



SLIDER BARS IN MULTI-DEVICE WEB SURVEYS

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INTRODUCTION & RESEARCH QUESTION

- Web surveys → new possibilities, interactive objects
- Growth of mobile access to Web surveys
- Consequences on data quality?

Are there differences in the occurrence of satisficing behaviors in the use of slider bars according to the device employed?

Relevance

- Contribution to literature on consequences of unintended mobile access
- Experimental design: explore peculiar features of slider bars

THEORETICAL BACKGROUND DEVICE EFFECT

- ❖ Environment
- ❖ Technical problems
- ❖ (Software optimisation)

Overall expectation: higher satisficing on
Smartphone only ← screen/font size
Smartphone and tablet ← input
method

Smartphone vs
Tablet/Pc

- ❖ Screen size

Mobile (Smartphone/Tablet) vs Pc

- ❖ Input method: mouse vs
touchscreen

THEORETICAL BACKGROUND | SATISFICING AND SLIDER BARS



Satisficing on mobile devices

- Several indicators
- Mixed evidence
- Depends on indicators, research set up, software/optimisation...

Slider bars

- VAS, Radio buttons...
- Concerns on completion outcomes
- Slider bars on mobile
 - Technical issues
 - Higher incidence of mistakes

Satisficing on slider bars

1. Deviation from the initial position of the handle
 - Smaller deviation, higher satisficing
2. Anchoring to the extremes
 - Higher tendency to anchoring, higher satisficing
3. Rounding
 - Lower tendency to select rounded scores, higher satisficing

DATA & METHODS

- Data: Web surveys collected on students of University of Trento
 - Students' satisfaction survey (2015)
 - Use of time and space (2016)

Survey	Students' satisfaction	Use of time
Population	All students	All students
Period of data collection	Feb/Apr 2015	May/June 2016
Paradata (UAS)	Yes	Yes
Question on device in use	No	Yes
Questions on dominant hand and screen orientation	No	Yes
Software	Lime survey	Lime survey
Size of population	17817	15973
Opened the survey (% of population)	7768 (43.6%)	6024 (37.7%)
Completed the survey (% of population)	6346 (35.6%)	4423 (27.7%)

Table 1 Overview of datasets employed

We are deeply grateful to Enzo Loner for the technical support in setting up the surveys and the experiments.

EXPERIMENTS

1. Numeric labels (Students' satisfaction)

Ritieni che il sito Web dell'Ateneo sia:
Per ogni coppia sposta il cursore verso l'aggettivo che meglio rappresenta la tua percezione del sito Web dell'Ateneo. Tanto più il cursore sarà vicino tanto più l'aggettivo descriverà il sito Web.

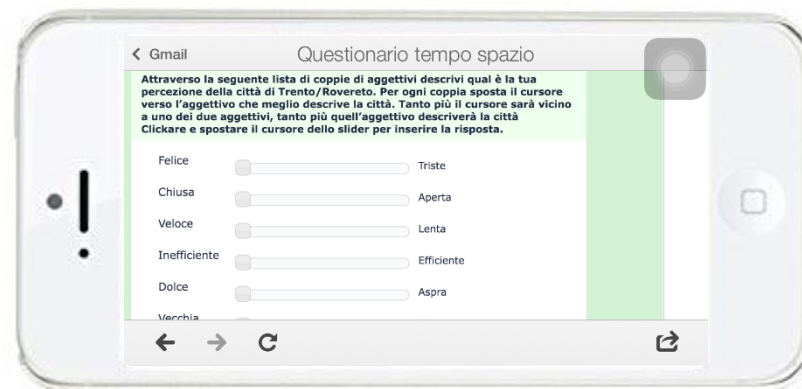
Utile	<input type="range"/>	Inutile
Complicato	<input type="range"/>	Semplice
Dinamico	<input type="range"/>	Statico
Disorganizzato	<input type="range"/>	Organizzato
Esauriente	<input type="range"/>	Carente
Vecchio	<input type="range"/>	Nuovo

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Utile	<input type="range" value="29"/>	Inutile
Complicato	<input type="range"/>	Semplice
Dinamico	<input type="range"/>	Statico
Disorganizzato	<input type="range"/>	Organizzato
Esauriente	<input type="range"/>	Carente
Vecchio	<input type="range"/>	Nuovo

2. Initial position of the slider (Use of time)

Same layout as above, handle on left or right; 8 couples of adjectives



RESULTS: DESCRIPTIVES

Device used - only respondents with cookies enabled

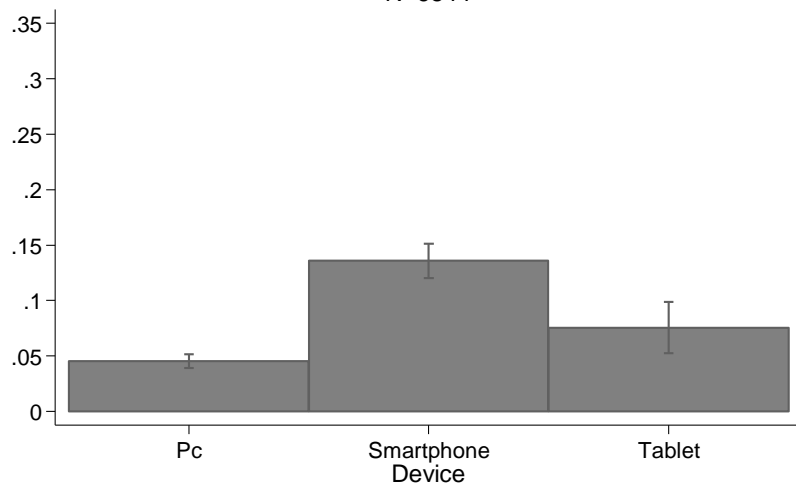
	Device used to access (UAS) Measured at beginning of survey				Self-reported device Measured at the end	
	Satisfaction survey (2015)		Use of time (2016)		Use of time (2016)	
	%	N	%	N	%	N
Desktop/Laptop	63.97	4378	53.07	2948	59.39	2625
Smartphone	28.62	1959	42.29	2349	35.45	1567
Tablet	7.41	507	4.64	258	5.16	228
Total	100.00	6844	100.00	5555	100.00	4420
Discrepant cases	-	-	-	-	4.75	210

Different device recorded at the beginning and reported at the end

RESULTS: COMPLETION RATES

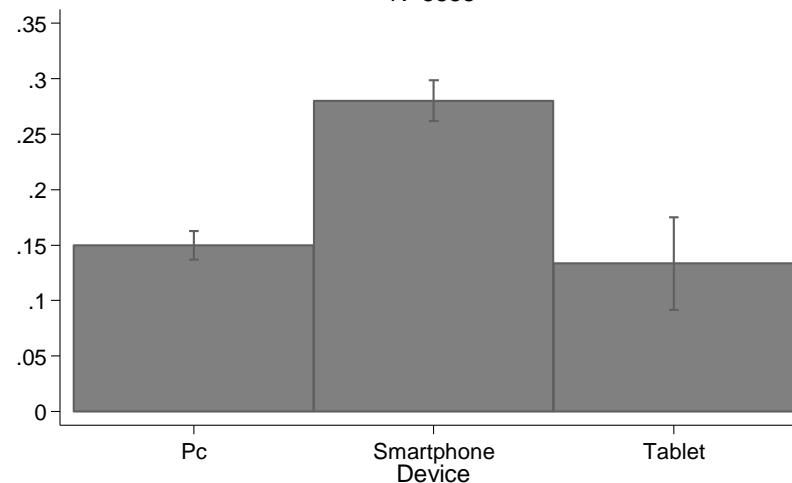
>>> Higher break off (left before reaching ~80% of survey) on smartphone

Break off by device (with controls)
N=6844



Source: Students' satisfaction survey (2015)

Break off by device (with controls)
N=5555

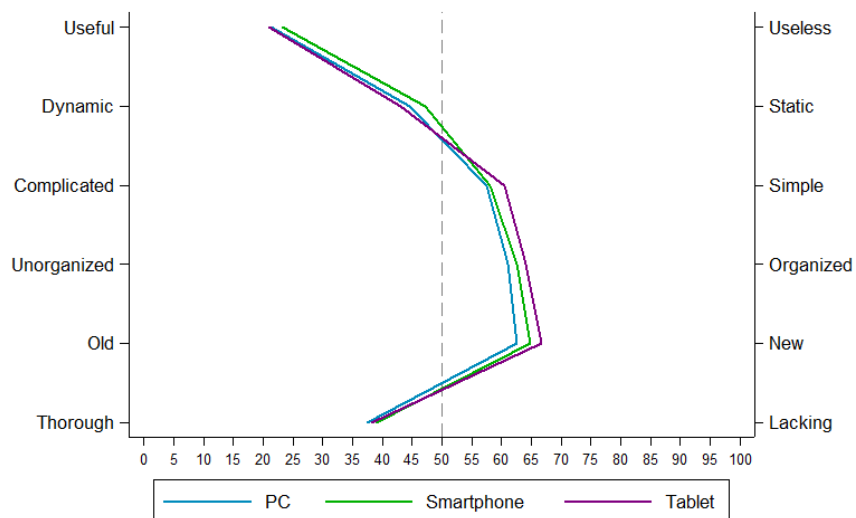


Source: Use of time (2016)

PREDICTED PROBABILITIES OF BREAKING OFF BY DEVICE, ESTIMATED VIA LOGISTIC REGRESSION (CONTROLLING FOR AGE, GENDER AND TYPE OF STUDY)

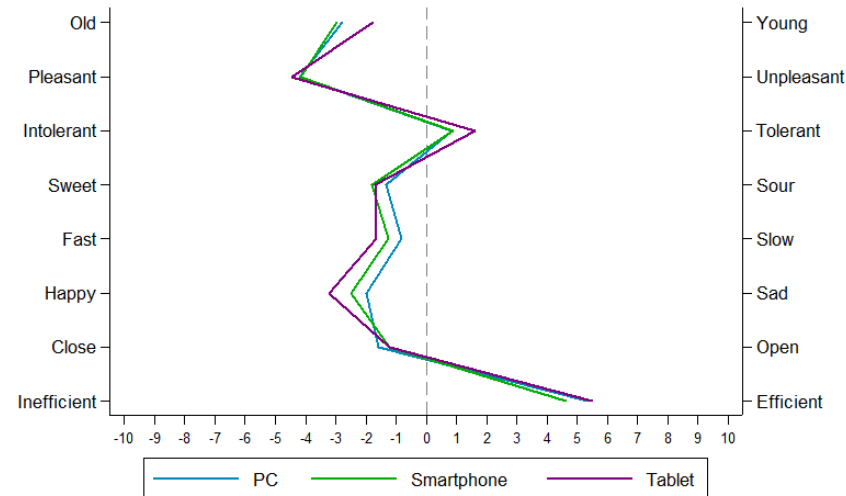
RESULTS: DESCRIPTIVES

Perception of Website by device



Source: Students' satisfaction survey(2015)

Representation of the city by device

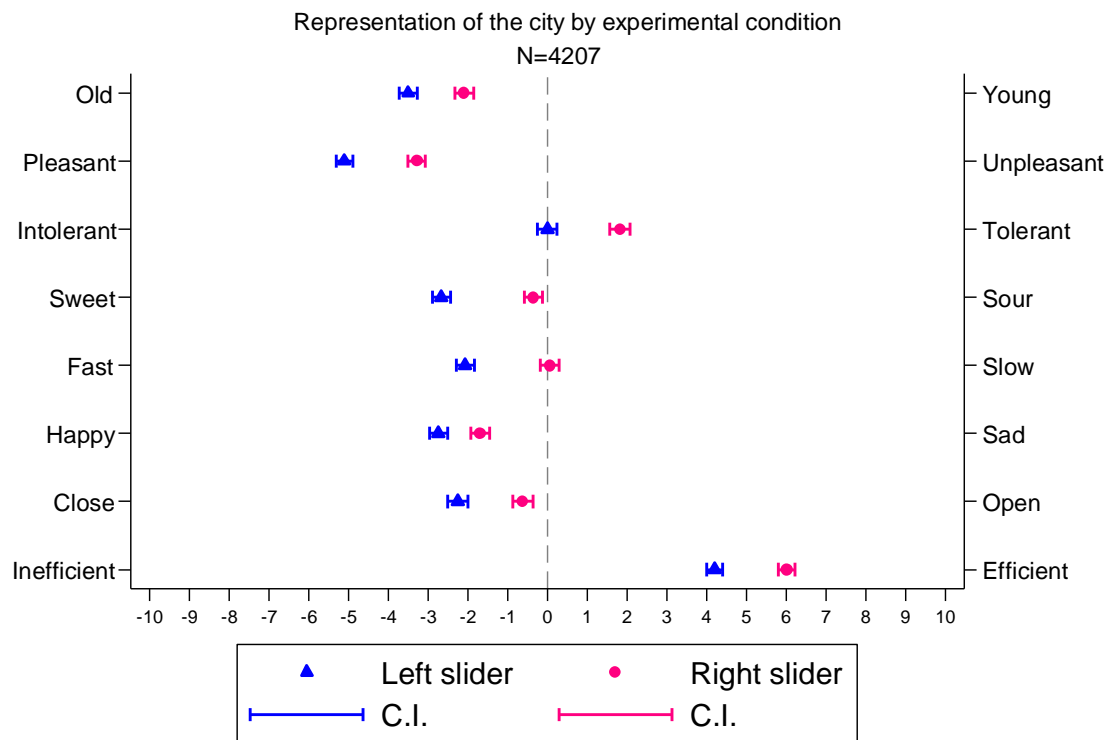


Source: Use of time(2016)

AVERAGE SCORES OF PERCEPTION OF THE WEBSITE (LEFT- N=6343) AND THE CITY (RIGHT- N=4207) BY DEVICE

RESULTS: POSITION OF THE HANDLE

[H1] >>> respondents with the handle on the left select lower scores (closer to left extreme) than the ones with the handle on the right.



PREDICTED SCORES BY EXPERIMENTAL GROUP ESTIMATED VIA OLS REGRESSION MODELS (CONTROLLING FOR GENDER, AGE AND TYPE OF STUDY)

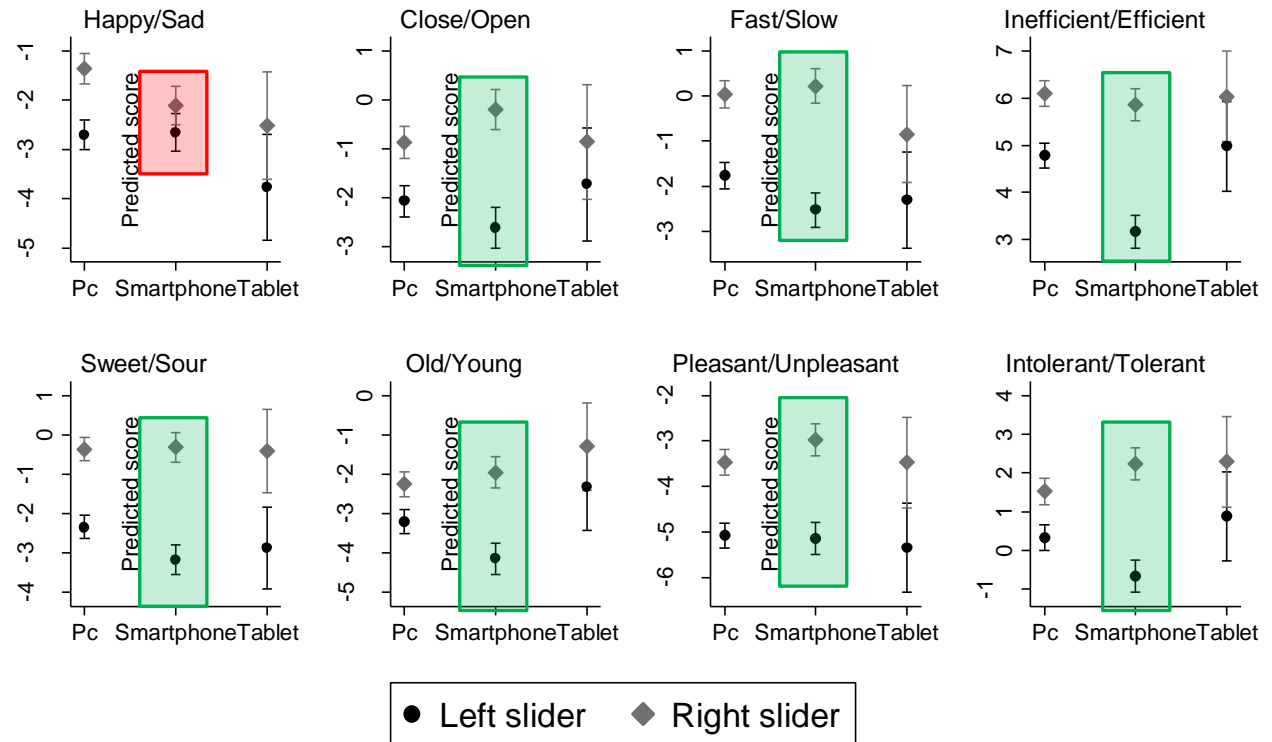
RESULTS: POSITION OF THE HANDLE (1)

The effect of the initial position of the handle is stronger

[H2a] for smartphone respondents

OR

[H2b] for smartphone and tablet respondents



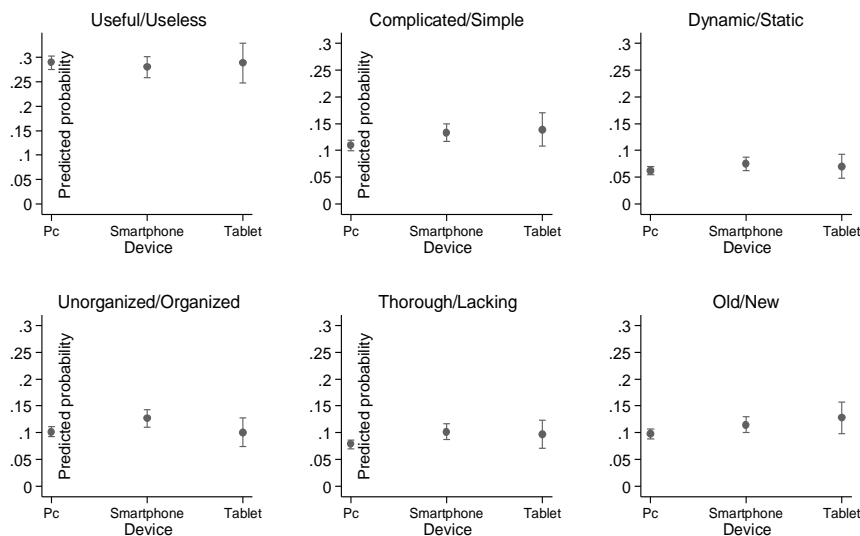
Source: Use of time (2016)

PREDICTED SCORES BY EXPERIMENTAL GROUP AND DEVICE ESTIMATED VIA OLS REGRESSION MODELS (CONTROLLING FOR GENDER, AGE AND TYPE OF STUDY) | N=4207

RESULTS: ANCHORING

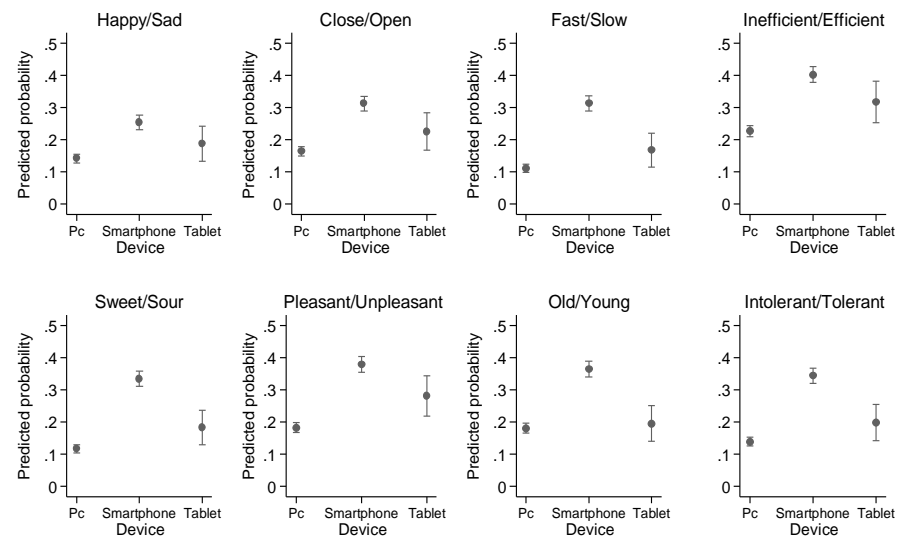
Likelihood to select extremes higher for [H3a] smartphone respondents OR [H3b] smartphone and tablet

Selection of extremes (0-5/95-100)
N=6343



Source: Students' satisfaction survey (2015)

Selection of extremes (-10/+10)
N=4207



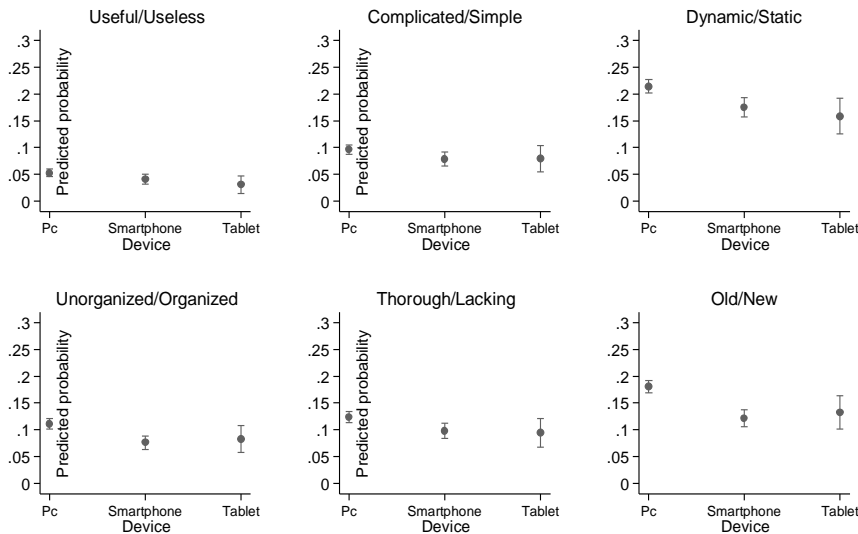
Source: Use of time (2016)

RESULTS: ANCHORING (1)

Puzzled situation ... look at anchoring to central scores

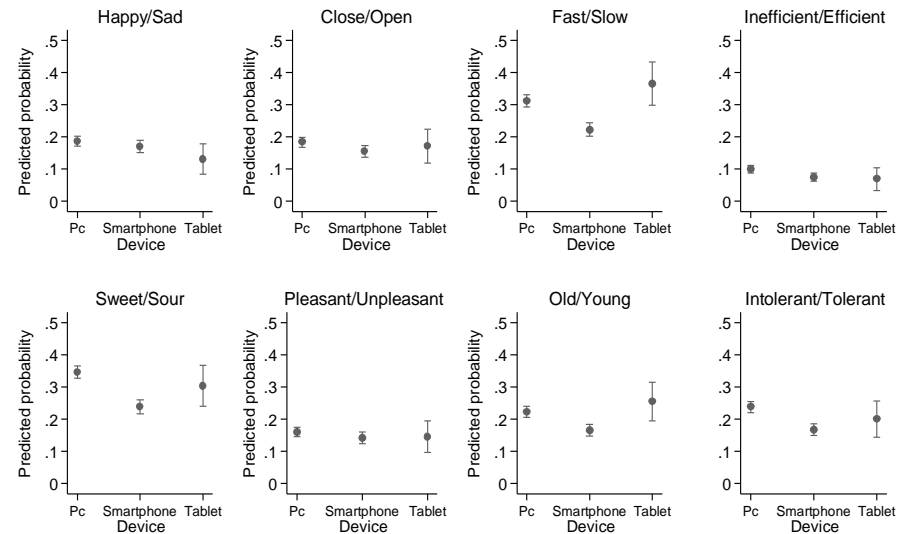
If significant and positive effect only on Students' satisfaction → position of the handle

Selection of central scores (45-55)
N=6343



Source: Students' satisfaction (2015)

Selection of central scores (-1+1)
N=4207



Source: Use of time (2016)

RESULTS: ROUNDING

OLS REGRESSION MODEL (N=6343)

Number of scores ending with 0 or 5
selected

Constant	1.75***	(0.06)
Group: Numeric labels	0.66***	(0.04)
Female	-0.02	(0.04)
Age: ref 19-20		
21-22	0.02	(0.06)
23-24	0.04	(0.07)
25-26	0.02	(0.08)
27+	0.17**	(0.08)
Master student	-0.12**	(0.05)
R ²	0.04	

[H4] rounding occurs more often when numeric labels are visible

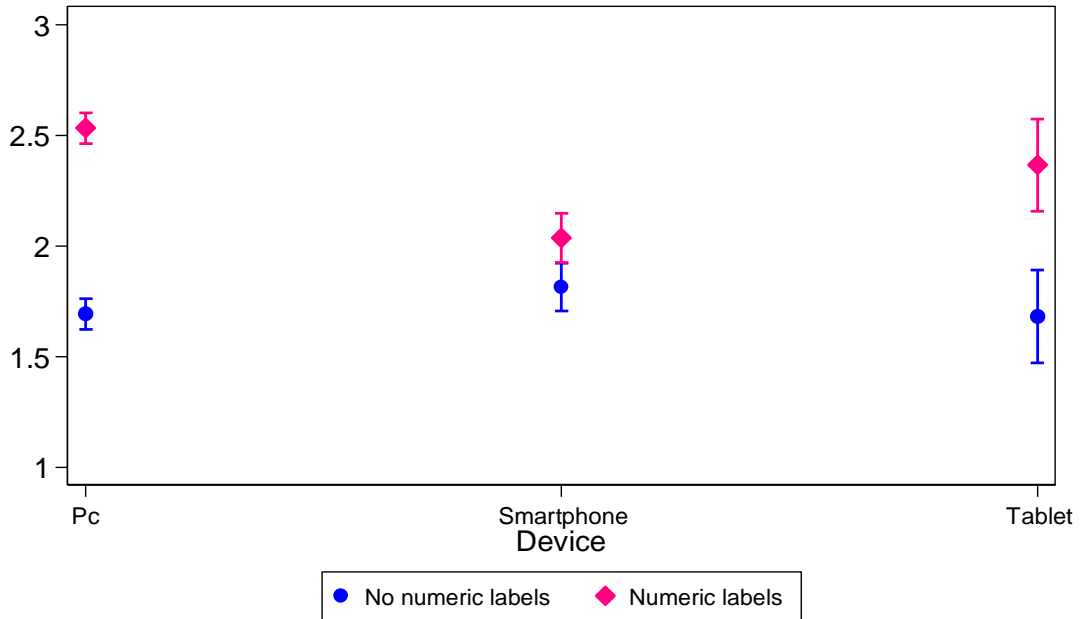
Rounding = selection of scores ending with 0 or 5

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$ -- Source: Students' satisfaction (2015)

RESULTS: ROUNDING

Number of rounded scores selected

N=6343



Source: Students' satisfaction(2015)

PREDICTED VALUES OF NUMBER OF ROUNDED SCORES SELECTED BY DEVICE AND EXPERIMENTAL GROUP ESTIMATED VIA OLS REGRESSION (AND CONTROLLED FOR GENDER, AGE AND TYPE OF STUDY)

Effect of numeric labels weaker for
 [H5a] smartphone, because of screen/font size

OR

[H5b] smartphone and tablet, because of input methods

SUMMARY OF RESULTS

- Initial position of the handle → stronger effect on smartphone
- Numeric labels → weaker effect of smartphone
- Anchoring → unclear

} Higher satisficing on smartphone

} Mixed evidence on satisficing



- Tablet? Looks similar to pc but...

DISCUSSION

- Completion outcomes are problematic
 - How to retain respondents on smartphones?
 - Underestimation of satisficing behaviours?
- Population of University students, no probabilistic sample
 - Yet: skills divide should be minimal
- Normative assumption behind concept of satisficing

