree/Disagree and Item-Specific Questions: A Comparison of Question Formats

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Research Question

- Does the scale direction within agree/disagree (AD) and item-specific (IS) questions affect respondents answers?
  - So far, there is little empirical evidence.

*What are possible **REASONS** for differences?*

State of Research I

- Scale direction effects are distinguishable into …
  … primacy effects: higher endorsements of initial categories.
  … recency effects: higher endorsements of later categories.
- In rating scales answers are generally shifted to the beginning.[1]
- Krosnick (1991) suggested two explanations for primacy effects:
  - Selecting the first adequate category.
  - More deeply processing of earlier categories.
- Also, the question format (AD and IS) seems to matter.[2]

[1] Yan/Keusch (2015)
[2] Höhne et al. (2017)

State of Research II

- AD questions do not change *the manner of asking*.
  - Fostering a superficial response process.
  - Indirect statement.
- IS questions (usually) change *the manner of asking.*
  - Require constant reconsideration of the dimension of interest.
  - Encourage an active and intensive response process.
  - Direct question.

Accordingly, IS questions seem to be more robust against scale direction effects than AD questions.

Höhne et al. (2017)
Höhne/Krebs (2017)

Research Hypotheses

Hypothesis 1:

We expect significant scale direction effects (i.e., primacy effects) within AD questions but no scale direction effects within IS questions.

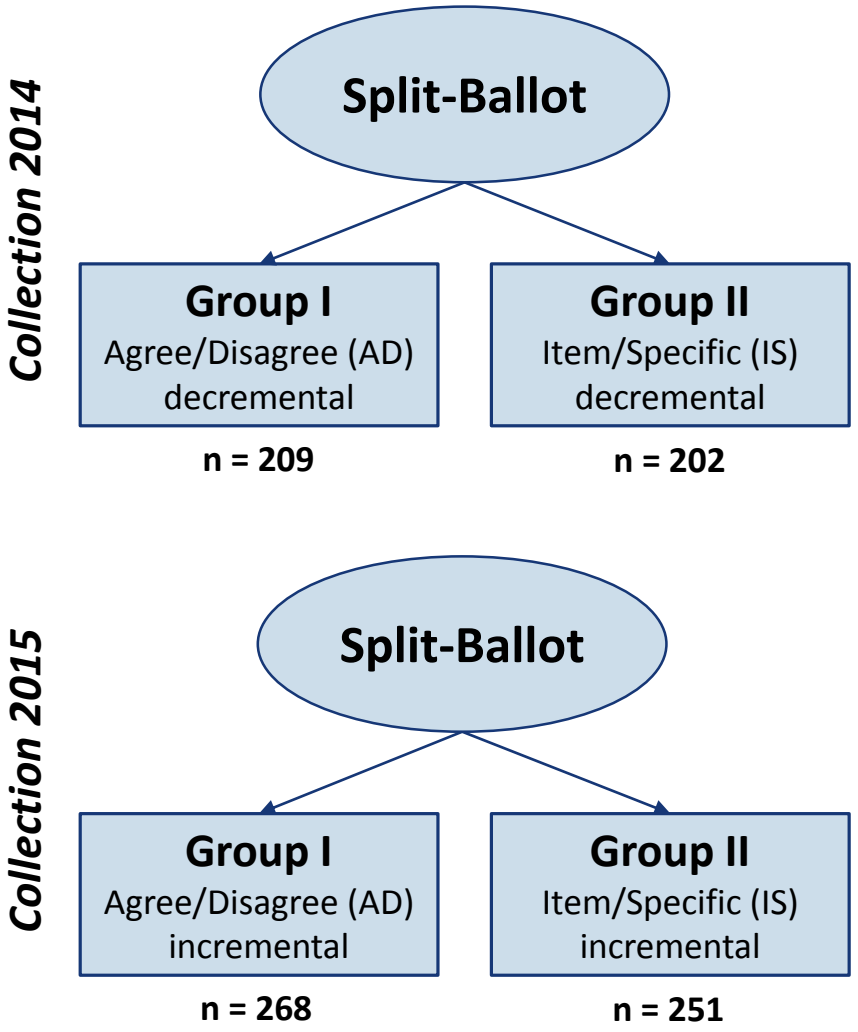
Hypothesis 2a:

We expect respondents to rate the IS questionnaires as more demanding and complex than the AD questionnaires.

Hypothesis 2b:

We expect respondents to rate the IS questionnaires as more interesting, inspiring, and diversified than the AD questionnaires.

Research Design



Respondents received 5 single (achievement motivation) and 7 grid questions (intrinsic and extrinsic job motivation).
Questions were presented with 5-point, fully labeled response scales and no numeric values.

AD question (decremental):
A job with a high income is important to me.
agree strongly, agree somewhat, neither agree nor disagree, disagree somewhat, disagree strongly

IS question (decremental) :
How important is a job with a high income to you?
very important, fairly important, somewhat important, hardly important, not at all important

Sample

- The research was conducted at the University of Göttingen (Germany) in the winter terms of 2014 and 2015.

Collection 2014		***Collection 2015***	
Sample Size:	N = 411	Sample Size:	N = 519
Gender:	56% female	Gender:	56% female
Age:	21 (2.1)	Age:	21 (2.2)
1st Semester:	81%	1st Semester:	83%
Social Science:	83%	Social Science:	85%

Note. Chi-square tests revealed no significant differences between both years, across the conditions, and scale directions regarding gender, age, semester, and study program.

Measurement Equivalence

AD Format	Chi-Square	DF	CFI	RMSEA
Configural	156.93 (1.05)	100	.97	.049
Metric	163.34 (1.07)	112	.97	.044
Scalar	182.77 (1.07)	124	.97	.044

IS Format	Chi-Square	DF	CFI	RMSEA
Configural	147.37 (1.07)	100	.97	.045
Metric	160.87 (1.07)	112	.97	.044
Scalar	166.94 (1.07)	124	.97	.039

Note. We conducted MG-CFA within the AD and IS format and formulated separate yet identical baseline models for each scale. Also, we admitted one error covariance between two questions on achievement motivation. Results are based on MLR estimation and scale correction factors are in parentheses.

Results: Latent Means

AD Format	Est.	SE	CR	*p* Value
Achievement Motivation	-.129	.060	-2.079	.038
Intrinsic Job Motivation	-.155	.047	-3.267	.001
Extrinsic Job Motivation	-.057	.059	-.963	.336

IS Format	Est.	SE	CR	*p* Value
Achievement Motivation	-.036	.042	-.857	.392
Intrinsic Job Motivation	-.063	.056	-1.129	.259
Extrinsic Job Motivation	-.094	.060	-1.575	.115

Note. Response scales were recoded to identical values from 1 "positive" to 5 "negative". Reference group is the incremental (negative/positive) scale direction.

Results: Respondents Evaluations

Adjective Pairs	AD Format	IS Format	Effect Size	*p* Value
Interesting/boring	3.60 (1.45)	3.69 (1.47)	.06	.368
Undemanding/demanding	2.56 (1.40)	2.95 (1.58)	.26	.001
Inspiring/tedious	3.96 (1.36)	3.98 (1.39)	.02	.791
Simple/complex	2.39 (1.42)	2.69 (1.72)	.20	.004
Diversified/monotonous	3.49 (1.56)	3.54 (1.58)	.03	.584

Note. Responses were recoded to identical values from 1 "positive" to 7 "negative". We calculated Cohen's d to determine the effect sizes. The significance levels, however, are based on the results of unpaired t-tests. Standard deviations are in parentheses.

Limitations

- Student Sample.
  - Generalizability of the results.
- Design complicates interpretation of findings.
  - No randomization of scale direction.

Conclusion

- IS questions seem to be more robust against scale direction effects than AD questions.
  - Irrespective of presentation mode – single or grid.
- However, question content seems to matter.
  - Hierachy of importance.[1]
- Responding to IS questions seems to be more effortful than responding to AD questions.
  - Without affecting motivation or interest.

In line with previous research and our results, we recommend the use of IS instead of AD questions.

[1] Toepoel/Dillman (2011)

Thank you for your attention!

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Literature

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