Using Paradata to Interpret an Experiment with automated navigation

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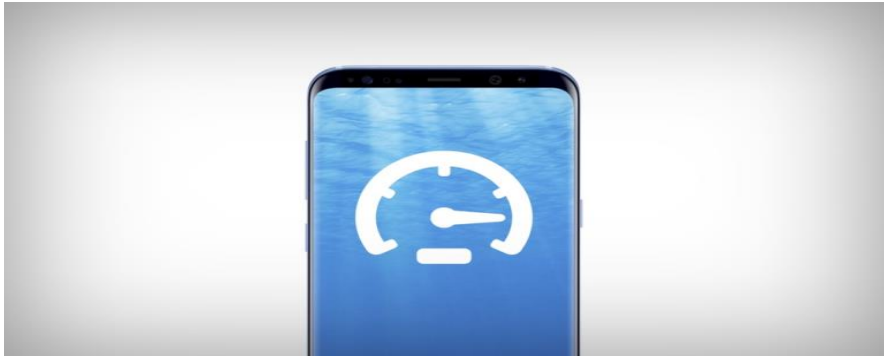
Why experiment with auto forward?



Increase speed

Decrease task

Increase in motivation

Research question: How does an auto-forward design affect completion times in a (long) mixed-device web survey?

Data collection

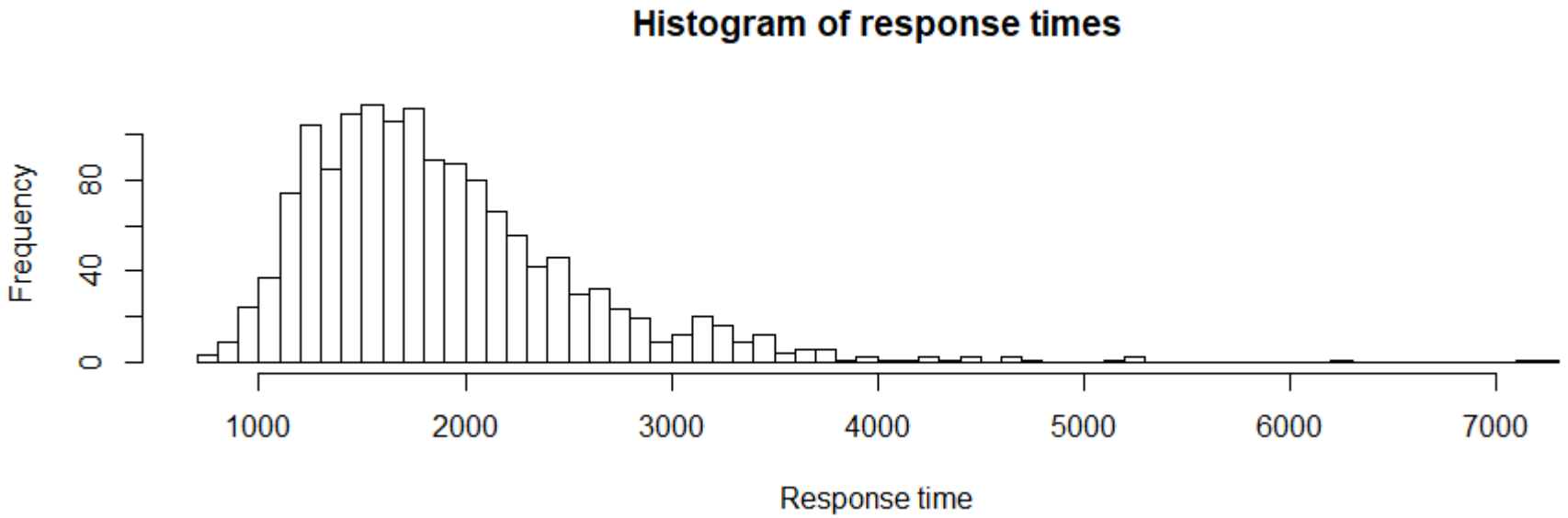
- Dutch Health Survey (GEZO) (CAWI-only)
- Re-contacted respondents of Statistics Netherlands
- Stratification: age and device used in previous survey
- Contact method: invitation letter + 2 reminders
- Incentive: €5,- (unconditional)
- Fielding period: August-September 2017
- Sample size = 2098 invitations

Response and Paradata

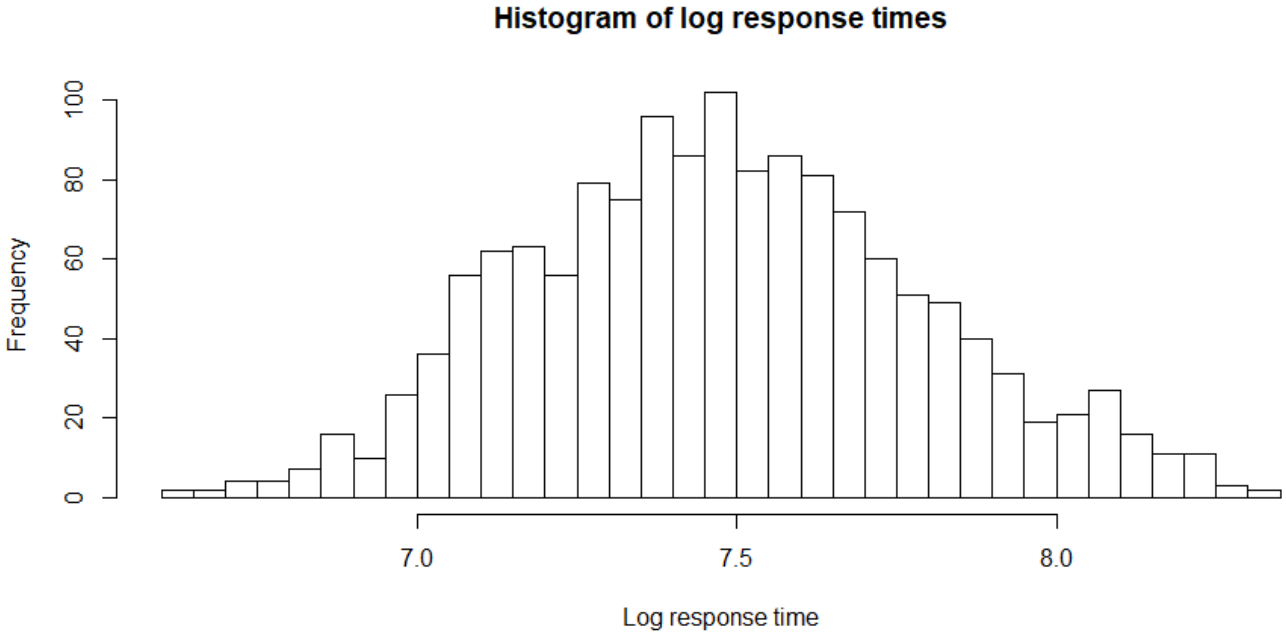
- Response
  - (partial) response = 1535 (73.2%)
  - Complete response = 1461 (69.6%)

- Paradata
  - Device information of all login (attempts) (n=2914)
  - Logs on field-level activities (n= 1 203 250)
  - Logs used for this study (n=396 367)

Dealing with response times

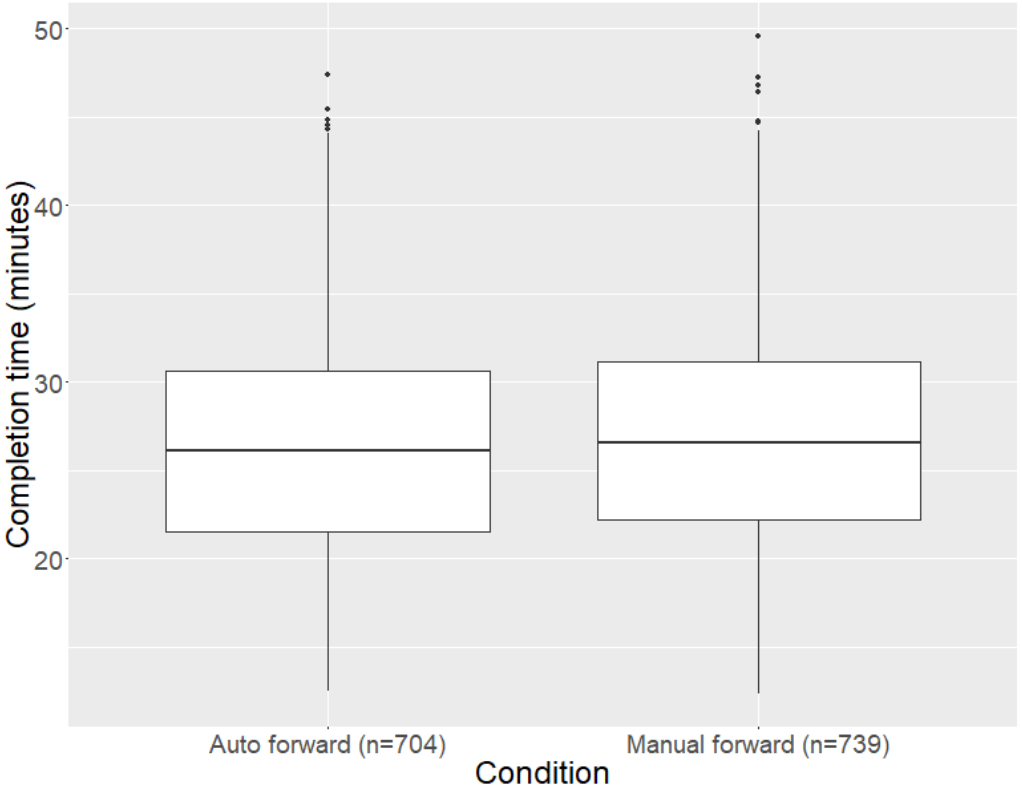


Dealing with response times



	n	% of total
Outliers respondent-level	14	1.0%
Outliers page-level	4585	3.0%

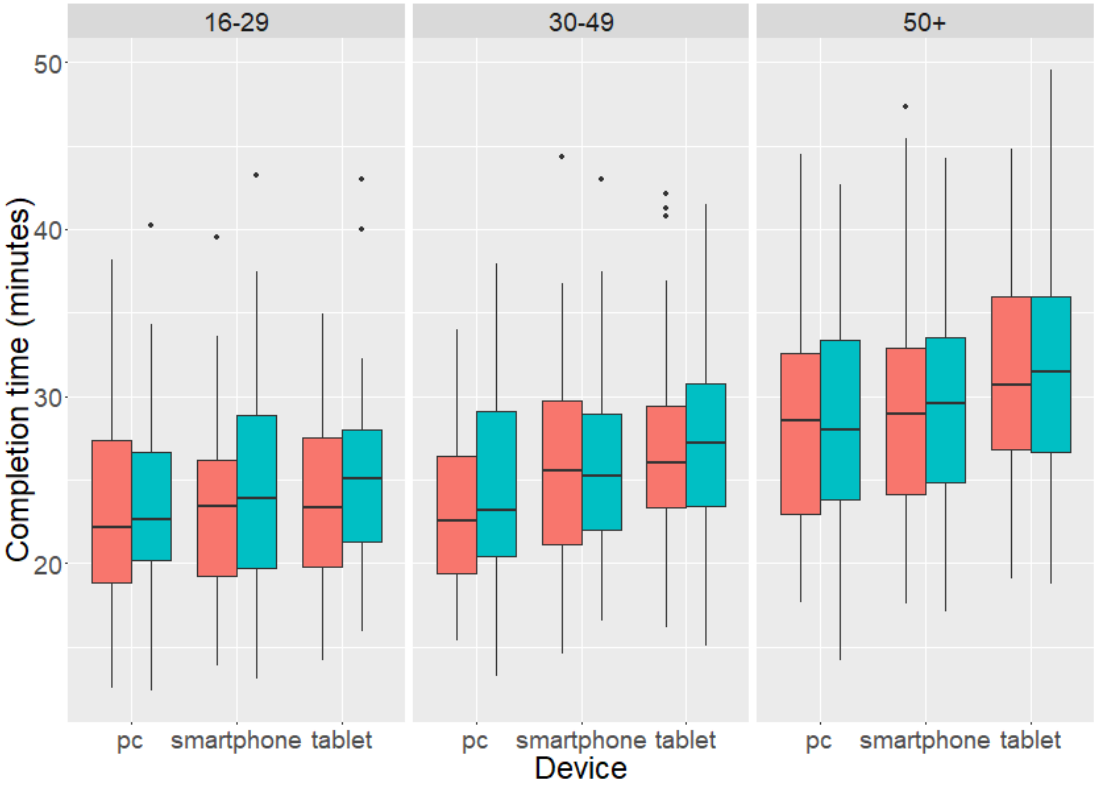
Results: auto forward vs. manual forward



	Auto forward		Manual forward	
	sec	min	sec	min
Q1	1294	21.6	1333	22.2
Mean(log)*	1550	25.8	1582	26.4
Median	1568	26.1	1596	26.6
Mean	1596	26.6	1627	27.1
Q3	1837	30.6	1870	31.2

*Mean of the log of the response times recalculated to seconds

Results: Effect of device and age

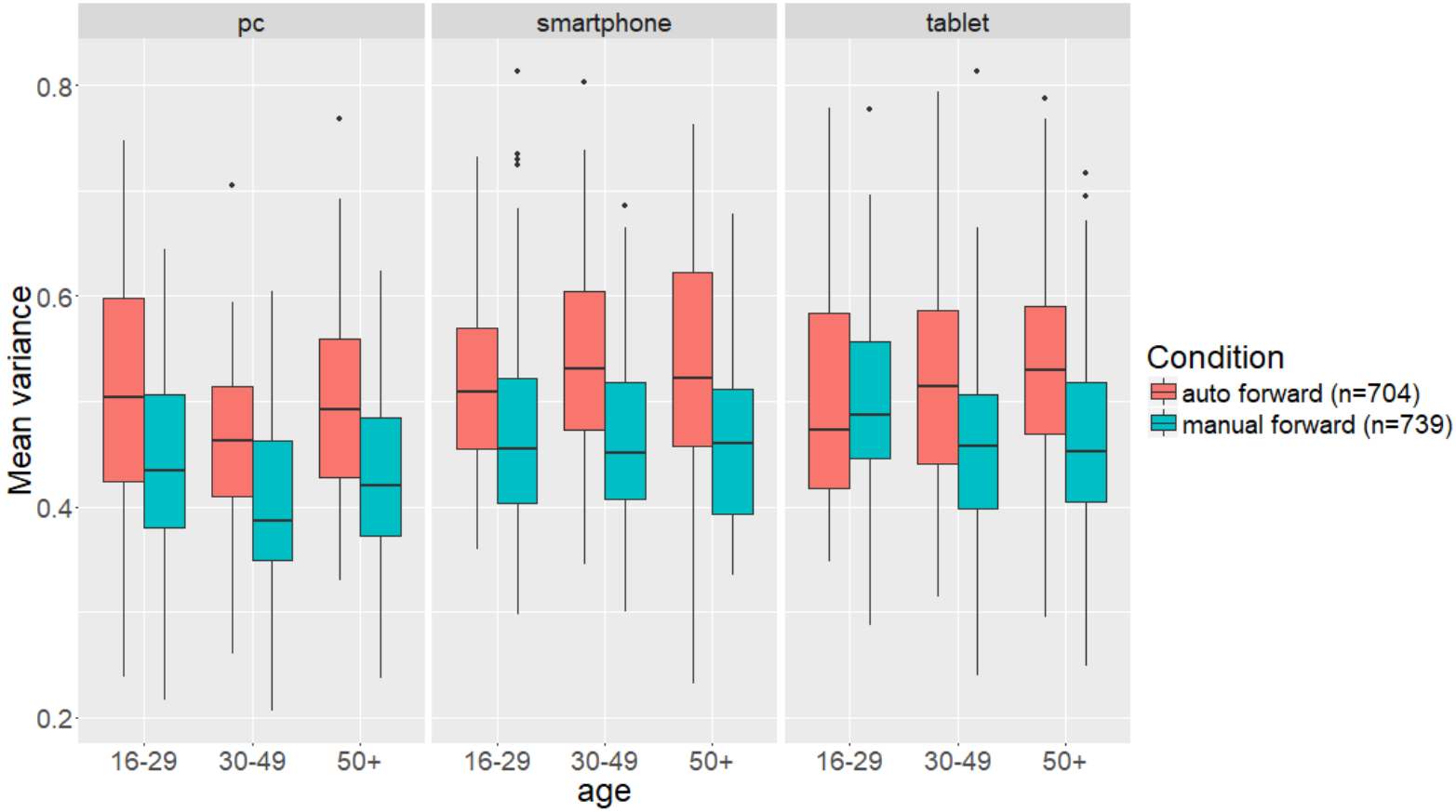


Device	AF (min)	MF (min)
PC (n=353)	24.5	25.1
Sm (n=512)	25.1	25.3
Tab (n=578)	27.4	28.1

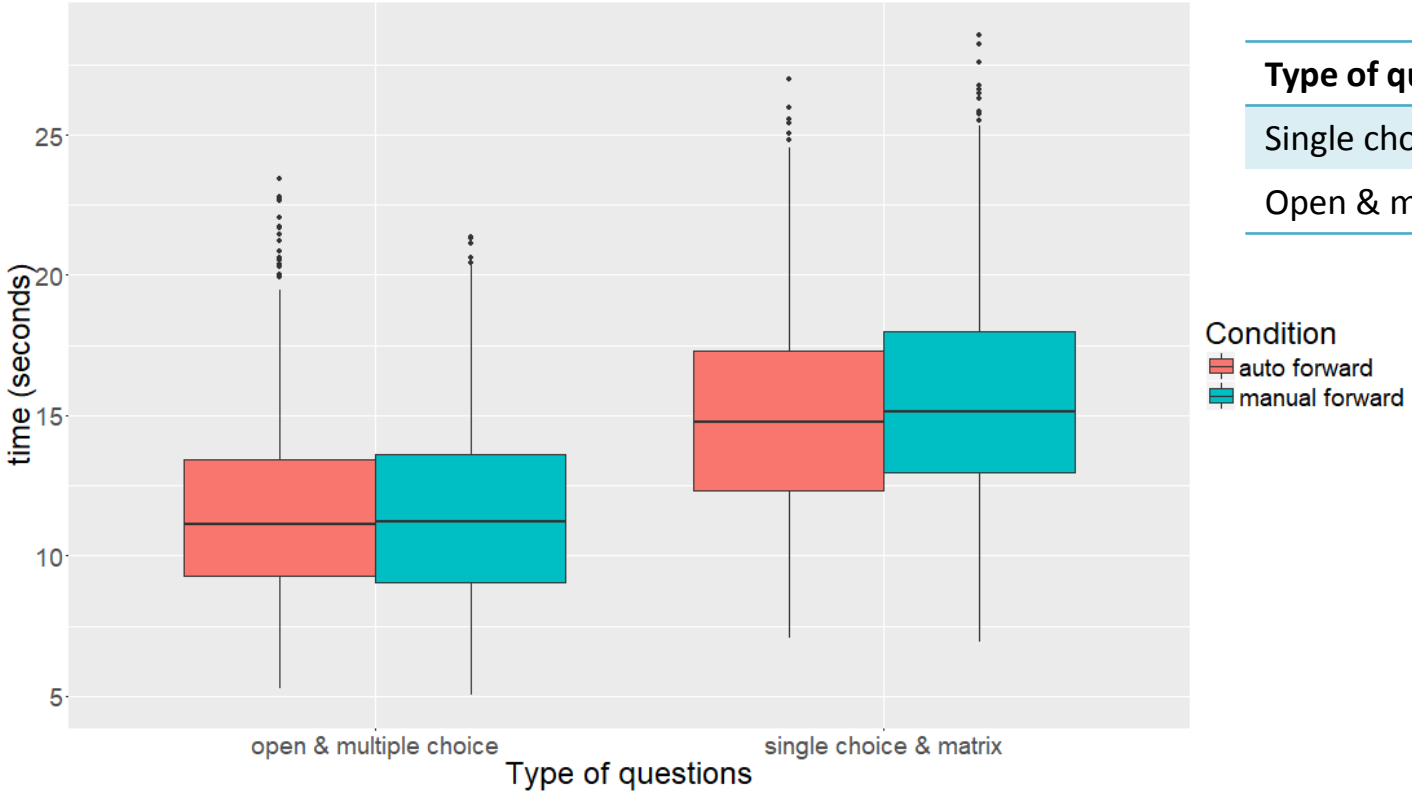
Condition
auto forward (n=704)
manual forward (n=739)

Age	AF (min)	MF (min)
16-29 (n=431)	22.8	23.8
30-49 (n=480)	24.9	25.5
50+ (n=532)	29.4	29.6

Effect of type of question (1)

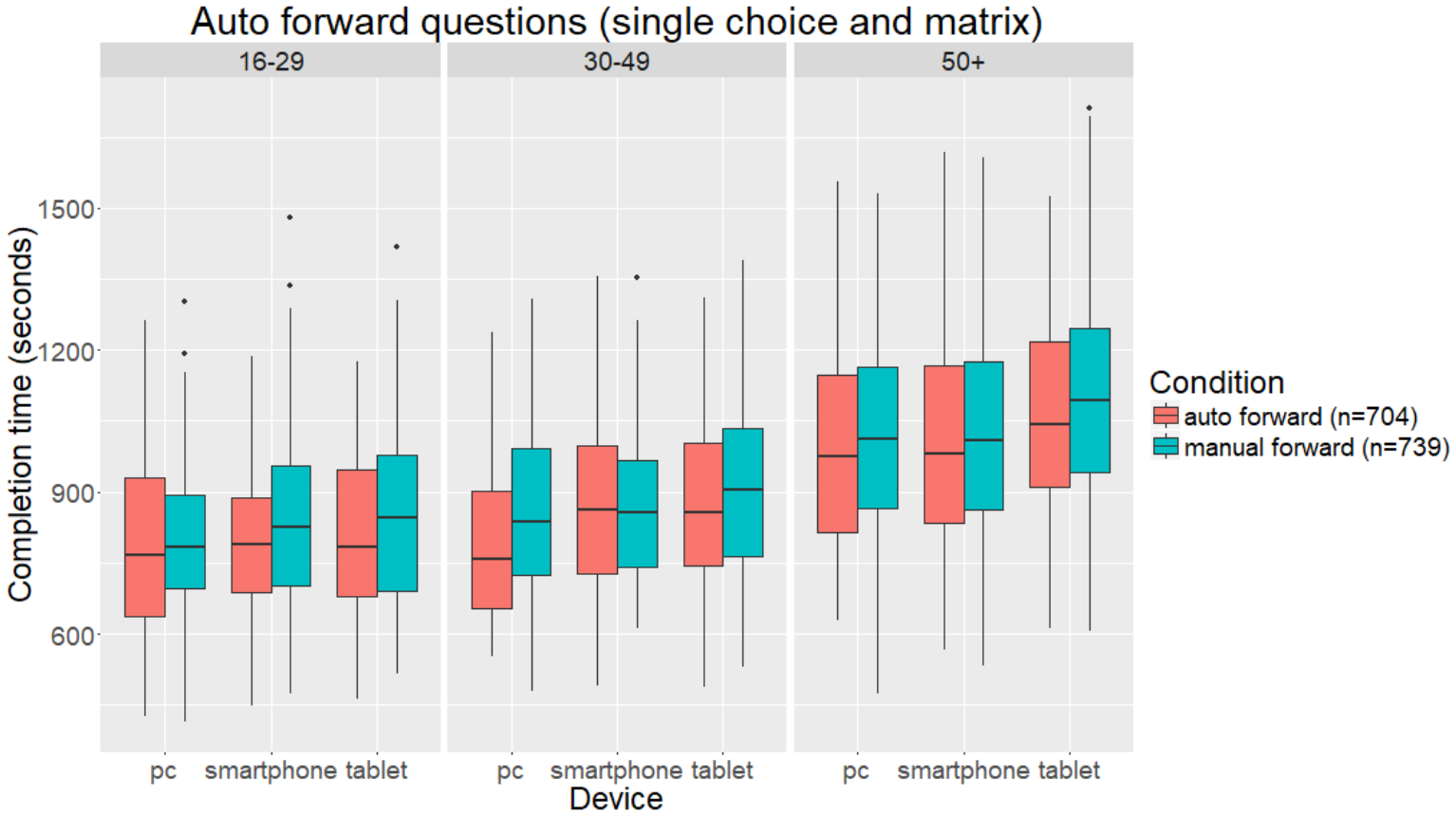


Effect of type of questions (2)



Type of question	Share
Single choice & matrix	72.8%
Open & multiple choice	27.2%

Effect of type of questions (3)



Navigation behaviour to the previous page

- 956 (65.6%) respondents used the previous button
- 3418 total clicks
  - manual forward condition = 1408
  - auto forward condition = 2010
  - Similar across devices
- Difference between conditions was most apparent for:
  - Cognitive demanding questions
  - Where something unexpected happened (i.e. new topic)
  - When respondents thought they already answered the question (i.e. similar question wording)

Navigation behaviour to the next page

- Automated for 73% of the questions in the auto forward condition
- Navigation buttons always available (even when navigation was automated)
- More navigation behaviour in auto forward condition
- Difference between conditions was most apparent for pages with multiple questions

Description	n
Total	186 448
Unique	152 207
Duplicate	34 241
- Cause: previous button	3 418
- Unnecessary	30 823
• Auto forward	20 436
• Manual forward	10 387

Conclusions

- Auto forward functionality at least slightly decreases response time
- Response times could be further decreased by decreasing the use of the navigation buttons
  - only show the next button when needed
  - Make survey questions better
  - Only use questions were auto forward could be applied
  - ???

Future research/explorations

- More in-depth research on response times
- Data quality
  - of the questions,
  - and of the respondents
- Faulty logins (n=2828)
- Other suggestions?