



# A COMPARISON OF ERRORS IN WEB SURVEYS COMPLETED THROUGH PC AND MOBILE DEVICES



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# Growing of web surveys

- In the last decade, Web surveys more and more used
- Mainly in the frame of **online panels**
  - A few probability-based panels
  - A lot of access panels
- Generated a lot of research
  - How **representative** are web surveys?
  - Specific **measurement errors**?
  - Data **comparable** with other modes?
  - Possible to **mix web with other modes**?



# Recent changes



Phenomenon of “unintended mobile respondents”

More details: Wells, Bailey, and Link, 2013; de Bruijne and Wijnant, 2014



# Recent changes

- Unintended mobile completion growing very quickly
  - LISS: **3% to 11%** - March 2012 to September 2013
  - CentERpanel: **3% to 16%** - February 2012 to October 2013
  - Netquest panel: **6% to 14%** - January 2013 to June 2014 (Non-weighted average 7 countries: Argentina, Brazil, Chile, Colombia, Spain, Mexico, Portugal)
- Cannot be neglected anymore

# Why does mobile completion create new challenges?

Differences mainly expected for some response formats: grids + open questions

would like...	1	2	3	4	5
a) to earn special avatar gear within a game (e.g., a special hat) just like I can earn achievements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
b) my avatars to be better integrated into the messages I send to friends	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) to make a set of 'family' avatars. For example, having better representations of kids or pets	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) the characteristics of my avatar to affect my in-game skills or options (e.g., an athletic looking avatar is faster)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) to have themed avatar gear (e.g., a St. Patrick's Day theme)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) to make my avatar look like a celebrity, game character or other famous personality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) an automatic way to make my avatar look like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h) my avatar to look like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i) to be able to create my own avatars to share with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
j) to be able to customize my avatar's features (e.g., hair, face, body-type) in a more granular way	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
k) to be able to create my own skills, etc. for my avatar	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
l) to use my avatar outside of my Xbox. For example on Facebook or MySpace	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
m) to have my avatar express my current mood (happy, sad, crazy, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
n) to be able to see my friends' avatars in crowds or elsewhere in games, even when they are not online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
o) to have different avatars for different games / situations / days of the week	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p) to be able to collect other avatar related goodies such as pets or cars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
q) to purchase items for my avatar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



# Why does mobile completion create new challenges? 📢

What may be the reality for more and more respondents



Differences mainly expected for sensitive questions (presence of others)

# New challenges



- Can we combine the data from PC and mobile?
  - Is there a device effect?
  - Is a survey with PCs and mobile devices a mixed-mode survey?
- 
- Previous literature comparing data from PC and mobile
    - E.g. Peytchev and Hill, 2010; de Bruijne and Wijnant, 2013, 2014; Mavletova, 2013; Mavletova and Couper, 2013, etc

# This presentation...



- ... follows this line of research and provides new evidences
- Main research question

How comparable are data from online surveys answered through PCs and smartphones?

- Experiment in an online access panel
  - Panellists invited to participate twice in the same survey using different devices
- Target population
  - Panellists with Internet access through both PC and smartphone



# Experimental design



**Encuesta (Test)** ?

¿Cuál es tu máximo nivel de estudios finalizados?

☐ Sin estudios

☐ Educación Primaria (hasta los 12 años)

☐ Primera etapa de Educación Secundaria (hasta los 14 años)

☐ Segunda etapa de Educación Secundaria / Bachillerato antiguo / FP Grado Medio / BUP / CCOL

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ne group	Wave 1 device	N	Wave 2 dev
	PC	200	PC
SNO	Smartphone optimized		
D			Smartphone not op
NO	PC	200	Smartphone not optimi
PC	Smartphone not optimized	200	PC

**nice quest Encuesta (Test)**

¿Cuál es tu máximo nivel de estudios finalizados?

☐ Sin estudios

☐ Educación Primaria (hasta los 12 años)

☐ Primera etapa de Educación Secundaria (hasta los 14 años)

☐ Segunda etapa de Educación Secundaria / Bachillerato antiguo / FP Grado Medio / BUP / CCOL

☐ Educación superior / Diplomaturas / Licenciaturas

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**Encuesta (Test)** ?

Para cada una de las siguientes actividades, indica en qué medida crees que pueden ser justificadas:

**Mentir en beneficio propio**

☐ Se justifica siempre

☐ Se justifica lo más a menudo

☐ Se justifica a veces

☐ No se justifica nunca

>

**nice quest Encuesta (Test)**

Para cada una de las siguientes actividades, indica en qué medida crees que pueden ser justificadas:

**Mentir en beneficio propio**

☐ Se justifica siempre

☐ Se justifica lo más a menudo

☐ Se justifica a veces

☐ No se justifica nunca

**Hacer trampas para pagar menos impuestos**

☐ Se justifica siempre

☐ Se justifica lo más a menudo

☐ Se justifica a veces

☐ No se justifica nunca

**Aceptar un soborno en el ejercicio de sus funciones**

☐ Se justifica siempre

☐ Se justifica lo más a menudo

☐ Se justifica a veces

☐ No se justifica nunca

**nice quest Encuesta (Test)**

Para cada una de las siguientes actividades, indica en qué medida crees que pueden ser justificadas:

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# Experimental design



Groups	Name group	Wave 1 device	N	Wave 2 device	N
Control	PC-PC	PC	200	PC	188
	SNO-SNO	Smartphone not optimized	200	Smartphone not optimized	179
	SO-SO	Smartphone optimized	200	Smartphone optimized	187
Treatment S	PC-SNO	PC	200	Smartphone not optimized	170
	SNO-PC	Smartphone not optimized	200	PC	182
	PC-SO	PC	200	Smartphone optimized	165
	SO-PC	Smartphone optimized	200	PC	184
	SO-SNO	Smartphone optimized	200	Smartphone not optimized	179
	SNO-SO	Smartphone not optimized	200	Smartphone optimized	176

- To maximise the proportion of respondents answering to both waves of the survey
  - Respondents had to commit themselves to answer to both waves
  - Bigger incentive in wave 2

## □ Netquest online access panel



- 450,000 active panellists
- 4 million completed surveys every year
- Present in Spain, Portugal, Centre and Latin America
- [www.netquest.com](http://www.netquest.com)

## □ Experiment conducted in



- Wave 1: 23 February to 2 March 2015 – 1,800 completes
- Wave 2: 9 to 18 March – 1,610 completes (=88.9%)
- Reduced time between two waves to minimize change of panelist opinion

# Results 1: Sensitive behaviors



	PCs versus smartphones	SO versus SNO
<b>H1:</b> Place of participation	<b>a:</b> more outside home participation for smartphones	<b>b:</b> no difference expected
<b>H2:</b> Presence of third parties	<b>a:</b> higher % for smartphones	<b>b:</b> no difference expected
<b>H3:</b> Level of perceived privacy/sensitivity of questions	<b>a:</b> higher in smartphones	<b>b:</b> no difference expected
<b>H4:</b> Measurement error (social desirability bias)	<b>a:</b> lower reporting of socially undesirable behaviour for smartphones	<b>b:</b> no difference expected

# Results 1: Sensitive behaviors

Partially  
Verified!

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Only for 2 out of  
7 sensitive indices

# Results 2: Grids



- 2 grids
  - Attitudes toward **immigrants**, 14 items, fully labeled 5-points A/D
  - Attitudes toward **alcohol consumption**, 14 items, partially labeled 11-point IS (“totally bad/good”)
- Compare split-ballot groups in separate waves + answers of the same respondent across waves (mixed-models)

# Results 2: Grids



	PCs versus smartphones	SO versus SNO
<b>H1:</b> Interitem correlation	<b>a:</b> higher in smartphones	<b>b:</b> lower in SO when all items go in the same direction; higher in SO when there are both positively and negatively formulated items
<b>H2:</b> Completion time	<b>a:</b> longer in smartphones	<b>b:</b> longer in SO (due to separate questions)
<b>H3:</b> Non-differentiation	<b>a:</b> higher in smartphones	<b>b:</b> lower in SO

# Results 2: Grids



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Partially  
Verified!



# Results 3: Open questions



- Compare SB groups in separate waves + answers of the same respondent across waves (mixed-models)
  
- Consider 3 open narrative questions:
  - Law
  - Euthanasia
  - Immigrants

# Results 3: Open questions



	PCs versus smartphones	SO versus SNO
<b>H1:</b> Speed of answer	<b>a:</b> longer in smartphones	<b>b:</b> slightly longer for SNO
<b>H2:</b> Item non response	<b>a:</b> higher in smartphones	<b>b:</b> no difference
<b>H3:</b> DK and nonsense	<b>a:</b> higher in smartphones	<b>b:</b> no difference
<b>H4:</b> Precision of answers	<b>a:</b> lower in smartphones	<b>b:</b> no difference
<b>H5:</b> Use of abbreviations	<b>a:</b> higher in smartphones	<b>b:</b> no difference

# Results 3: Open questions



	PCs versus smartphones	SO versus SNO
<b>H1:</b> Speed of answer	<b>a:</b> longer in smartphones	<b>b:</b> slightly longer for SNO
<b>H2:</b> Item non response	<del><b>a:</b> higher in smartphones</del>	<b>b:</b> no difference
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<b>H5:</b> Use of abbreviations	<b>a:</b> higher in smartphones	<b>b:</b> no difference

Verified!

# Results 4: Order-by-click



- What happens for some specific web scales?
- Focus on 2 questions
  - Sensitive behaviors: top 3 out of 15 (3 most acceptables)
  - Drinks: top 5 out of 16



# Results 4: Order-by-click

	PCs versus smartphones	SO versus SNO
<b>H1:</b> Select the required number of items	<b>a:</b> lower in smartphones	<b>b:</b> lower in SNO
<b>H2:</b> Ranking	<b>a:</b> will be different	<b>b:</b> will be different
<b>H3:</b> Completion time	<b>a:</b> longer in smartphones	<b>b:</b> slightly longer for SNO

# Results 4: Order-by-click



PCs versus smartphone		
<b>H1:</b> Select the required number of items	<b>a:</b> lower in smartphones	<b>b:</b> lower in SNO
<b>H2:</b> Ranking	<b>a:</b> will be different	<b>b:</b> will be different
<b>H3:</b> Completion time	<b>a:</b> longer in smartphones	<b>b:</b> slightly longer for SNO

Mainly the same elements appear, but not exactly same order

Partially  
Verified!

# Conclusions



- Differences between PCs and smartphones
  - Not systematic but on several aspects
- So... what to do?
  - Seems not realistic for the future to not allow both devices
  - Should try to use question formats with minimal differences / improve actual formats to reduce differences
    - Sensitive questions: quite comparable results, better than expected
    - Grids: avoid them; use separate questions for both PC and smartphones?
    - Open questions: allow respondents to answer orally (record voice)?
    - Order-by-click: come back to more traditional forms to ask about ranking?



# THANK YOU FOR YOUR ATTENTION!!



If you want to know more...

... write me! [melanie.revilla@upf.edu](mailto:melanie.revilla@upf.edu)



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