What role can surveys play in behavioural science?

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LSE Executive MSc Behavioural Science

About Me

- Assistant Professor at London School of Economics since 2015
- Postdoc at Aarhus University 2012–2015
- PhD in Political Science from Northwestern University (2012)
- Interested in:
  - Political psychology
  - Survey–experimental methods
  - Reproducible computational social science

Premise

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- Surveys are obviously useful for studying *characteristics*, *beliefs*, and *attitudes*
- Surveys are not often seen as useful for studying *behaviour*

Goals for today

By the end of today you should be able to:

1. Describe the relationship between (and distinction between) attitudes and behaviours
2. Identify the limitations of survey measures of past behaviours and behavioural intentions
3. Evaluate possible strategies for improving behavioural self-reporting
4. Apply direct, survey-based measures of behaviour to your own work

Definitions

- Attitude: "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" [1]

- Behavior: "The actions by which an organism adjusts to its environment." (APA)

[1] Eagly and Chaiken, 1998, "Attitude Structure and Function." *Handbook of Social Psychology*, p.269.

How many of you feel that it is important for citizens to vote?

How many of you feel that it is important for citizens to vote? How many of you voted in

the *most recent local election* in which you were eligible to cast a ballot?

What are some behaviours that practising behavioural scientists might care about? (Think about any domain or context.)

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- Care about attitudes per se, e.g.:
  - To represent public opinions in policymaking
  - To assess sentiment or satisfaction
  - To try to change those views
- Care about attitudes because they induce *behaviour*
- Attitudes are relatively easy to measure on questionnaire/survey methods

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- Behaviours are (often) public
- Behaviours are (often) politically, economically, and socially consequential
- Behaviours go beyond "cheap talk"
  - Greater construct validity
  - More reliable/stable
  - etc.

From attitudes to behaviours?

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  - Attitudes interact with both subjective norms and "perceived behavioural control"

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- *Theory of Planned Behavior* (Ajzen)
  - Attitudes interact with both subjective norms and "perceived behavioural control"
- *MODE* (Fazio)
  - Adds a motivation and opportunity "dual process" framework to attitude–behaviour linkages

From attitudes to behaviours?

- Basically, there are many reasons why attitudes do not correlate very highly with behaviours
- People may also have attitudes toward the behaviours themselves (e.g., wanting to act on attitude but disfavouring a given action)
- Attitude strength is possibly critical (but conceptually murky)

Some Common Wisdom

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Therefore, surveys are a poor instrument for measuring and studying behaviours!

Concern 1: Self-reports are not behaviours

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- These are obviously not behaviours but reports of behaviours.
- Questionnaires can, however, measure *behavioural intentions* and *self-reported past behaviour*

Concern 2: Behavioural intentions are poor predictors of behaviour

- All three models of attitude–behaviour linkage suggest the effect of attitudes on behaviours is conditional
  - TRA: Depends on subjective norms
  - TPB: Also depends on behavioural control
  - MODE: Also depends on motivation and opportunity

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- Behavioural intention questions do not effectively measure future behaviour
- Questionnaires can measure *past behaviour*

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- Many different, imperfect operationalizations:
  - "Have you ever. . . ?"
  - "When was the last time. . . ?"
  - "How many times in the past <PERIOD> have you. . . ?"
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  - "How many times in the past <PERIOD> have you. . . ?"
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- Numerous issues emerge here!

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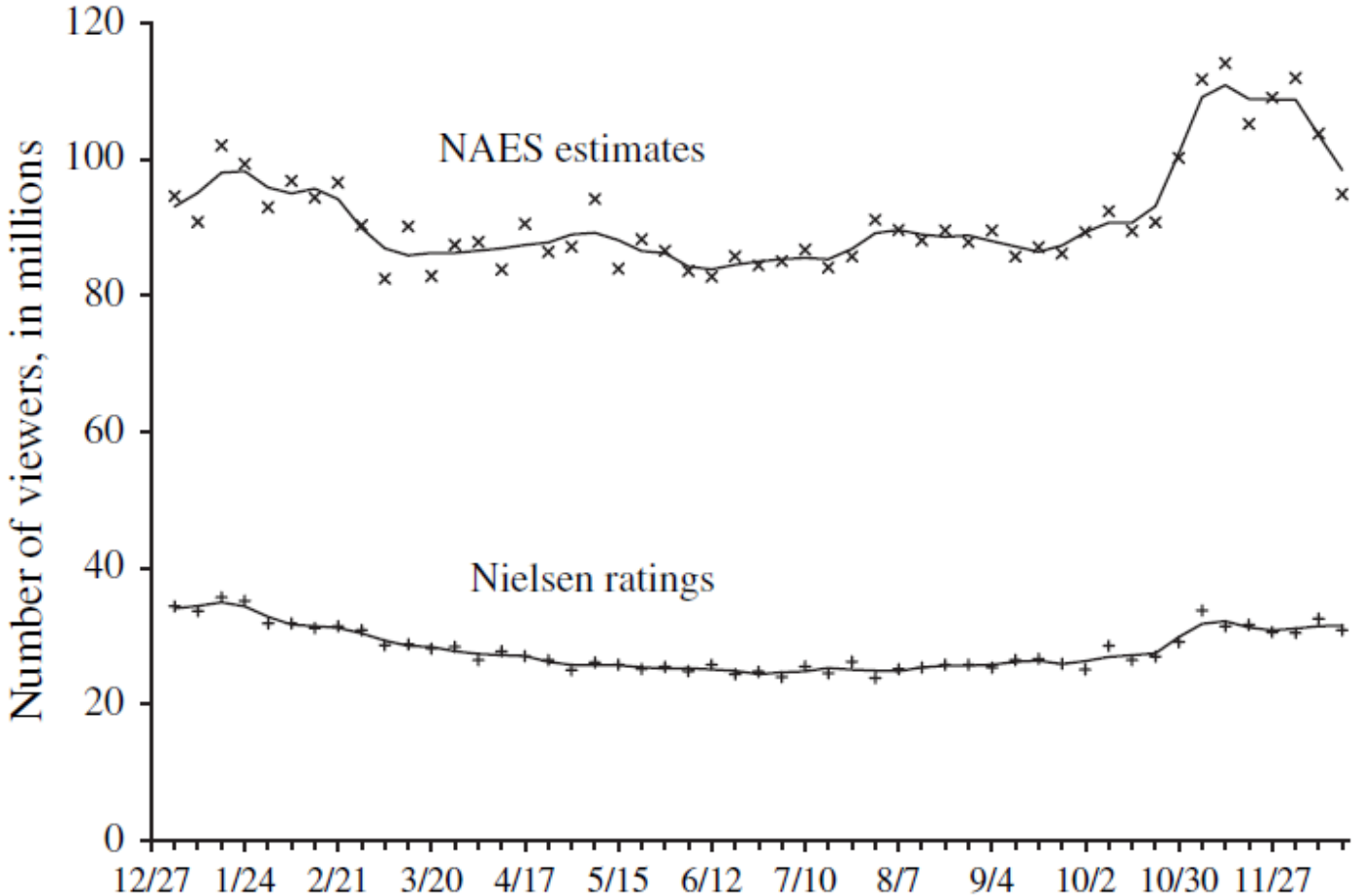
- Recall failure and false memories
- Reference period ambiguity and lags
- Recency and primacy biases
- Social desirability biases
- Construct invalidity

Example: Prior (2009)[2]



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- Prior argues that recall of hours television watched and specific programmes watched is too cognitively challenging

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Example: Prior (2009)[2]

- Prior argues that recall of hours television watched and specific programmes watched is too cognitively challenging
- Suggests using population benchmarks to provide "anchoring"

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Example: Holbrook & Krosnick (2016)[3]

- People massively overreport voting in elections

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Example: Holbrook & Krosnick (2016)[3]

- People massively overreport voting in elections
- Past experiments show that giving respondents excuses for why others may not have voted lower reported turnout but not fully
- Their design does two things:
  - Measures self-reported past intention
  - Primes respondents with those excuses and asks for how those excuses might have led them to deviate from their intentions

[3] Holbrook & Krosnick. 2013. "A New Question Sequence to Measure Voter Turnout in Telephone Surveys." *Public Opinion Quarterly* 77: 106–23. doi:10.1093/poq/nfs061

Some provisional conclusions

1. It is hard to write construct valid measures of past behaviour
2. Behavioural intentions are poorly predictive of future behaviour
3. So, behavioural self-reports are very problematic!

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1. It is hard to write construct valid measures of past behaviour
2. Behavioural intentions are poorly predictive of future behaviour
3. So, behavioural self-reports are very problematic!
4. Thesis: focus on behaviours that can be measured within a survey context!

Abandon behavioural self-reports?

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Sometimes we have no choice but to rely on a self-reported measure of past behaviour or future behavioural intentions!

Improving Self-Reports

[4] Delavande and Manski. 2010. "Probabilistic Polling and Voting in the 2008 Presidential Election." *Public Opinion Quarterly* 74(3): 433–59.

Improving Self-Reports

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Improving Self-Reports

- Use unambiguous, short, and recent reference periods
- Provide population benchmarks
- Excuse socially undesirable behaviour
- Use alternative survey modes to avoid social desirability
- Try probabilistic measures of intention[4]
- Validate self-reports against actual behaviour where possible

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2. Behavioural measures that operationalize attitudes
3. Behavioural measures that operationalize behaviours

Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

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Why?

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What?

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What?

- Nonresponse

Behavioural Measures for Paradata

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- Eye tracking
- Mouse tracking
- Smartphone metadata

Behavioural Measures for Attitudes

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- Implicit Association Test

Behavioural Measures for Attitudes

Why?

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- Incentivized Survey questions

Behavioural Measures for Behaviour

Why?

- We want to observe or affect behaviour (e.g., in an experiment)

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- We want to observe or affect behaviour (e.g., in an experiment)

What?

- Directly measure or initiate a direct measure of a behaviour
- May be measured by something that occurs within the confines of the survey or something outside of the survey

Example 1: Active Information Choice

[5] Guess, AM. 2015. "Measure for Measure." *Political Analysis* 23: 59–75. doi:10.1093/pan/mpu010

[6] Leeper, TJ. 2014. "The Informational Basis for Mass Polarization." *Public Opinion Quarterly* 78(1): 27–46. doi:10.1093/poq/nft045

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Remember, please check **ALL** rows containing any links shown in **PURPLE**. Leave all other rows unchecked.

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Reports From the Hive, Where the Swarm Concurs	Doctors Can Work Together to Improve Patient Health, But Need Appropriate Incentives	SEC Vote Requires Business Filings to Add Environmental Risks to Bottom Line	Wellness, Rather Than Illness, Is Focus Under Outcome-Accountable Care
Pay for Performance Improves Quality of Health Care Through Collaborative Medicine	Patients Better Served When Providers Paid for Health Outcomes	Anatomy of a Tear-Jerker	Gender Differences in Education Need Innovative Solution
Why are 3-D Movies so Bad?	Improving America's Health Requires Provider Incentives, Not 'Fee-for-Service'	Spammers Use the Human Touch to Avoid CAPTCHA	Heart Attack While Dining at Heart Attack Grill in Las Vegas
Physicians Group Says Quality Will Improve Under Outcome-based Payments	When Paid for Outcomes, Doctors Have Little Reason to Treat Highest Risk Patients	USDA Raises Corn Export Outlook	Out of the O.R., T.R. Knight Back Onto the Stage
Council Is Set to Consider Increases in Hotel and Property Taxes	A Bowl of Chili with Bragging Rights	Will a Standardized System for Verifying Web Identity Ever Catch On?	Paying Doctors Based on Outcomes Will Lead to Rationing

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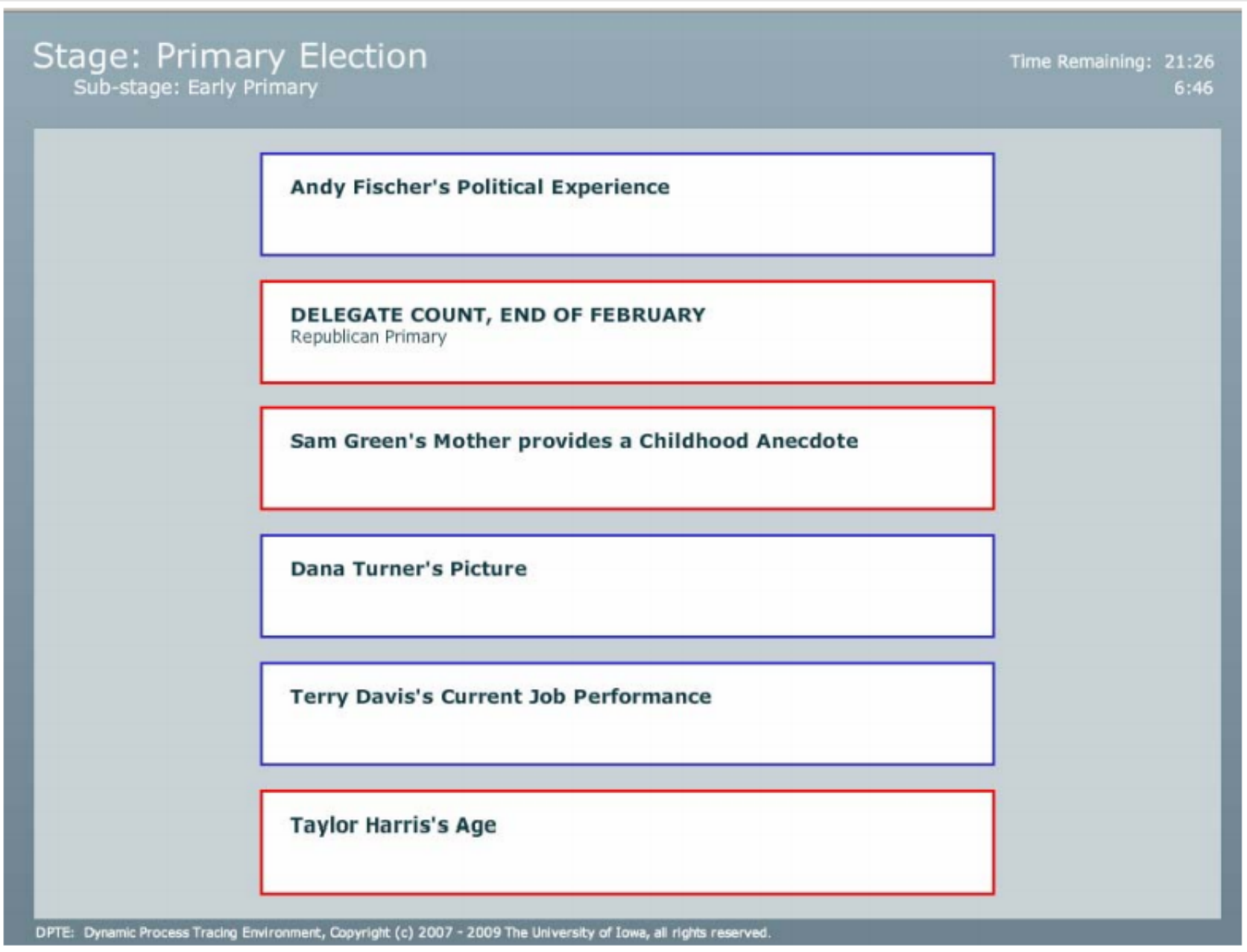
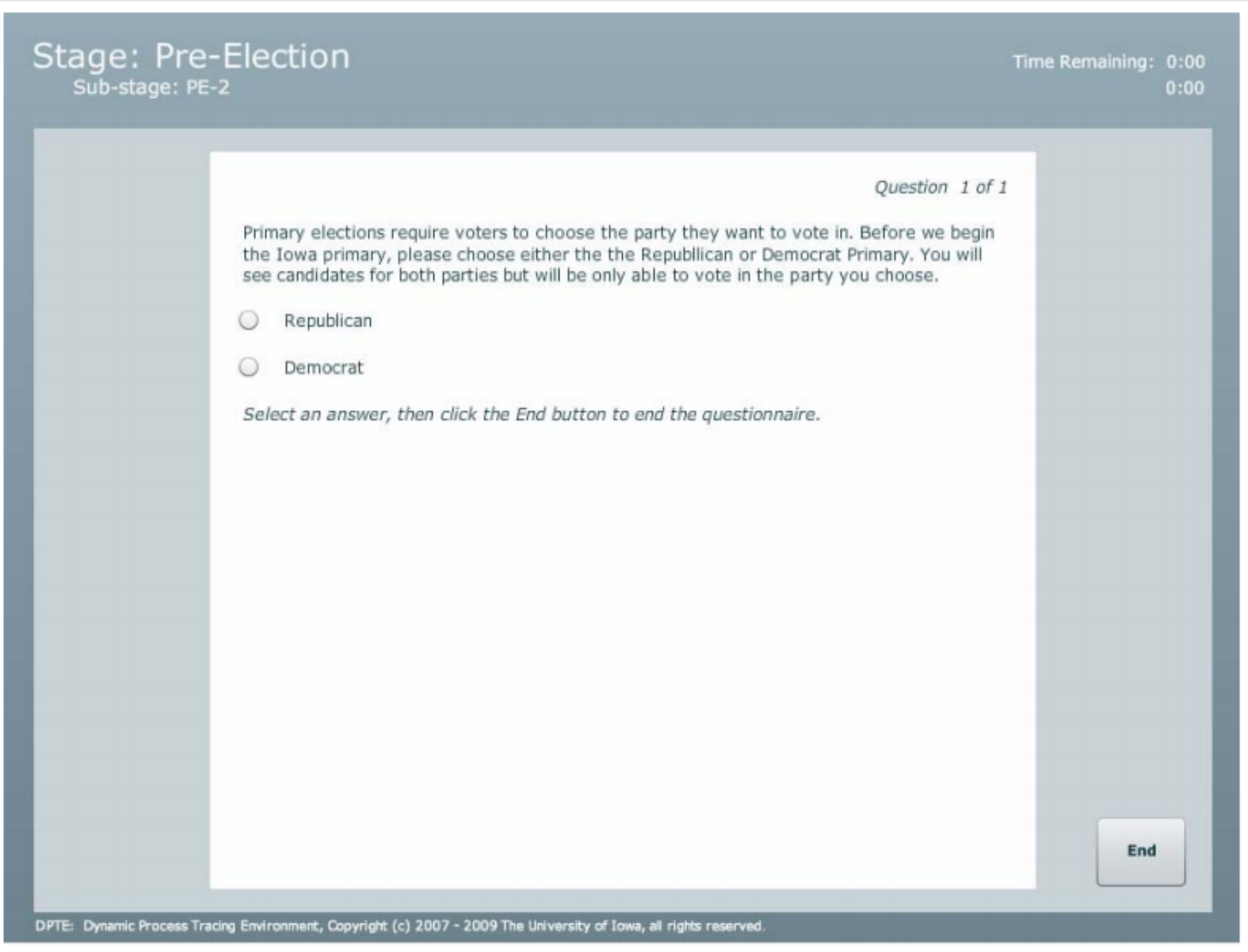

Stage: Primary Election
Sub-stage: Early Primary
Time Remaining: 21:26
6:46
Andy Fischer's Political Experience
DELEGATE COUNT, END OF FEBRUARY
Republican Primary
Sam Green's Mother provides a Childhood Anecdote
Dana Turner's Picture
Terry Davis's Current Job Performance
Taylor Harris's Age
DPTE: Dynamic Process Tracing Environment, Copyright (c) 2007 - 2009 The University of Iowa, all rights reserved.


Iowa General Election
January, 2008
Time remaining: 5:23
Hillary Clinton wins in South Dakota!
0:00 / 0:06
DPTE: Dynamic Process Tracing Environment, Copyright (c) 2007 - 2008 The University of Iowa, all rights reserved.


Stage: Pre-Election
Sub-stage: PE-2
Time Remaining: 0:00
0:00
Question 1 of 1
Primary elections require voters to choose the party they want to vote in. Before we begin the Iowa primary, please choose either the the Republlican or Democrat Primary. You will see candidates for both parties but will be only able to vote in the party you choose.
Republican
Democrat
Select an answer, then click the End button to end the questionnaire.
End
DPTE: Dynamic Process Tracing Environment, Copyright (c) 2007 - 2009 The University of Iowa, all rights reserved.

Example 2: Sign-up/Enrolment

An extension of information choice behaviour would be explicit engagement in other kinds of (small) behaviours, such as:

- Entering an email address to receive information or join a mailing list [9] [10]
- Signing up for an appointment or further interaction

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[9] Leeper, TJ. 2017. "How Does Treatment Self-Selection Affect Inferences About Political Communication?" *Journal of Experimental Political Science*: In press.

[10] Bolsen, Druckman, & Cook. 2014. "Communication and Collective Actions." *Journal of Experimental Political Science* 1(1): 24–38. doi:10.1017/xps.2014.2

Example 3: Incentivised Survey Questions

Definitions:

- A survey question is just a self-report
- An *incentivized* survey question attached financial gains or losses to the answer options

Mark your gamble selection with an **X** in the last column across from your preferred gamble.

Gamble	Event	Payoff	Probabilities	Your Selection
1	A	$10	50%	
	B	$10	50%	
2	A	$18	50%	
	B	$6	50%	
3	A	$26	50%	
	B	$2	50%	
4	A	$34	50%	
	B	-$2	50%	
5	A	$42	50%	
	B	-$6	50%	

Eckel & Grossman. 2008 "Forecasting risk attitudes." *Journal of Economic Behavior & Organization* 68(1): 1–17. doi:10.1016/j.jebo.2008.04.006

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Paradigm could be applied to any measure of behavioural intentions to avoid cheap talk.

Example 4: Purchasing Decisions

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Example 4: Purchasing Decisions

Common ways to study purchasing behaviour include:

- Direct attitudinal questions
- Retrospective and prospective self-reports
- Conjoint experiments

Please read the descriptions of the potential immigrants carefully. Then, please indicate which of the two immigrants you would personally prefer to see admitted to the United States.

	Immigrant 1	Immigrant 2
Prior Trips to the U.S.	Entered the U.S. once before on a tourist visa	Entered the U.S. once before on a tourist visa
Reason for Application	Reunite with family members already in U.S.	Reunite with family members already in U.S.
Country of Origin	Mexico	Iraq
Language Skills	During admission interview, this applicant spoke fluent English	During admission interview, this applicant spoke fluent English
Profession	Child care provider	Teacher
Job Experience	One to two years of job training and experience	Three to five years of job training and experience
Employment Plans	Does not have a contract with a U.S. employer but has done job interviews	Will look for work after arriving in the U.S.
Education Level	Equivalent to completing two years of college in the U.S.	Equivalent to completing a college degree in the U.S.
Gender	Female	Male

	Immigrant 1	Immigrant 2
If you had to choose between them, which of these two immigrants should be given priority to come to the United States to live?	○	○

On a scale from 1 to 7, where 1 indicates that the United States should absolutely not admit the immigrant and 7 indicates that the United States should definitely admit the immigrant, how would you rate immigrant 1?

Absolutely Not Admit 1	2	3	4	5	6	Definitely Admit 7
○	○	○	○	○	○	○

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Another way is embedding a purchase in a survey.[11]

[11] Bolsen, T. 2011. "A Lightbulb Goes On." *Political Behavior* 35(1): 1–20. 10.1007/s11109-011-9186-5

Source: Wikimedia Commons (Sun Ladder, KMJ)

Example 5: Donations

- Miller and Krosnick[11] asked for charitable donations via cheque directly as part of a paper-and-pencil survey

[11] Miller, Krosnick, & Lowe. N.d. "The Impact of Policy Change Threat on Financial Contributions to Interest Groups." Working paper.

[12] Klar & Piston. 2015. "The influence of competing organisational appeals on individual donations." *Journal of Public Policy* 35(2): 171–91. doi:10.1017/S0143814X15000203

Example 5: Donations

- Miller and Krosnick[11] asked for charitable donations via cheque directly as part of a paper-and-pencil survey
- Klar and Piston[12] offered respondents a survey incentive up-front for participation and then later offered them a chance to donate (a portion of payment) to a charity

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[11] Miller, Krosnick, & Lowe. N.d. "The Impact of Policy Change Threat on Financial Contributions to Interest Groups." Working paper.

[12] Klar & Piston. 2015. "The influence of competing organisational appeals on individual donations." *Journal of Public Policy* 35(2): 171–91. doi:10.1017/S0143814X15000203

Example 6: Web Tracking Data

1. Active installation of a tracking app, such as YouGov Pulse[13] [14]
2. Post-hoc collection of web history files using something like Web Historian [15]

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[13] https://yougov.co.uk/find-solutions/profiles/pulse/

[14] Guess, AM. N.d. "Media Choice and Moderation." Working paper, https://dl.dropboxusercontent.com/u/663930/GuessJMP.pdf.

[15] http://www.webhistorian.org/

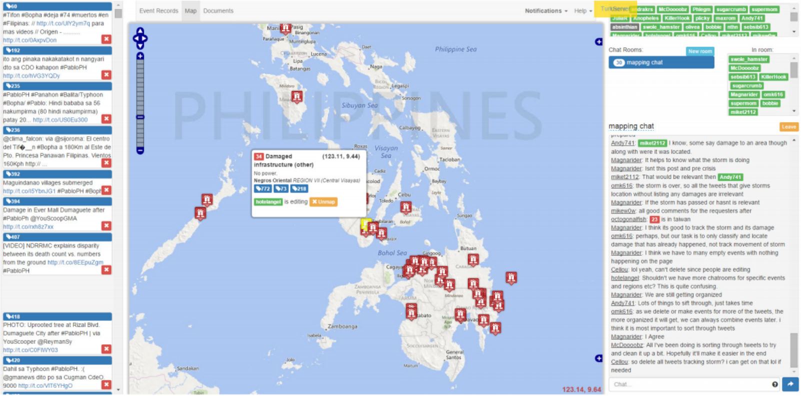
Other Possibilities

[16] Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

Other Possibilities

- Coordination tasks
  - Synchronous group tasks[16]
  - Game play
  - Simulations

[16] Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048


Event Records
Map
Documents
Notifications
Help
PHILIPPINES
Philippine Sea
Sibuyan Sea
Visayan Sea
Bohol Sea
Zamboanga
Sandakan
Damaged infrastructure (other)
(123.11, 9.44)
No power.
Negros Oriental REGION VII (Central Visayas)
hotelangel is editing
Unmap
123.14, 9.64
Chat Rooms:
New room
In room:
mapping chat
Leave
Andy741: I know, some say damage to an area though along with were it was located.
Magnarider: It helps to know what the storm is doing
Magnarider: Isnt this post and pre crisis
miket2112: That would be relevant then
omk616: the storm is over, so all the tweets that give storms location without listing any damages are irrelevant
Magnarider: If the storm has passed or hasnt is relevant
mikew0w: all good comments for the requesters after
octogonalfish: is in taiwan
Magnarider: I think its good to track the storm and its damage
omk616: perhaps, but our task is to only classify and locate damage that has already happened, not track movement of storm
Magnarider: I think we have to many empty events with nothing happening on the page
Cellou: lol yeah, can't delete since people are editing
hotelangel: Shouldn't we have more chatrooms for specific events and regions etc? This is quite confusing.
Magnarider: We are still getting organized
Andy741: Lots of things to sift through, just takes time
omk616: as we delete or make events for more of the tweets, the more organized it will get, we can always combine events later. i think it is most important to sort through tweets
Magnarider: I Agree
McDoooobz: All I've been doing is sorting through tweets to try and clean it up a bit. Hopefully it'll make it easier in the end
Cellou: so delete all tweets tracking storm? i can get on that lol if needed
Chat...

Other Possibilities

- Coordination tasks
  - Synchronous group tasks[16]
  - Game play
  - Simulations

[16] Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

Other Possibilities

- Coordination tasks
  - Synchronous group tasks[16]
  - Game play
  - Simulations
- Offering incentives to perform future behaviour (tracked elsewhere)

[16] Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

Other Possibilities

- Coordination tasks
  - Synchronous group tasks[16]
  - Game play
  - Simulations
- Offering incentives to perform future behaviour (tracked elsewhere)
- OAuth/API integrations w/ other platforms
  - Merging website usage data w/ survey data
  - Treating website sign-up or usage as behavioural outcomes
  - Linking with smartphone metadata

[16] Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

With a partner, brainstorm how one or more these behavioural measures might be applied to a survey data collection relevant to your own work or your organisation.

Some principles for survey measures of behaviour

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4. Validate, validate, validate!

To Sum Up...

- Surveys are well-designed to measure current characteristics, beliefs, and attitudes
- Self-report measures have many problems
- Surveys can incorporate direct measures of respondent behaviour
- We're still experimenting, so more research is needed on validity of such measures

Thanks!

I will be around for questions.
Don't hesitate to be in touch later on:

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Twitter: @thosjleeper