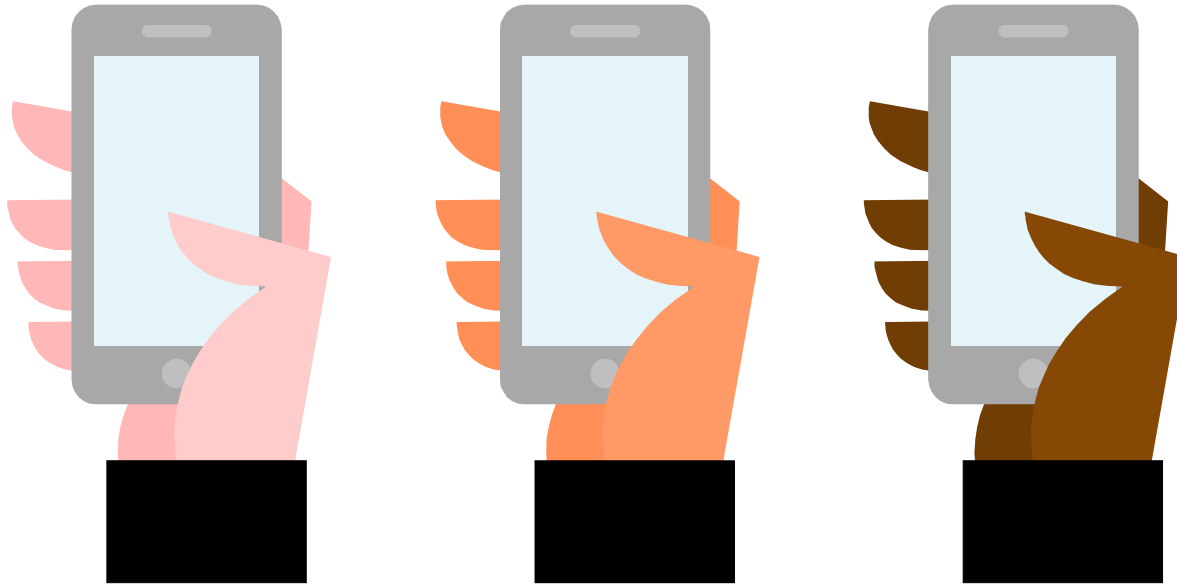


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## **Completing social surveys on smartphones: *What should we be worried about?***

Tim Hanson, Peter Matthews, Alice McGee

*NatCen-ESS ERIC-City methodology seminar series*

*24 May 2018*

# Agenda

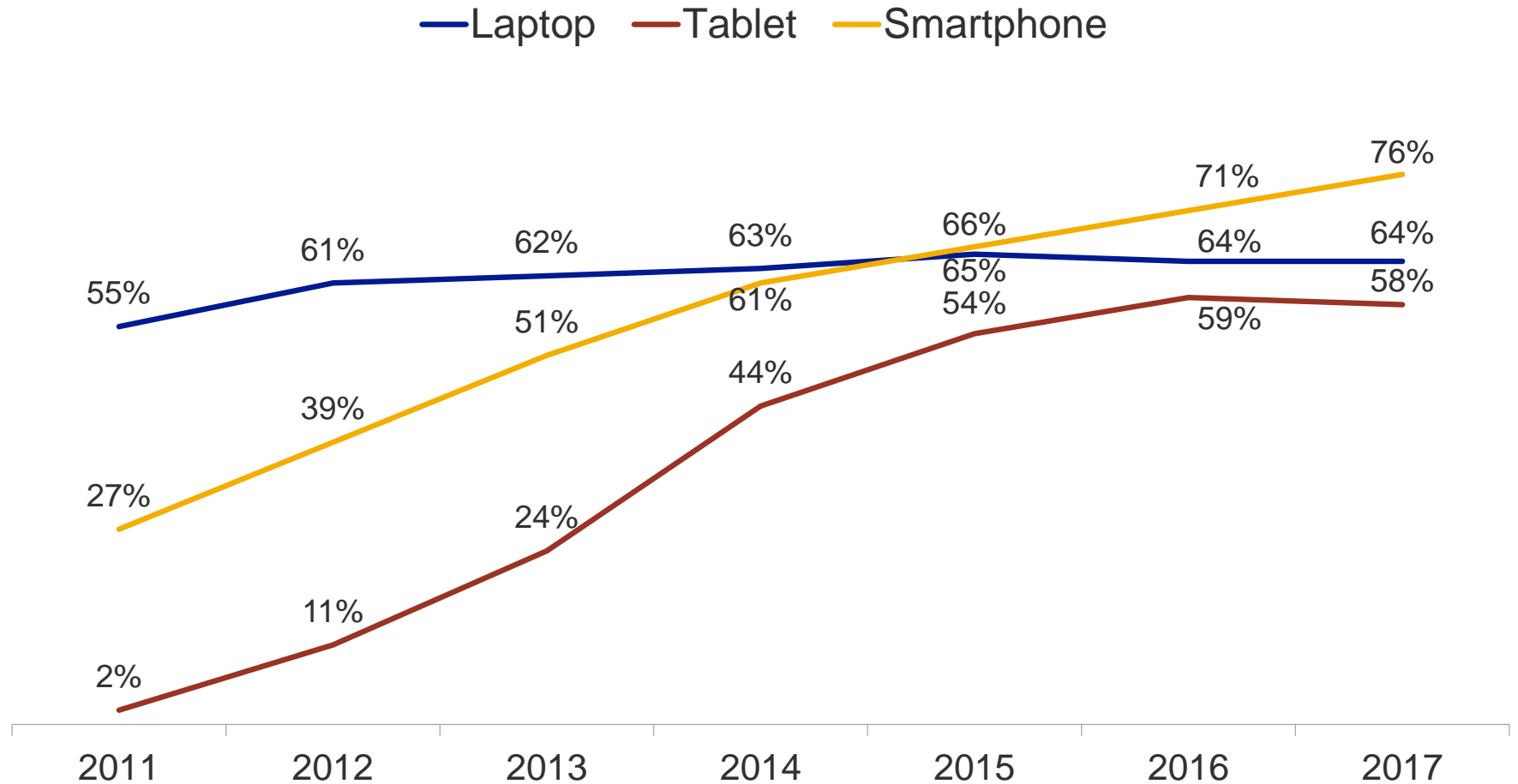
- Background: importance of designing for online and mobile
- Analysis of device impact on data quality
- 'Mobile First' design and optimisation
- Adapting problematic question formats for smartphone: Grids
- Conclusions and next steps

# Movement of surveys online

- Until fairly recently most social studies still interviewer administered; increasingly moving online
- Understanding Society, Longitudinal Study of Young People in England, Community Life and others solely or partly online
- Development work to assess feasibility of moving other surveys online (Crime Survey, Labour Force Survey)
- NatCen probability-based panel established
- Target of 75% online completions for 2021 UK census
- A number of factors behind move – cost savings, high internet penetration, falling response rates, drop in rates of landlines



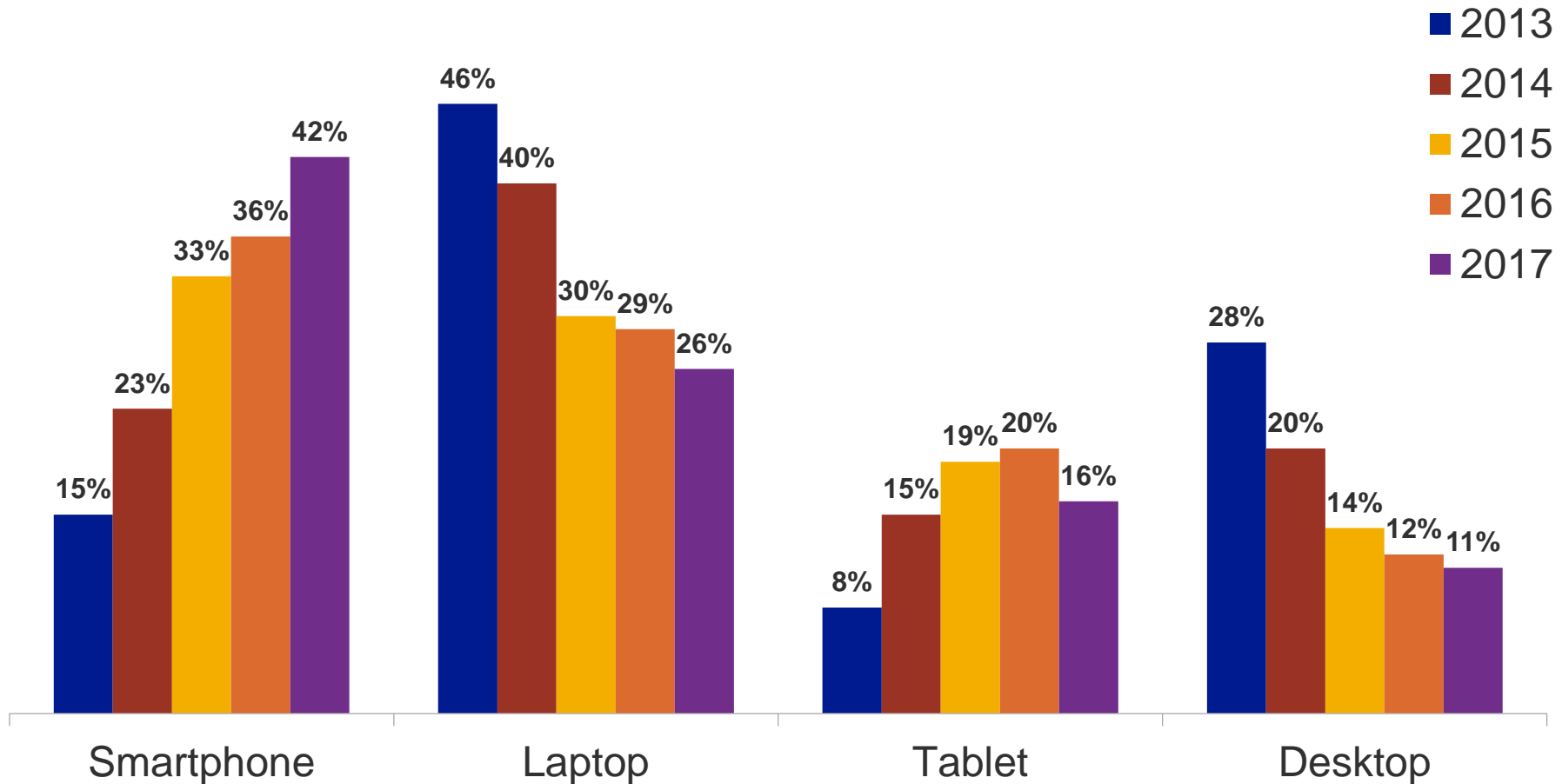
# Growth in ownership of mobile devices



Data from Ofcom's Communications Market Report, 2017

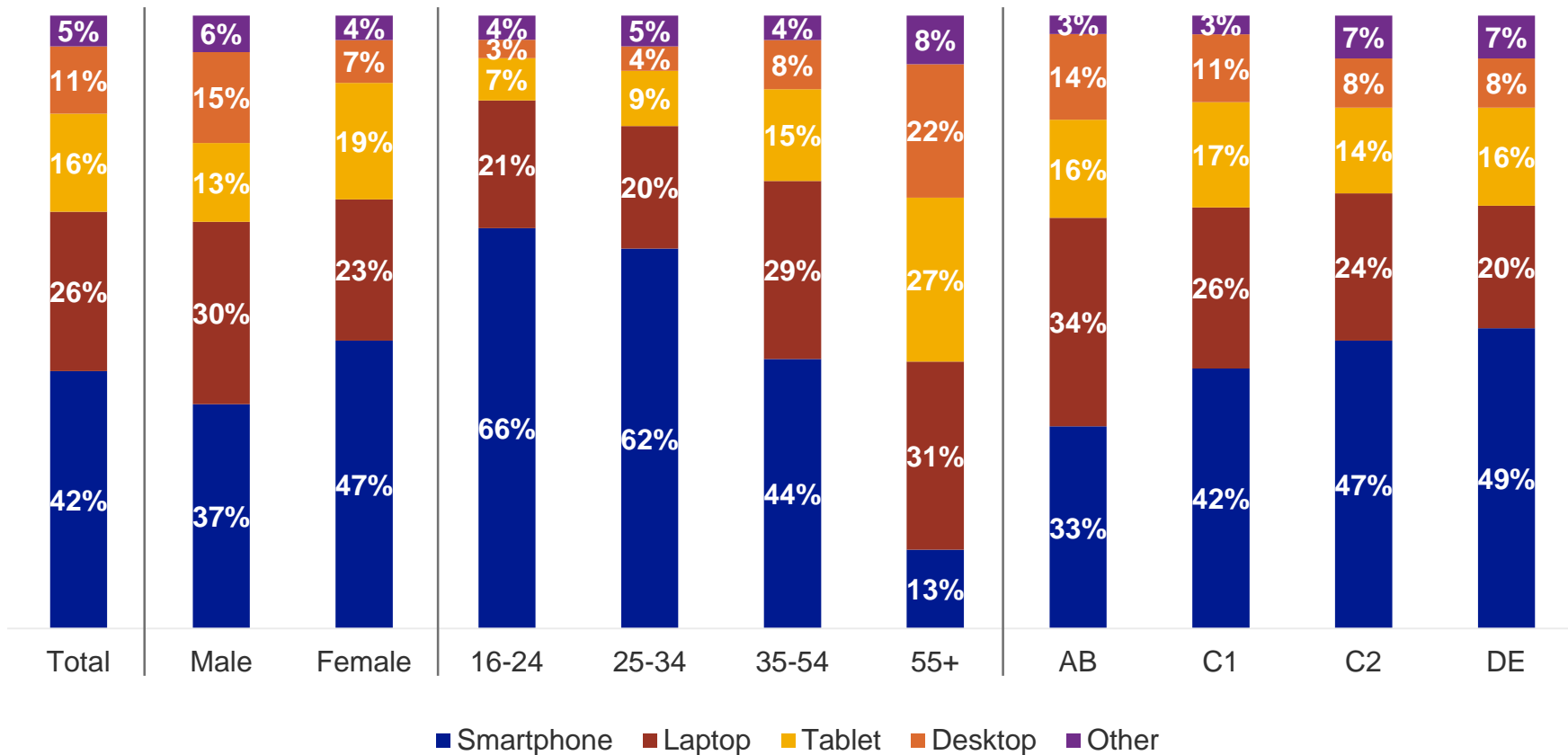
# Growth in importance of smartphones

Most important device for internet access



# Smartphones most important internet enabled device for all age groups apart from 55+

Most important device for internet access



# What are our options?\*

Do nothing

Detect and  
exclude

Encourage use  
of alternative  
devices

Allow and  
adapt

***“Resistance is futile – ignoring the issue is not an option” Mick Couper***

***“If you’re doing a Web survey, you’re doing a mobile survey” Michael Link***



# What are we doing?

Now allow smartphones for almost all online surveys

Survey software supports mobile optimisation

'Mobile first' approach to designing new surveys; gradual adaptation of existing surveys

Usability testing increasingly common

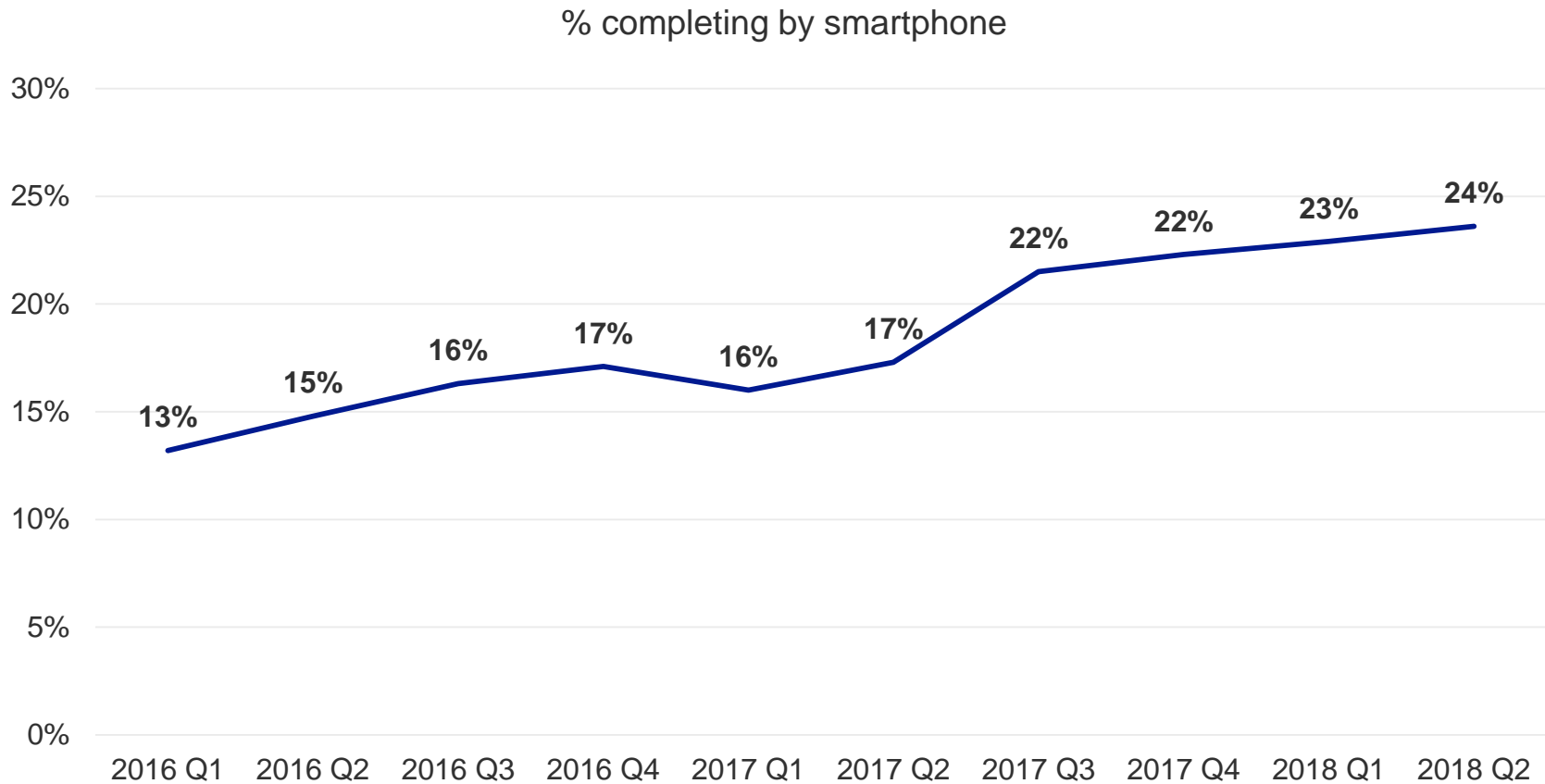
Ongoing experimental work and analysis of survey data

# Proportions completing UK surveys on smartphones

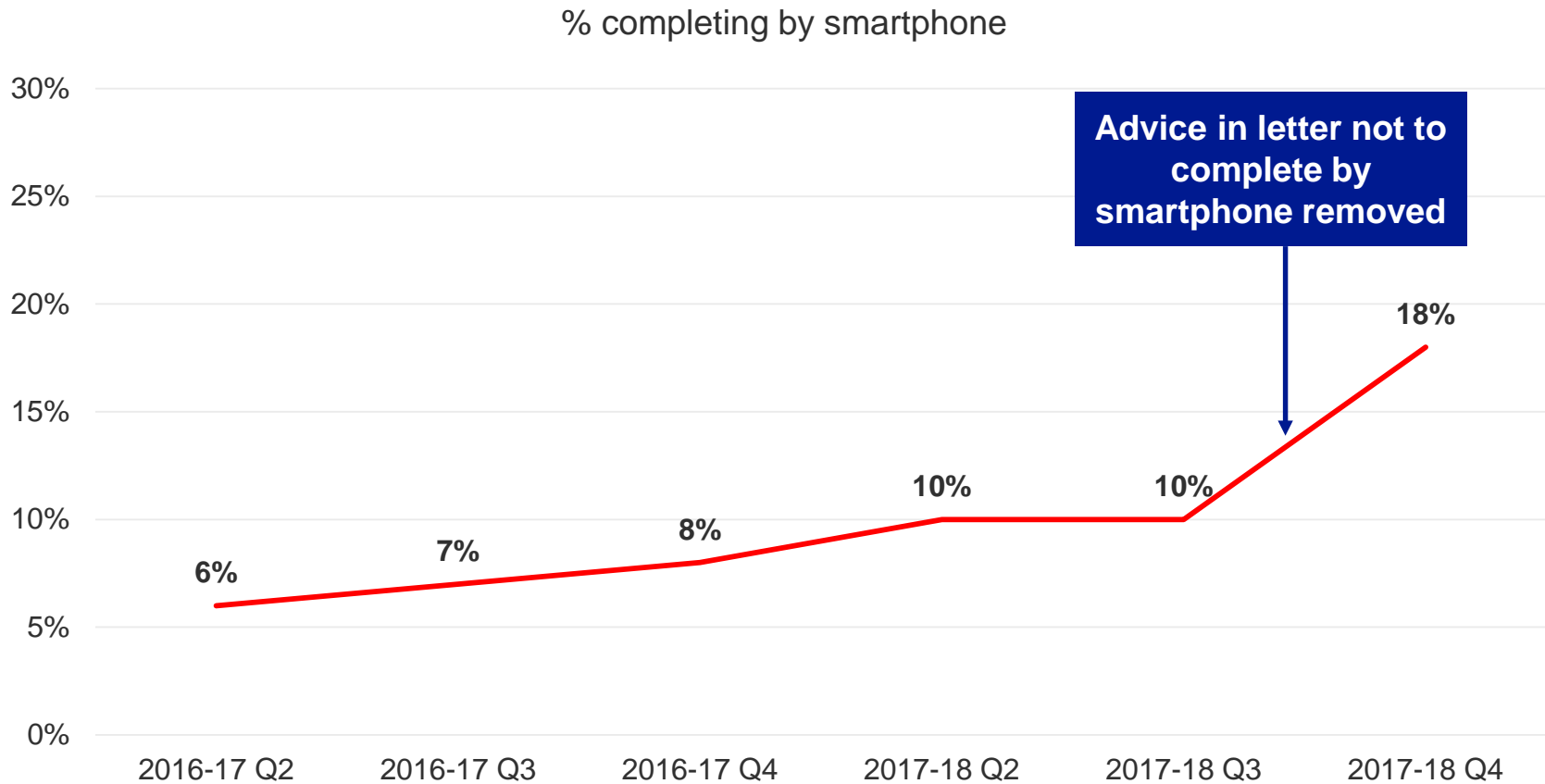
Survey	Year	% using smartphone*	Base	Contact method	Approx length	Notes
Community Life	2017-18	13%	8,170	Letter	30 mins	Cross-sectional, address based sampling
Understanding Society Innovation Panel W10	2017	18%	1,069	Email/letter	45 mins	Longitudinal
Active Lives Survey	2016-17	19%	159,316	Letter	15 mins	Cross sectional, address based sampling
Understanding Society W10, Q1	2018	23%	1,211	Email/letter	45 mins	Longitudinal, Interim data
Wellcome Trust Science Education Tracker	2016	25%	4,081	Letter	25 mins	Cross-sectional, 14-18 year olds Named sample
Longitudinal Study of Young People in England 2 (W4)	2016	27%	2,851	Email/letter	25 mins	Longitudinal, Interim data; 16-17 year olds
NatCen probability - based panel	2017-18	c. 30%	c. 1,800 per wave	Email	c. 15 mins	Online panel, recruited by probability methods
Taking Part Web Panel	2016-17	30%	1,156	Email	8-13 mins	Online panel; recruited face-to-face

\* as % of all online completions

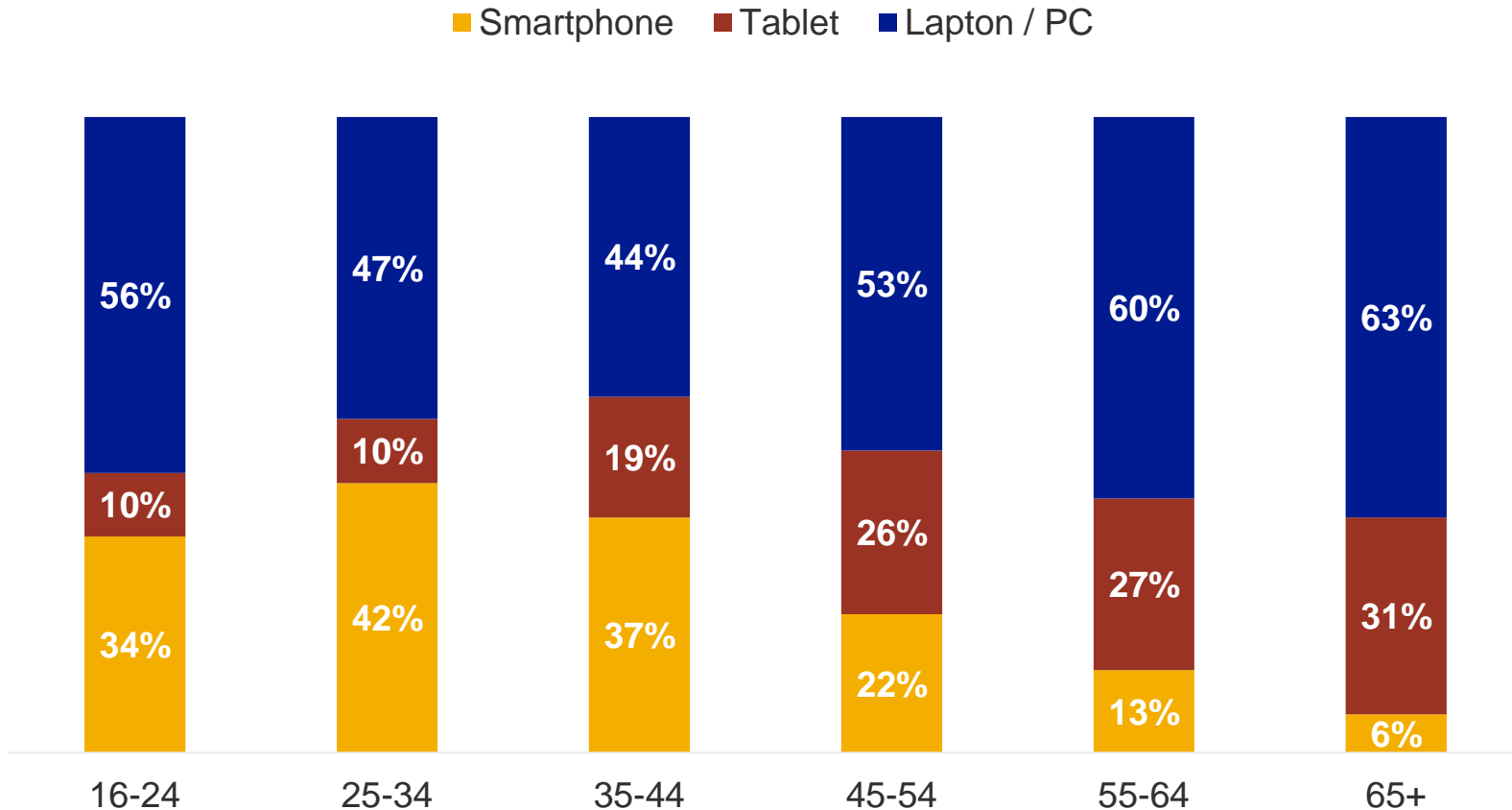
# Steady increase in smartphone completions on Understanding Society; now one in four of all completing online



# Similar increase on Community Life; clear impact of removing recommendation not to use smartphones



# Particularly high levels completing by smartphone in three youngest age groups



*From Understanding Society, Wave 10, Quarter 1 (2018)*

Bases: 16-24: 375; 25-34: 271; 35-44: 488; 45-54: 640; 55-64: 564; 65+: 633

# Summary of measurement error on smartphone – mostly good news!

- Evidence across numerous studies, including by Mick Couper and Roger Tourangeau, shows that, with a few exceptions, there is:

## little evidence of lower data quality when surveys are completed via smartphone

- Higher breakoff rates for smartphones
- Slightly longer completion times for smartphones (but reduced when optimised)
- Mixed results for open questions
- Some issues with certain question formats: grids, drop boxes, sliders
- Vertical scrolling not problematic
- No consistent differences for other data quality indicators

*Tourangeau (2017): “Collecting data on smartphones (or tablets) does not make known measurement problems any worse”\**

# Current areas of investigation

What evidence is there from UK social surveys about the impact of device choice on data quality?

What should we do about those question formats that are problematic for those completing on smartphones?

# **Analysis of device impact on data quality**



# Why might there be a device effect?

Screen size



Interface



User context



# Two case studies

## Community Life (2016/2017)

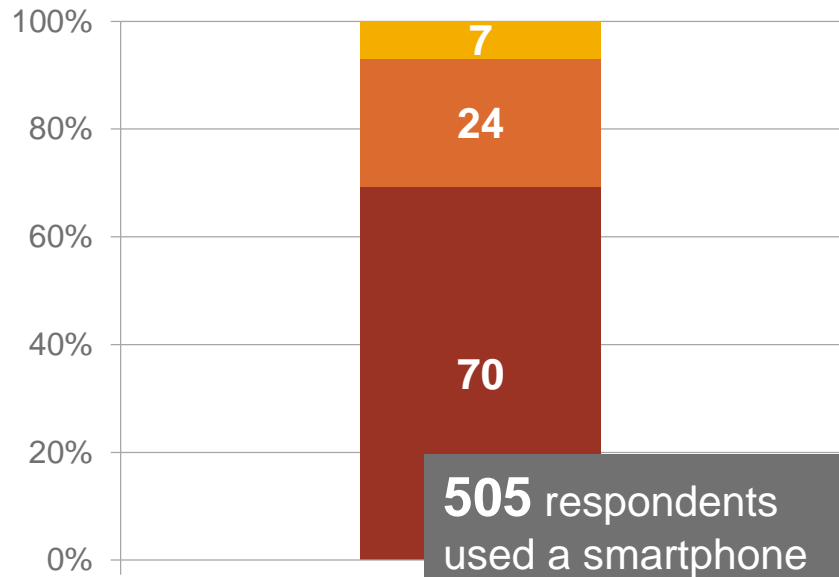
- Department for Digital, Media, Culture and Sport
  - Cross-sectional, covering topics such as volunteering, community engagement and wellbeing
  - Adults aged 16+
  - Data collected online / paper
- 
- **7,381 online respondents**

## Longitudinal study of young people in England (LSYPE2)

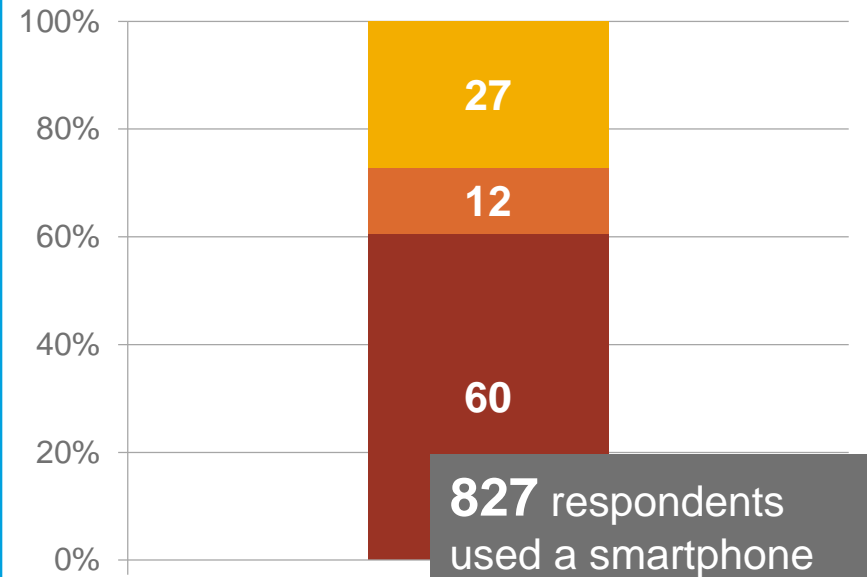
- Department for Education
  - Longitudinal study of young people, starting at age 13/14
  - For first three waves, data collected in-person
  - From wave four, mixture of face-to-face, telephone and online
- 
- **2,945 online respondents**

# Device choice on Community Life and LSYPE2

## Community Life (2016/2017)



## Longitudinal study of young people in England (LSYPE2)



■ PC/laptop ■ Tablet ■ Smartphone

# Which respondents are more likely to use a smartphone?

## Community Life (2016/2017)

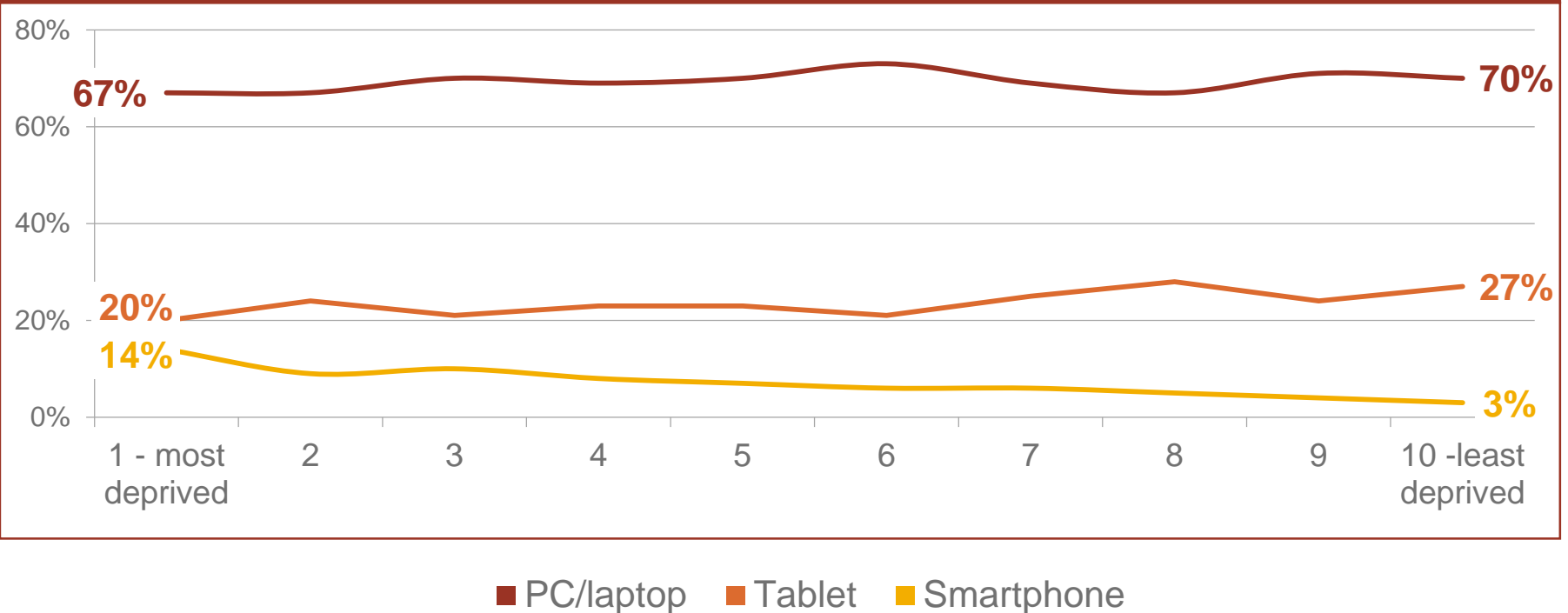
- Female
- Not have a degree
- Renting
- Younger
- Living in more deprived areas

## Longitudinal study of young people in England (LSYPE2)

- Female
- Achieved fewer GCSEs
- Parents do not own home
- Has a part-time job
- Lives in household with below median income

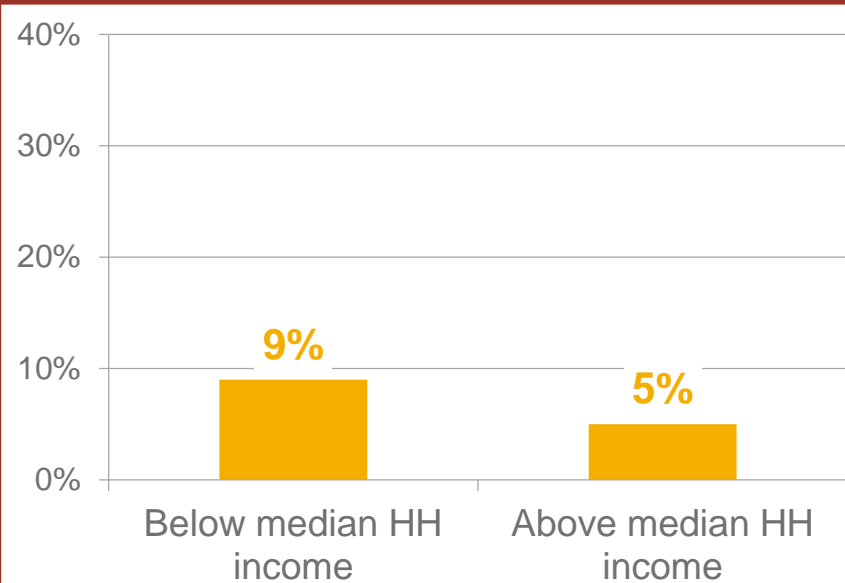
# Device choice on Community Life: Respondents from the most deprived areas more likely to use a smartphone

Community Life (2016/2017)  
*Indices of Multiple Deprivation (deciles)*

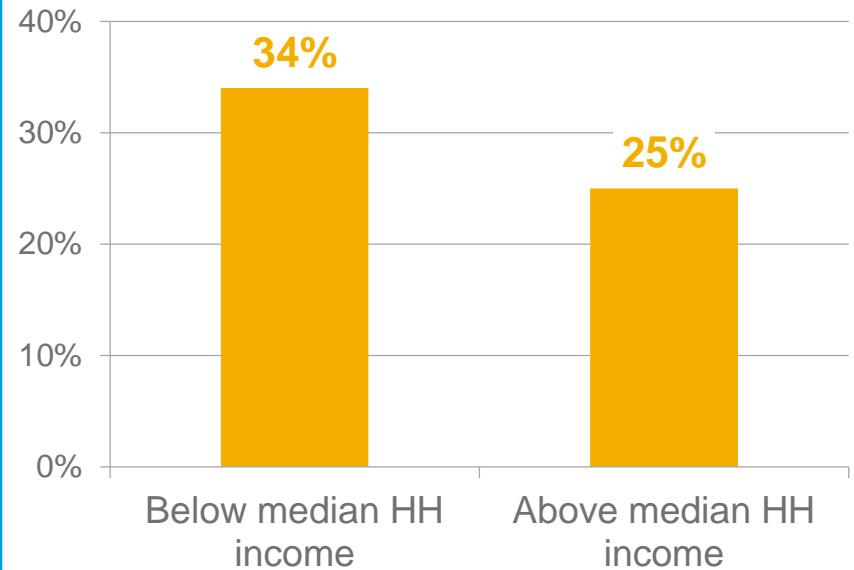


# Device choice: Respondents from below median households more likely to use a smartphone

## Community Life (2016/2017)



## Longitudinal study of young people in England (LSYPE2)



■ % online respondents completing by smartphone

# Data quality indicators

## Missing data

---

**Break-off rates**

## Response options

---

**Straight-lining**

## Survey length

---

**Completion time**

**Item non-response**

**Primacy effects**

## Social desirability bias

---

**Risky behaviours  
(LSYPE2 only)**

**Consent to re-contact  
/ data linkage**

**Agreement rates  
(Likert scales)**

## Data accuracy

---

**Validation against  
administrative data  
(LSYPE2 only)**

# Data quality indicators

## Missing data

---

Break-off rates

## Response options

---

Straight-lining

## Survey length

---

Completion time

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## Social desirability bias

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Risky behaviours  
(LSYPE2 only)

Consent to re-contact  
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Agreement rates  
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## Data accuracy

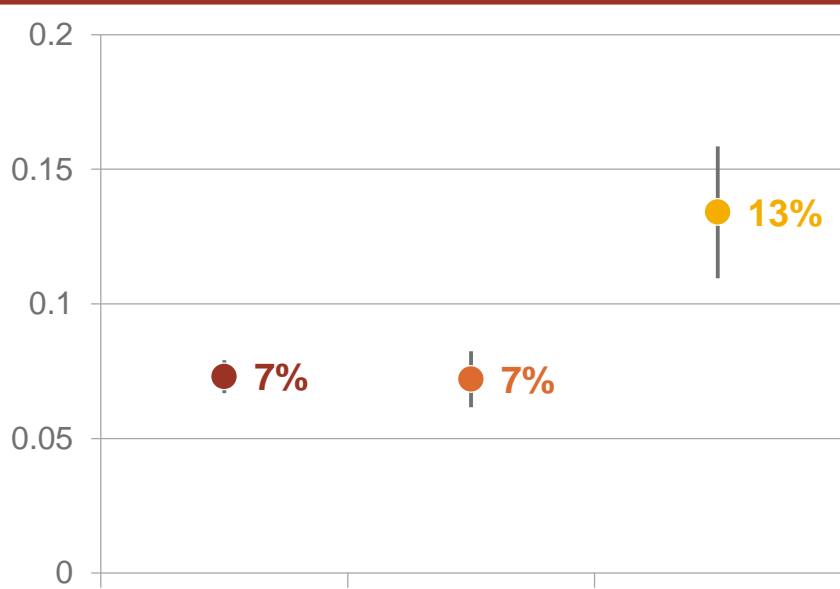
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Validation against  
administrative data  
(LSYPE2 only)

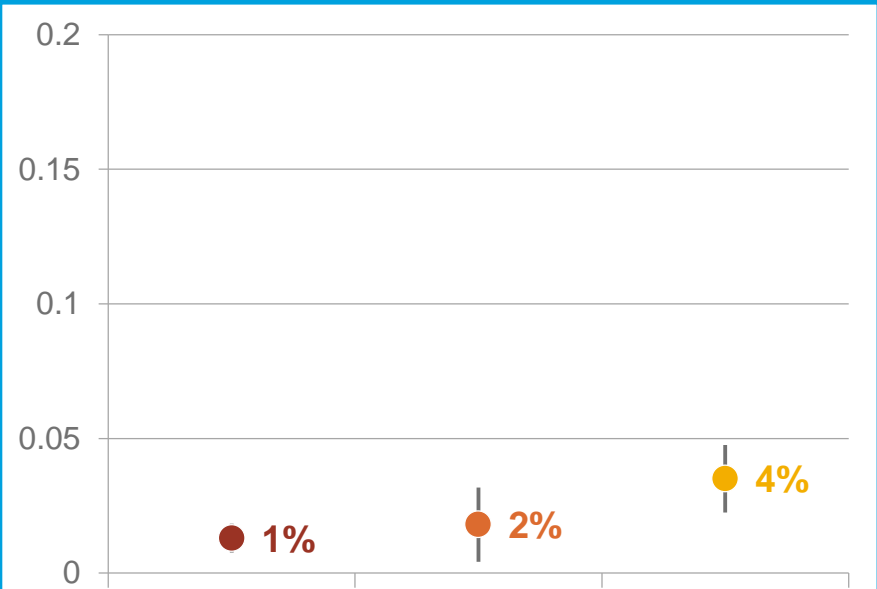


# Drop-out rates: Respondents using a smartphone were less likely to finish the surveys

## Community Life (2016/2017)



## Longitudinal study of young people in England (LSYPE2)

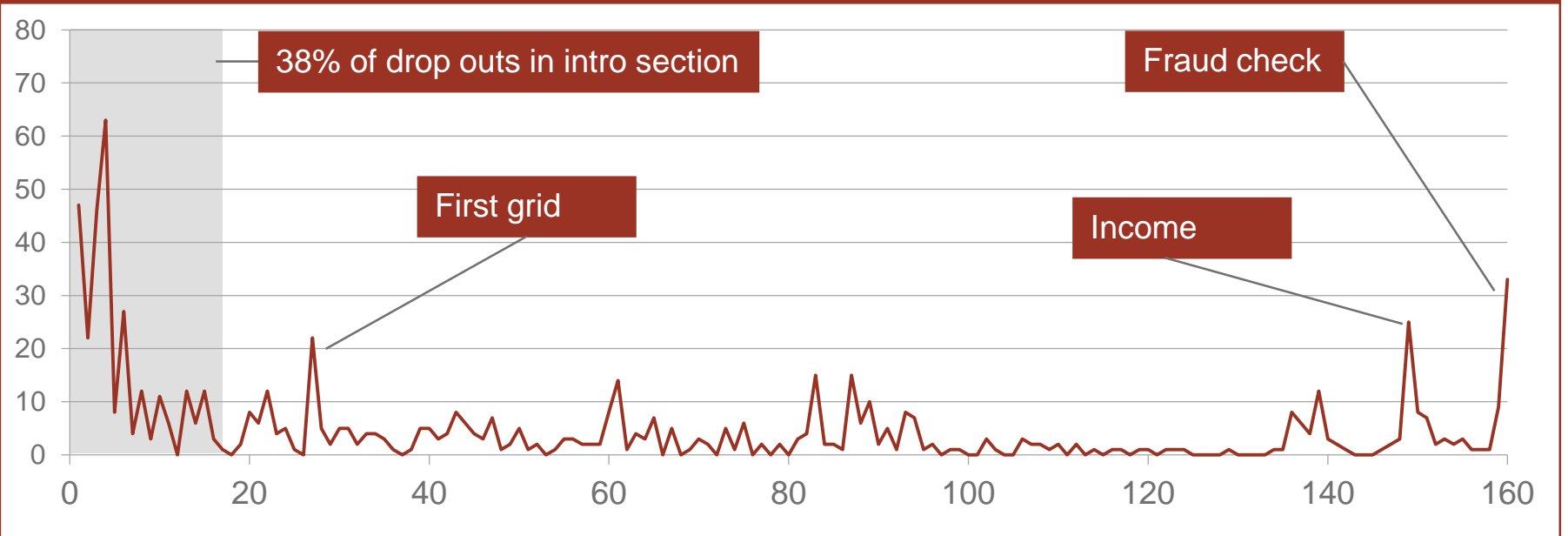


■ PC/laptop ■ Tablet ■ Smartphone

# Community Life: Where do respondents drop out?

## Community Life (2016/2017)

All devices



# Data quality indicators

## Missing data

---

**Break-off rates**

Item non-response

Consent to re-contact  
/ data linkage

## Response options

---

Straight-lining

Primacy effects

Agreement rates  
(Likert scales)

## Survey length

---

**Completion time**

## Social desirability bias

---

**Risky behaviours  
(LSYPE2 only)**

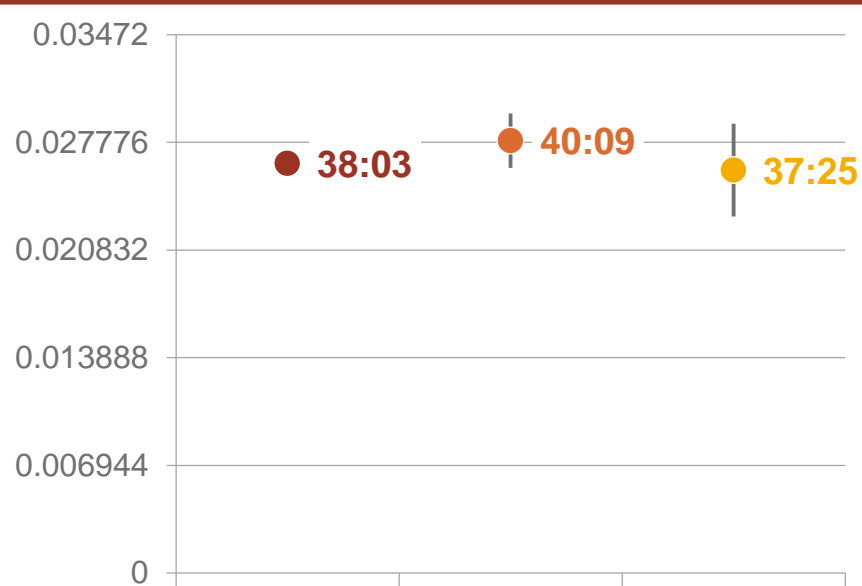
## Data accuracy

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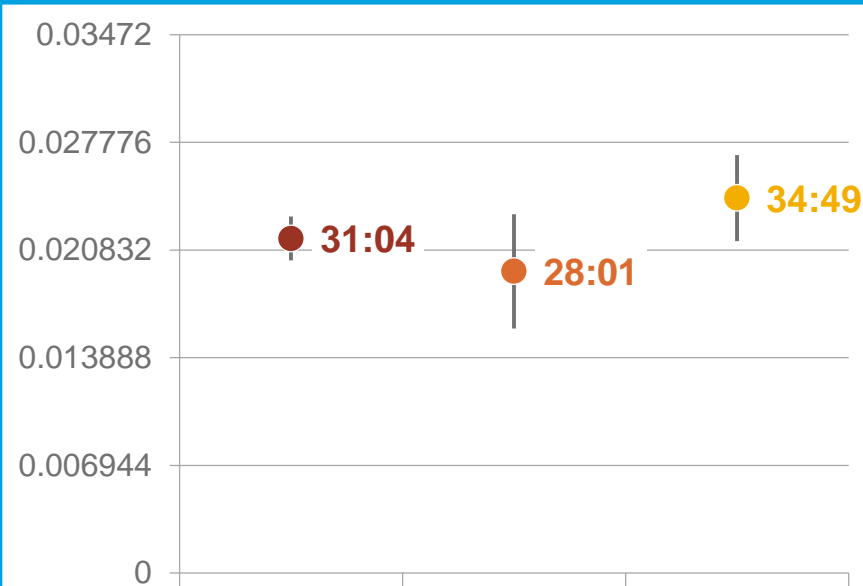
**Validation against  
administrative data  
(LSYPE2 only)**

# Survey length: Smartphone respondents did not take longer to complete the Community Life survey

## Community Life



## Longitudinal study of young people in England (LSYPE2)



■ PC/laptop ■ Tablet ■ Smartphone

# Risky behaviours: Difference in self-reported risky behaviours not a device effect

## Longitudinal study of young people in England (LSYPE2)

**Smoking**

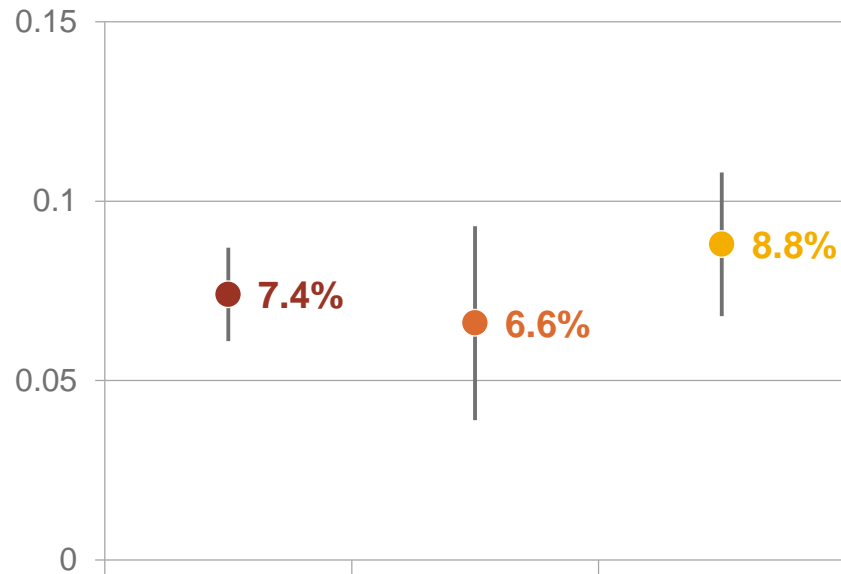
**Drinking alcohol**

**Using cannabis**

- Smartphone respondents were more likely to say they had done these
- However, the same respondents were also more likely to say they had done these at earlier waves, when all data was collected face-to-face

# Data validation: Accuracy of self-reported educational attainment similar across devices

## Longitudinal study of young people in England (LSYPE2)



- Respondents asked how many GCSEs they had achieved at grades A\*-C
- From linked administrative data, we could identify the respondents who achieved at least 5 GCSEs at A\*-C

■ PC/laptop ■ Tablet ■ Smartphone

# Where are there data quality concerns?

How can we minimise drop-out rates?

How can we get more information at open-ended questions?

What explains differences in survey length, and does this matter?

# **'Mobile First' design and optimisation**



# Optimisation for mobile/smartphone

Often hear of survey software being 'mobile optimised' or 'mobile first'

'Mobile First': designing first and foremost for smaller screens

**“But what about the questions we already have?**

**How do we continue to ask those?”**

Different levels of optimisation:

1. Resizing questions to fit smaller screens
2. Reduce question(naire) length or suit a range of devices / context of use
3. Adapting question formats to better suit smaller screens

# 'Mobile First' template

Have you used the Internet, at home or elsewhere, in the last 12 months?

Yes	<input checked="" type="checkbox"/>
No	<input type="checkbox"/>

>

☰

Which of the following types of domestic fuel do you have in your accommodation? Please select all that apply. ⓘ

Electricity
Gas, including Calor Gas
Oil
Other fuel, including solid fuel
Or none of these
Don't know
Don't want to answer

< >


# **Adapting problematic question formats for smartphone: Grids**

# Traditional grids

Different things can be important when deciding what type of occupation you want to follow. Please can you tell us how important each of the following aspects are for you. When thinking about an occupation, how important is...

	Very important	Important	Not important	Not at all important
Future job security?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a job with a high income?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Finding an occupation that leaves you with a lot of time for leisure?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation which interests you?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation which makes a contribution to society?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation which leaves you with enough time for family life?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation in which you can help others?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Navigation icons: back, home, forward



Different things can be important when deciding what type of occupation you want to follow. Please can you tell us how important each of the following aspects are for you. When thinking about an occupation, how important is...

	Very important	Important	Not important	Not at all important
Future job security?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a job with a high income?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation that leaves you with a lot of time for leisure?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation which interests you?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Finding an occupation which leaves you with enough time for family life?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finding an occupation in which you can help others?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Navigation icons: back, forward, share, book, print

# Kantar Public experiments on grids

Two experiments conducted to compare traditional grids with alternative formats

1. Online access panel: compared traditional grids with three alternatives:
  - a. item-by-item paging
  - b. item-by-item scrolling
  - c. and **dynamic grids**
2. Understanding Society Innovation Panel (IP10): compared traditional grids with dynamic grids

## Traditional grid

Test - v1

How often do you...  
Please pick one option only for statement

	Never	Once or twice a year	More frequently than that	Don't know
Go to the cinema, theatre, concerts or other performances	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Go to exhibitions, libraries or other cultural or historical sites	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
		Once or twice a year	More frequently than that	Don't know
Attend a live sporting event	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Eat or drink out at a restaurant	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

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## Dynamic grid

Test - v1

How often do you...  
Please pick one option only for statement


Go to the cinema, theatre, concerts or other performances

Never

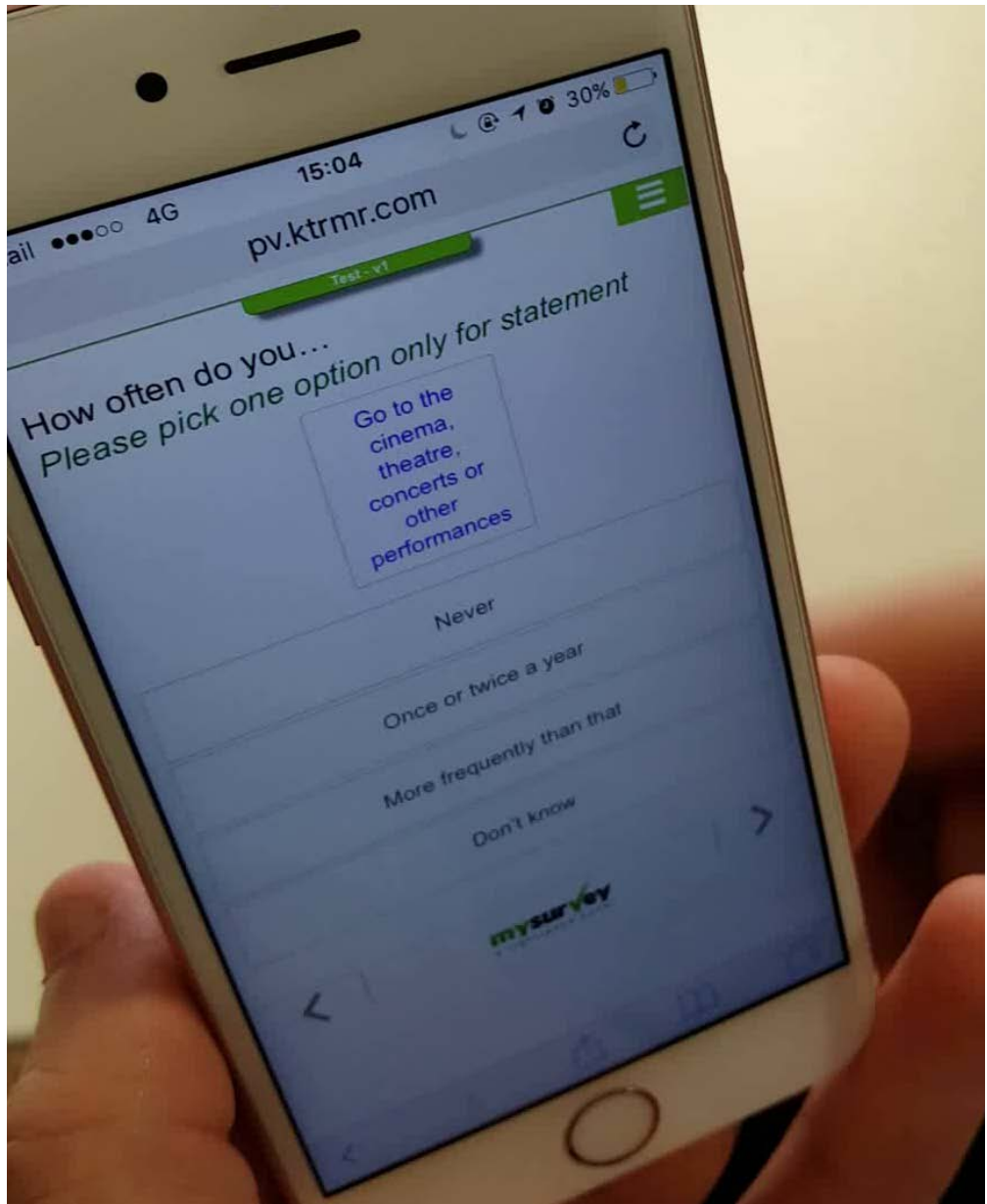
Once or twice a year

More frequently than that

Don't know

< |  | >  
a lightspeed panel

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# Experiment results

Broadly similar substantive responses across grid formats in both experiments

Three small differences relating to data quality on traditional grids:

1. Higher proportion selected first response option
2. Don't know and Refused rates higher
3. Flatlining slightly higher

Results further support the argument for alternatives to traditional grids

Dynamic grids, 'newest' format, was the best alternative design



# Dynamic grids

Different things can be important when deciding what type of occupation you want to follow. Please can you tell us how important each of the following aspects are for you. When thinking about an occupation, how important is....

**Future job security?**

Very important
Important
Not important
Not at all important
Don't know
Don't want to answer

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☰

Different things can be important when deciding what type of occupation you want to follow. Please can you tell us how important each of the following aspects are for you. When thinking about an occupation, how important is....

**Future job security?**

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Important
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Don't know
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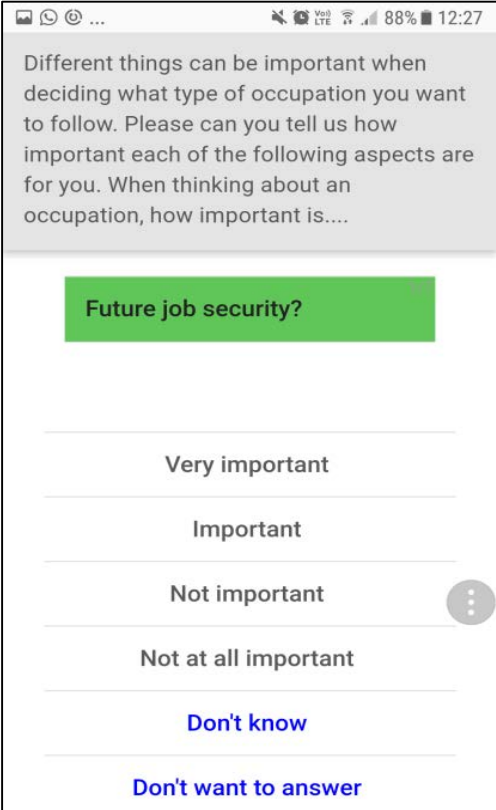
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# Issues with dynamic grids

Lack of context

Difficulty amending answers

Navigation error



Different things can be important when deciding what type of occupation you want to follow. Please can you tell us how important each of the following aspects are for you. When thinking about an occupation, how important is....

**Future job security?**

Very important

Important

Not important



Not at all important



Don't know


Don't want to answer


# Matrix grids

During the **past 4 weeks**, how much of the time have you had any of the following problems with your work or other regular daily activities **as a result of your physical health?**


Accomplished less than you would like <span>1/2</span> 				
All of the time	Most of the time	Some of the time	A little of the time	None of the time
Were limited in the kind of work or other activities <span>2/2</span> 				





During the **past 4 weeks**, how much of the time have you had any of the following problems with your work or other regular daily activities **as a result of your physical health?**


Accomplished less than you would like 1/2 


All of the time

Most of the time

Some of the time

A little of the time

None of the time 

Were limited in the kind of work or other activities 2/2 

# Matrix grids: partially completed

During the **past 4 weeks**, how much of the time have you had any of the following problems with your work or other regular daily activities **as a result of your physical health?**

Accomplished less than you would like	1/2			
Were limited in the kind of work or other activities	2/2			
All of the time	Most of the time	Some of the time	A little of the time	None of the time

Understanding Society

During the **past 4 weeks**, how much of the time have you had any of the following problems with your work or other regular daily activities **as a result of your physical health?**

Accomplished less than you would like	1/2			
Were limited in the kind of work or other activities	2/2			
All of the time	Most of the time	Some of the time	A little of the time	None of the time

# Grids – Summary and recommendations

- We need to explore alternatives to traditional grids for smaller screen devices
- Of the alternatives initially investigated dynamic grids were the ‘best’ design
- Dynamic grids easier to view on a smaller screen but three main issues:
  - a. Lack of context
  - b. Difficulty amending answers
  - c. Navigation error (‘one click’ design)
- Matrix grids alleviated these issues and were consistently effective across device

## Recommendations:

- Based on usability testing, matrix grids are a successful alternative to traditional grids
- Carry out more experimental large scale research into matrix grid design

## Conclusions and next steps

# Completing social surveys on smartphones: what should we be worried about? And where do we go next?

- Work to date is encouraging - little evidence of lower data quality on smartphones; initial UK analysis supports international evidence
- But still areas for further work:

Avoid complexity in question design; 'less is more'

Explore alternative formats for problematic question types

Keep testing for usability and capture the user experience

Analyse data quality across other UK surveys

How can we explore reasons for break-off on smartphone and discourage this?

Does including smartphones increase participation of under-represented groups?

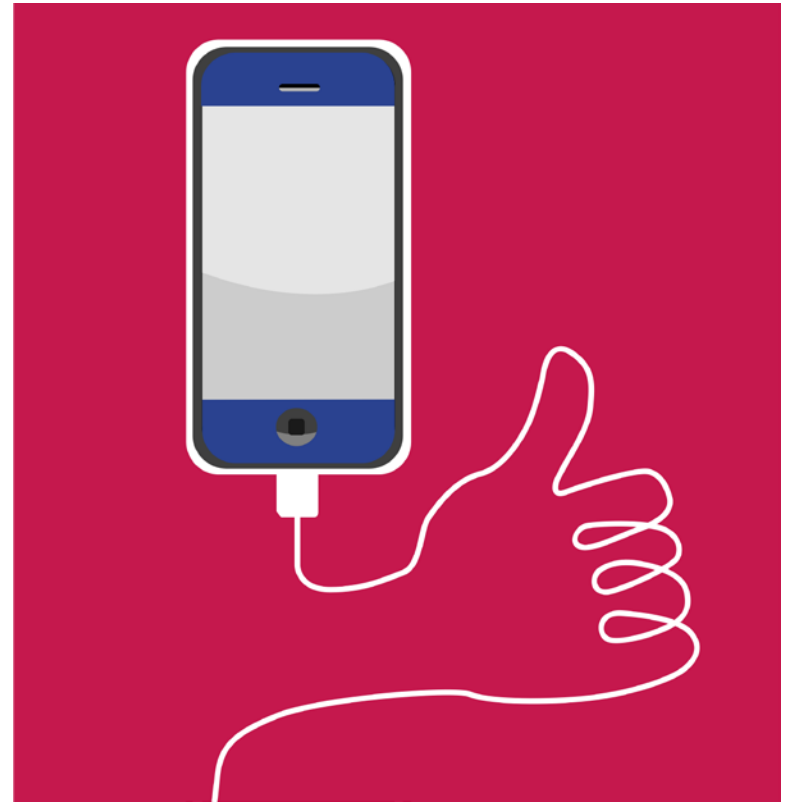
# Thank you!

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*alice.mcgee@kantarpublic.com*





# Acknowledgements

Institute for Social and Economic Research (Understanding Society)

Department for Education (Longitudinal Study of Young People in England)

Department for Digital, Culture, Media and Sport (Community Life)

NatCen

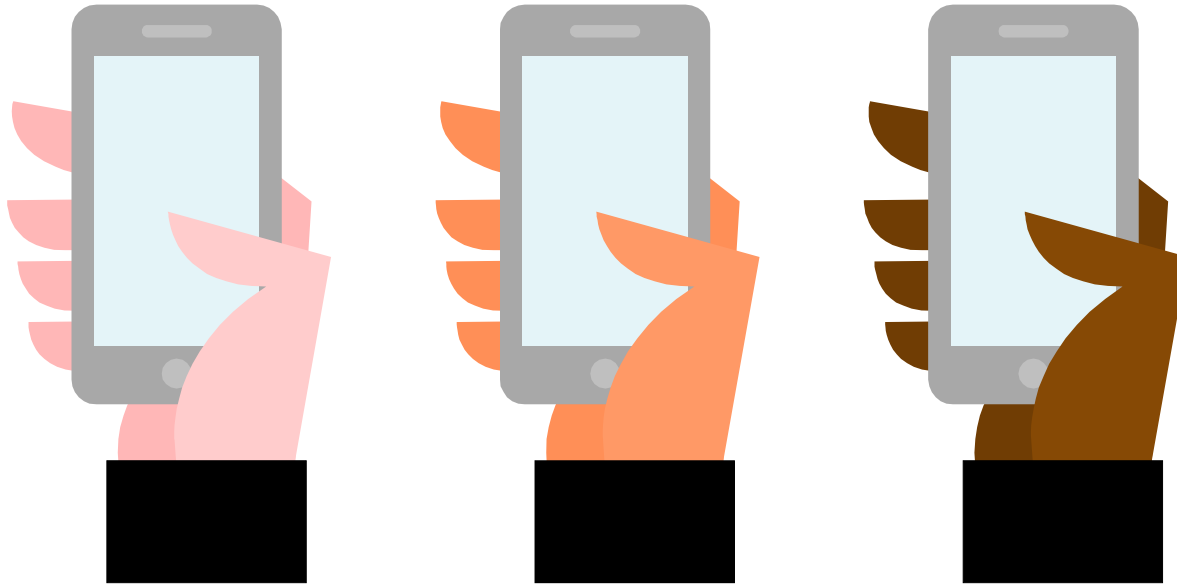
Ipsos MORI

Ofcom

Mick Couper

Our usability testing respondents

**KANTAR PUBLIC**=



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*24 May 2018*