

Dynamic Instructions in Check-All-That-Apply Questions

Tanja Kunz & Marek Fuchs, Darmstadt University of Technology, Germany

INTRODUCTION

Check-all-that-apply questions ask respondents to choose several options from a set of available response alternatives, usually without limitation of the number of response alternatives that can be selected.

Shortcoming: Respondents are susceptible to ‘weak satisficing’ and inadequate response selection.

(1) respondents choose fewer responses than actually apply because they do not read and evaluate all response alternatives carefully.

(2) respondents select more responses than actually apply because they carelessly select response alternatives that apply to them only vaguely.

Approach: Instructions requesting a specific number of responses may encourage respondents to read and evaluate all available response alternatives, clearly distinguish between all of them, and finally select the most applicable one(s).

What do you think are the most important issues...?
Please select the 3 most important aspects.

- Immigration
- Housing shortage
- The education system
- Health and social security
- Pensions
- Crime
- Unemployment
- Terrorism
- ...

Static instructions always visible but likely to be ignored (Conrad et al., 2006).

Dynamic instructions appear after first response has been selected and in case respondents select too many responses; may encourage attention and thus enhance the response selection process.

RESEARCH QUESTIONS

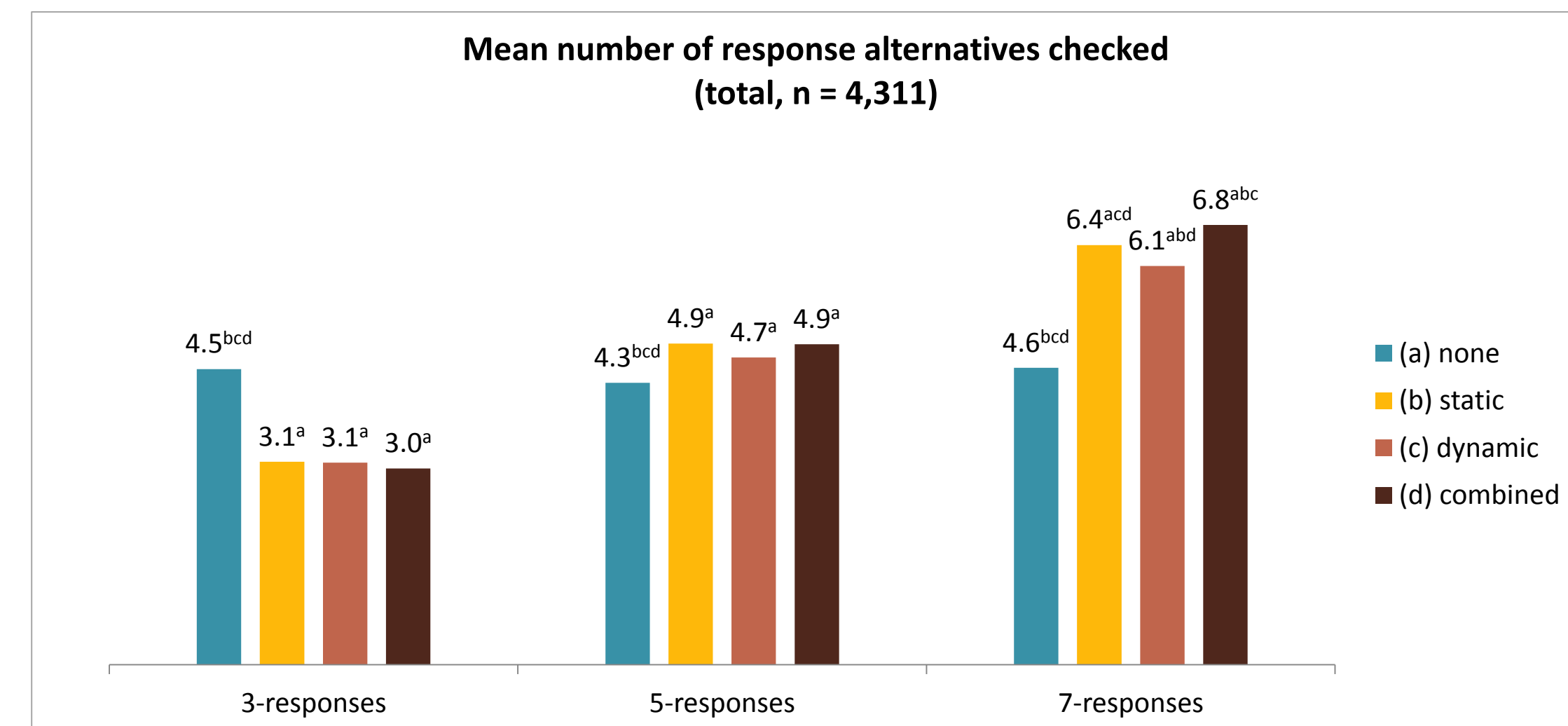
(1) Is the effectiveness of instructions increased by using dynamic instructions or combined (static and dynamic) instructions compared to static instructions?

(2) Does the extent of respondent burden differ depending on varying instruction types?

METHODS

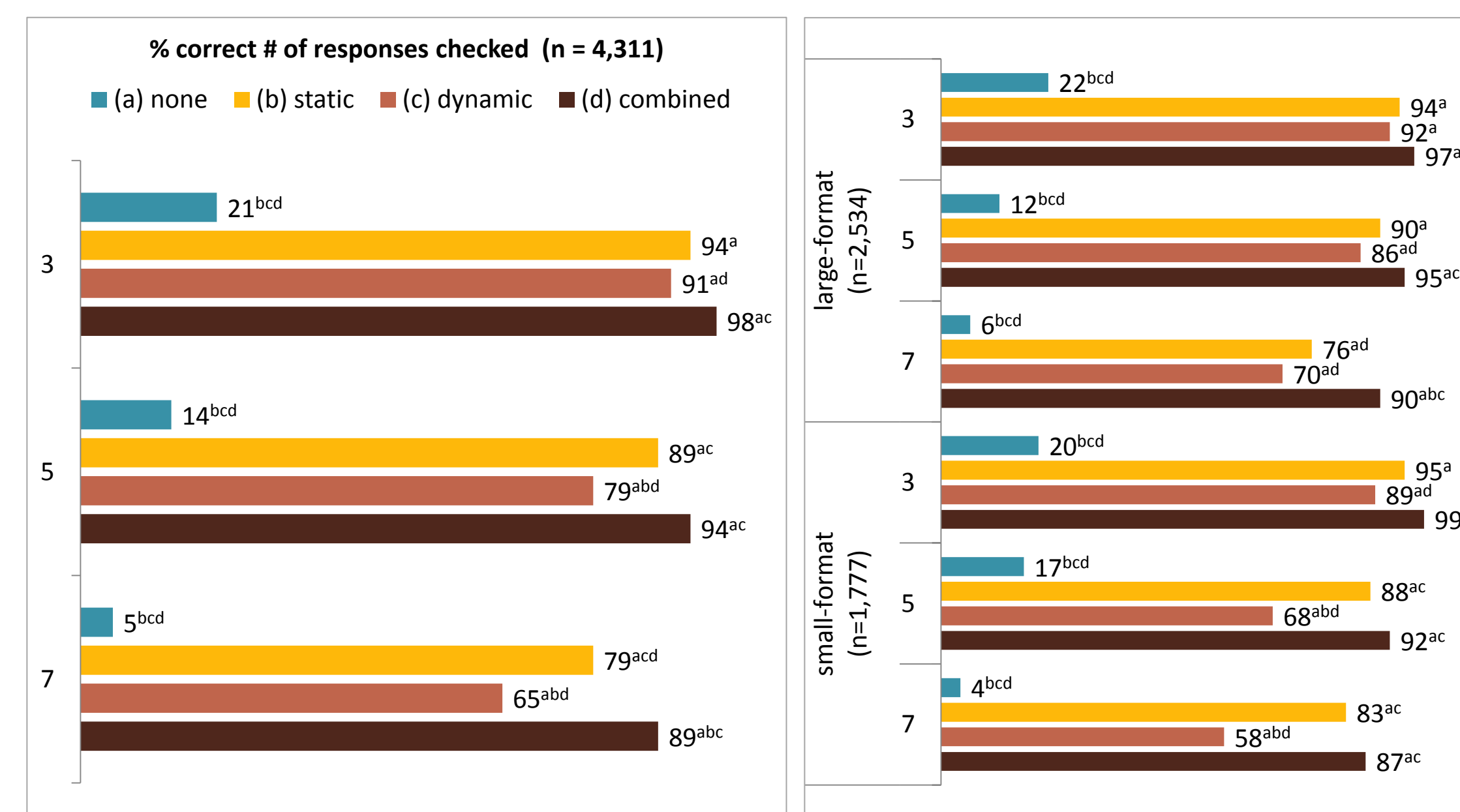
Study	Web survey among university applicants in March 2016 (n = 4,620, RR6 = 7.3%)	
Design	between-subjects design with random assignment	
Factor	Instruction type	Instruction request
	(a) none	(A) 3-responses
	(b) static	(B) 5-responses
	(c) dynamic	(C) 7-responses
	(d) combined	
Variable	Measured by	Expectation
Compliance	% correct # of responses checked	b < c < d
Burden	mean time spent on responding	b = c = d
Equivalence	% rated “very important” & checked based on all responses rated “very important”	b < c = d
Distinction	% rated “very important” & checked based on all responses checked	b < c = d

KEY FINDINGS



The mean number of responses checked was decreased (3-responses) or increased (5-/ 7-responses requested) compared to the control group (with an average of 4.4 responses checked), irrespective of the instruction type.

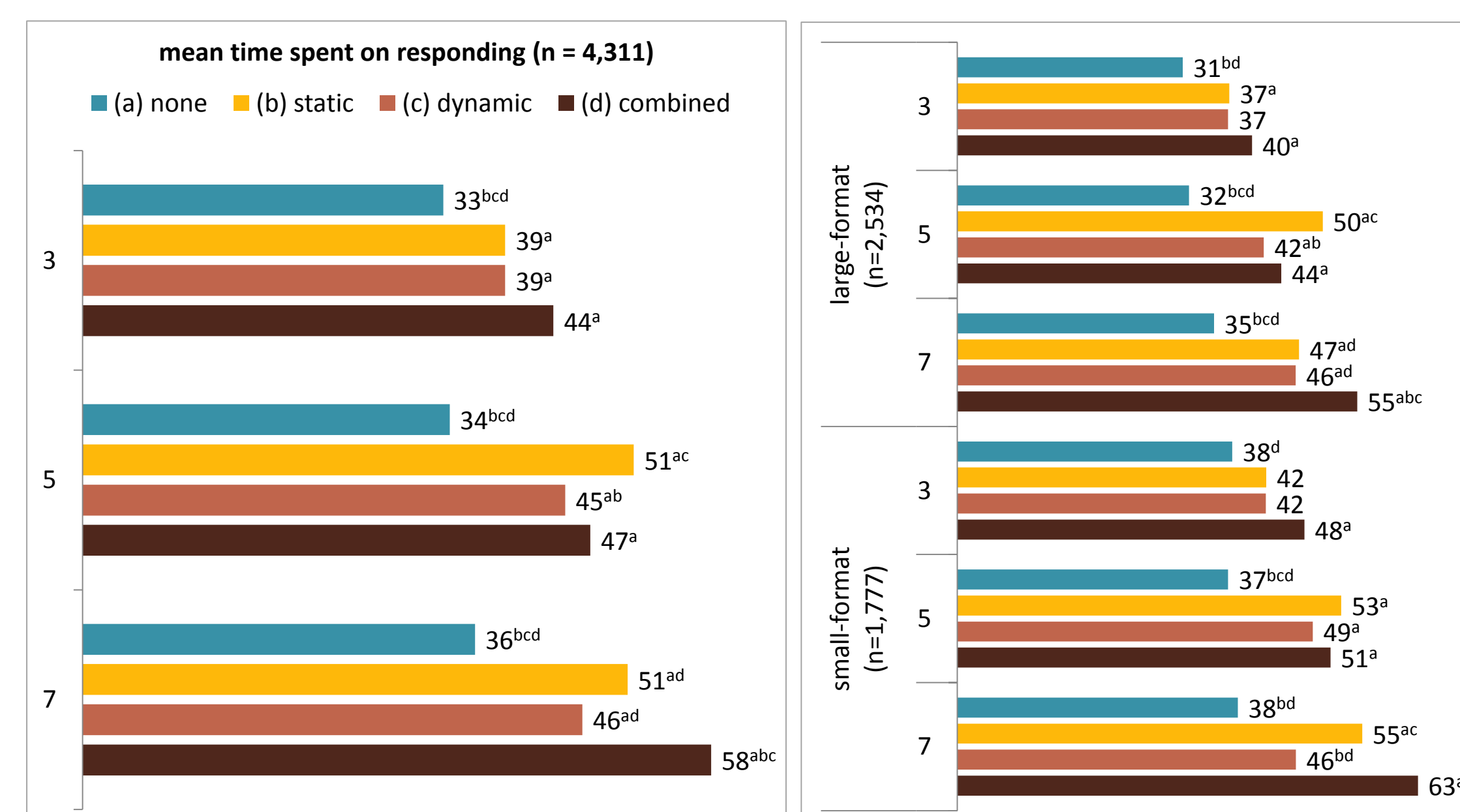
No differences between the three instruction types, except with the 7-responses request: In that case, the combined instruction yielded the highest, whereas the dynamic instruction yielded the lowest number of responses.



Compliance: Instruction increased the percentage of respondents choosing the correct number of responses, irrespective of the instruction type and instruction request.

The combined instruction was most effective, especially with the 7-responses request. The static instruction was equally (3-responses request) or more effective (5-/ 7-responses request) than the dynamic instruction.

For small-format respondents (Smartphones, etc.), the dynamic instruction was least effective, irrespective of the number of responses requested.



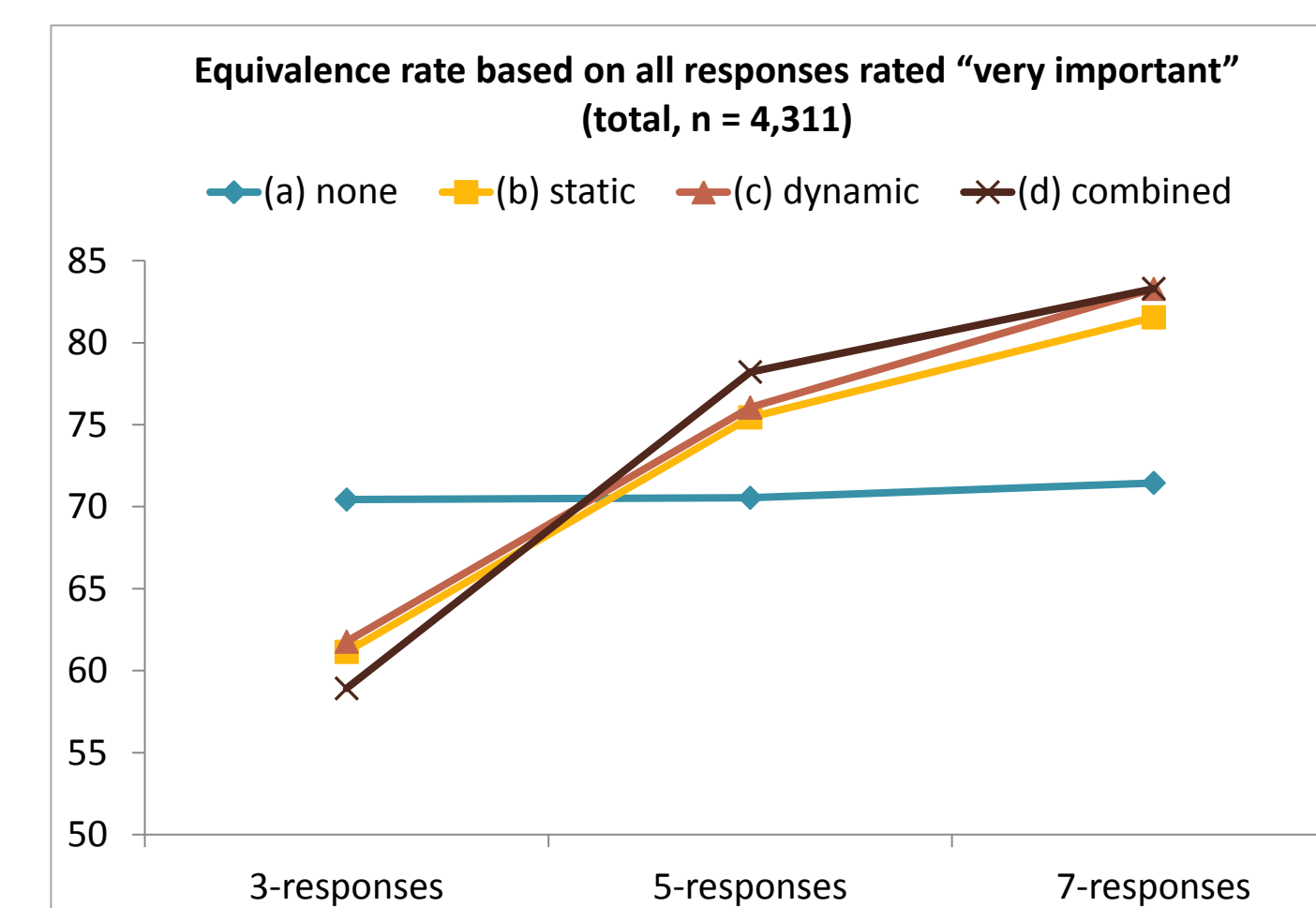
Burden: With all three instruction types, it took significantly longer to complete the check-all question (irrespective of # responses requested).

No differences between the three instruction types, except with the 7-responses request: In that case, the combined instruction took longest.

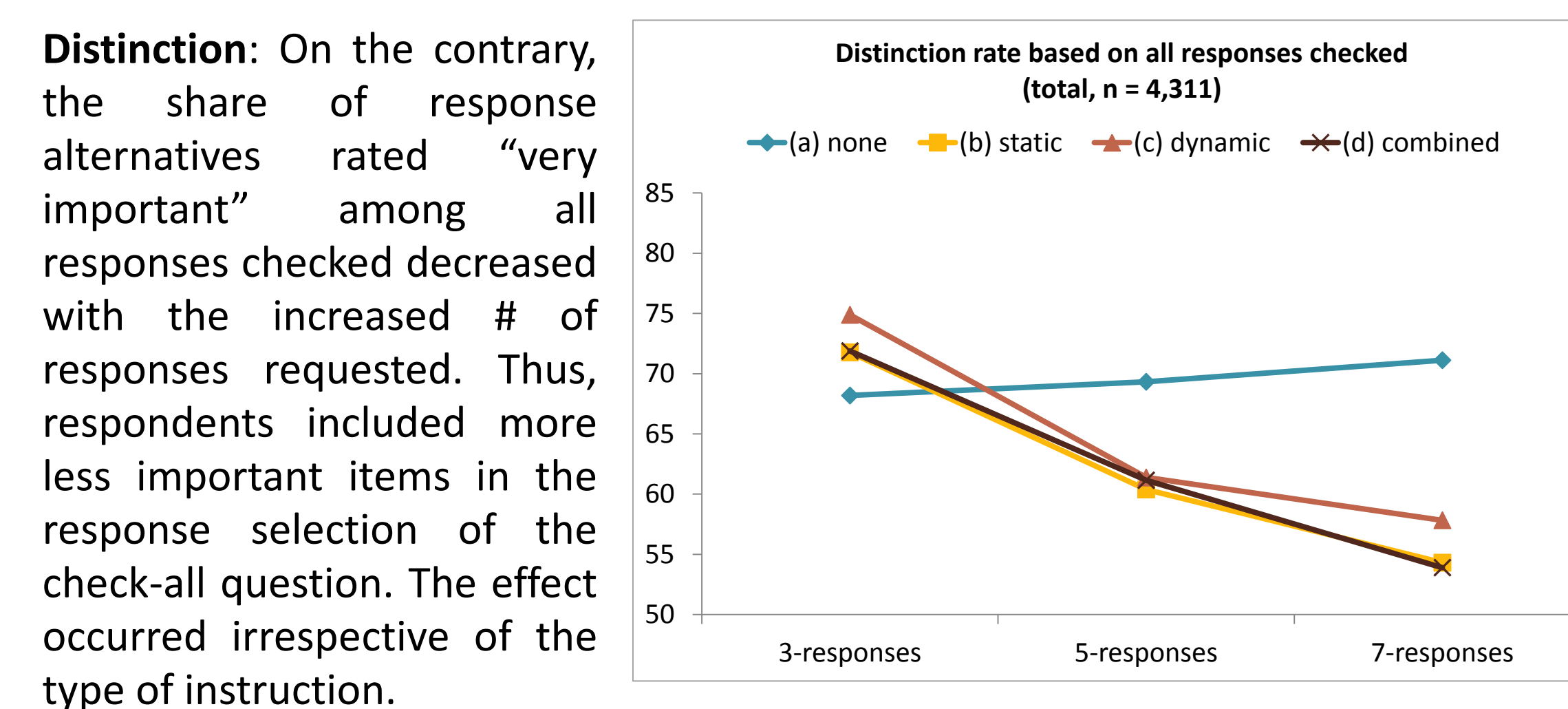
Similar patterns for respondents using large-format and small-format devices.

	Rating format: rated “very important”		Check-all format: checked (✓) depending on instruction type			
	%	order	(a)	(b)	(c)	(d)
total (n = 4,311)						
immigration	67.4	1	1	1	1	1
the education system	59.4	2	2	2	2	2
environment	43.0	3	3	3	3	3
housing shortage	40.7	4	4	4	4	4
data protection	35.0	5	7	7	7	7
pensions	31.1	6	6	5	6	6
terrorism	29.1	7	5	6	5	5
health and social security	26.3	8	9	9	10	9
crime	24.4	9	8	8	8	8
economic situation	18.4	10	12	11	11	11
unemployment	18.2	11	10	10	9	10
government dept	13.4	12	11	12	12	12
rising prices/ inflation	11.1	13	13	13	13	13
taxation	7.9	14	14	14	14	14

Instruction did not interfere with the importance order. With all three instruction types, a comparison of rating scale results versus percentages in a check-all question resulted in comparable importance orders.

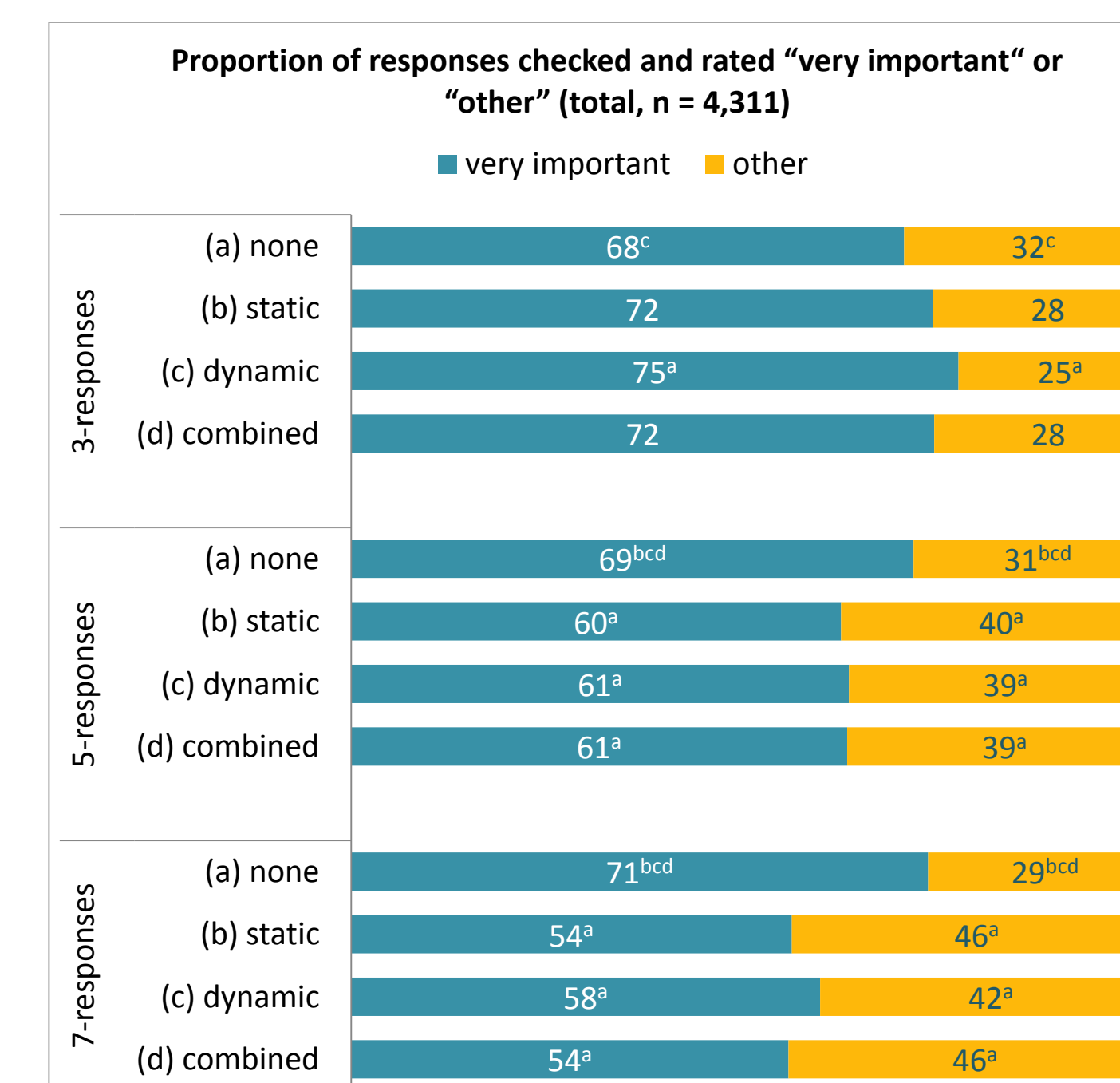


Equivalence: With increasing # of responses requested, more of the response alternatives rated “very important” are integrated into the response selection of the check-all question. All three types of instructions seemed to have a similar effect.



Distinction: On the contrary, the share of response alternatives rated “very important” among all responses checked decreased with the increased # of responses requested. Thus, respondents included more less important items in the response selection of the check-all question. The effect occurred irrespective of the type of instruction.

By implicitly requiring respondents to limit their number of responses (3-responses request in view of an average of 4.4 responses checked in the control group), the share of “very important” response alternatives can be increased with a dynamic instruction, whereas it remained unchanged with a static or combined instruction.



However, by asking them to extend their selection beyond the number of responses they would have selected spontaneously (5-/ 7-responses request), the share of less important response alternatives increased with all three instruction types.

SUMMARY

Compliance with instructions:

Combining dynamic and static instructions yielded the highest compliance rate, whereas dynamic instructions alone failed to achieve higher compliance than static instructions. Expectations were partly confirmed.

Respondent burden:

Combining dynamic and static instructions did not take more time to complete compared to the static or dynamic instruction, except a high number of responses is requested. Expectations were partly confirmed.

Equivalence rate:

Irrespective of the three instruction types, equivalence between the rating and check-all question increased as the requested number of responses was increased. Expectations could not be confirmed.

Distinction rate:

Irrespective of the three instruction types, the distinction between applicable and not applicable response alternatives decreased as the requested number of responses increased. Expectations could not be confirmed.

CONCLUSIONS

The findings of the present study showed that static and dynamic instructions are principally suitable to convey a requested number of responses in check-all-that-apply questions in order to either limit or extend the responses that would have been selected spontaneously.

Highest compliance is achieved by using combined instructions without substantially increasing respondent burden:

- Combining the permanent effect of the static instruction and the additional temporary effect of the dynamic instruction (appears when it is needed) seems to be most effective in achieving high compliance.
- By contrast, solely relying on the temporary effect of the dynamic instruction involves the risk of respondents ignoring the instruction.

However, findings on compliance, equivalence, and distinction imply that high compliance with instructions specifying the number of responses does not necessarily mean a more thoughtful response selection process and high data quality.

When the number of responses that would be selected spontaneously without an instruction is exceeded, the likelihood of including not applicable response alternatives in the response selection process is increased.

Thus, specifying the requested number of responses below this critical value and presenting the instruction request using a combination of a static and dynamic instruction is likely to achieve highest effectiveness in terms of compliance, equivalence, and distinction in check-all-that-apply questions.

Further information: kunz@ifs.tu-darmstadt.de