Effects of Survey Data Collection Mode on Response Quality:

Implications for Mixing Modes in Cross-National Studies

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American National Election Study

- Face-to-face national surveys since 1948.
- Sharply rising costs.
- Consumed an increasingly large portion of the NSF Political Science.
- Recently declining response rates.
- Pressure from the community to switch to telephone to save money.

American National Election Study

- Shrinking grants from the National Science Foundation.
- Coped by reducing sample size.
- Community dissatisfaction with shrinking sample size.
- Conduct experiments with telephone.

American National Election Study

- NES commissioned an outside mode review committee.
- Conclusion: Changing Mode Ends the Time Series
- NSF commissioned an advisory committee.
- Conclusion: NES is an under-funded gold standard of quality – protect and nurture it.

American National Election Study

- Net Result: Nearly tripling of the budget for the next 4 years.
- Maintain Super-Quality Face-to-Face
- Fieldwork: RTI, International.
- Minimum guaranteed response rate: 70%

General Social Survey

- Similar national face-to-face study for decades.
- Similar experiences with declining response rates.
- Similarly shrinking grants.
- Coped by selling questionnaire modules.
- Coped by double sampling in 2004.
- Coped by mixing modes: 16% telephone in 2004.

Reasonable Solutions for Increasing Costs

- Switch modes between waves
 - Shift from face-to-face to telephone
 - Shift from telephone or mail to Internet

Reasonable Solutions for Decreasing Response Rates

- Mix modes
 - Begin with face-to-face, end with telephone
 - Begin with telephone, end with face-to-face
 - Begin with mail, end with telephone

Even if cost is <u>not</u> an issue,

exhausting case recruitment with one mode and then adding a new mode increases the response rate.

So if high response rate is a goal, mixing modes is desirable.

Costs of Switching Modes Between or Within Studies?

- Is the response process different?
- Does accuracy change?
- Does the nature of response bias change?
- Do you get what you pay for?
- If reporting accuracy declines, is it offset by an improvement in sample representativeness ?

Realistically

- Increasing a response rate from 60% to 100% has the potential to change representativeness substantially and is guaranteed to eliminate unit non-response error.
- BUT ...
- Increasing a response rate from 60% to 68% might even *decrease* sample representativeness.
- That's the most we can hope for with mode mixing.



<u>A Starting Point:</u> Some Stereotypes of Modes

Face-to-face

- Increasingly super-expensive
- Very long field periods
- Powerful social desirability pressures
- Telephone
 - Declining response rates
 - Increasing barriers to contact (call blocking)
 - Collapsing sampling frame (cell phones)
- Mailed Self-Administered
 - Low response rates
 - Slow turnaround
- Internet
 - Non-probability samples

Data Collection Mode

Face to face

Telephone

Paper and pencil

Computer/Internet

- Rapport and trust
- Confidentiality
- Modeling of commitment
- Accountability
- Pace
 - Discomfort with silence
 - One screen at a time
- Time of day
- Literacy
- Working memory burden

Two kinds of studies

- Comparisons of modes confounded with sampling methods:
 - E.g., telephone = RDD
 - Decide which mode to use first
- Comparisons of modes <u>un</u>confounded with sampling methods:
 - E.g., random assignment experiments



Publication	The Same Respondents Were Interviewed Face-to-Face and by Telephone	Telephone and Face-to-Face Samples Were of Different Populations	Some People Assigned to a Mode Were Not Interviewed in That Mode	Face-to-Face Respondents Interviewed in Groups and Telephone Respondents Interviewed Individually	Respondents Were Given the Choice to Be Interviewed Face-to-Face or by Telephone	Respondents in One or Both Modes Were Interviewed Previously	Very Dif- ferent Ques- tionnaires	Question- naire Not Described Adequately	Not an RDD Telephone Survey vs. an Area Probability Face-to-Face Survey	Not National Samples
Confounded mode comparisons: Henson, Roth, and Cannell 1978 Herzog and Rodgers 1988	X								x x	
Midanik, Rogers, and Greenfield 2001 Rogers 1976	X								X	
Schmiedeskamp 1962 Cahalan 1960	X X								x x	x
Larsen 1952 Siemiatycki 1979		х	х				х		X X	Х
Mangione, Hingson, and Barrett 1982 Hashstin, 1062, 1067			X						X	
Herman 1962, 1967 Herman 1977 Reconstance Patrolla, and Kinder			x						x	Х
1993 Thomberry 1987			х	x					х	
Cannell, Groves, and Miller 1981 Calsyn, Roades, and Calsyn 1992 Yaffe et al. 1978				x	Х	X			х	
Morchio, Sanchez, and Traugott 1985 Esaiasson and Granberg 1993						X			X X	
Herzog and Kodgers 1999 Woltman, Turner, and Bushery 1980						x X			x x	
Aquilino 1992							Х			

































National Aviation Operations <u>Monitoring System</u>

- Field Experiment
- Licensed Pilots
- Random assignment
 - Telephone (RR=73%)
 - Self-administered mailed questionnaires (RR=70%)
- Questionnaire
 - Measure number of safety-related events witnessed during a specified recall period.
 - FACTUAL QUESTIONS

Validity Measurement

- Random assignment to recall period
 - 1 week
 - 2 weeks
 - 4 weeks
 - 8 weeks
 - 16 weeks
 - 24 weeks
- As recall period increases, so should number of events reported.













	Which has the advantage?	
Criterion	<u>Telephone</u>	Internet
Positive reinforcement	X	
Modeling of task involvement	X	
Accountability	X	
Literacy not required	X	
Computer proficiency not needed	X	
No long-term panel conditioning	X	
Practice effects		X
No interviewer effects		X
Honest responding		X
Self-pacing		X
Flexibility in completion time		X
Reduced memory burden		X

First Study

- Knowledge Networks (Internet)
- Ohio State University Center for Survey Research (RDD Telephone)

General Public Samples - 30 minute questionnaire

	<u>SRBI</u>	<u>Knowledge</u> <u>Networks</u>
Days in the Field	49	58
RR3	43%	
Completion Rate		70%





Differences Between KN and CSR				
	KN > CSR (sig)	KN > CSR (non-sig)	KN < CSR (non-sig)	KN < CSR (sig)
Single Predictors	77%	16%	3%	0%
Model 1 (No control variables)	71%	23%	6%	0%
Model 2 (Controlling for Demographics and Knowledge)	71%	19%	6%	3%



- Random assignment to computer vs. intercom mode
- Interviewer training & supervision
- 332 respondents

Concurrent Validity					
Significant Mode Differences					
	Clinton	Gore	Bush		
	67%	71%	<i>50%</i>		
	0%	0%	0%		
Total number of predictors = 39					

Moderators

Past experience

 Respondents with no past experience completing surveys may benefit more from visual presentation and selfpacing

Cognitive skills

 Respondents with low cognitive skills may benefit more from visual presentation and self-pacing

DV = Clinton Thermometer				
	Past Exp with Su	erience urveys		
-	NO (n=83)	YES (n=246)		
Military Spending	08	.17*		
Mode	06	.07		
<i>Military Spending x Mode</i>	.35*	19		
Significant moderator effect p	present on 17%	of predictors		

DV = **Bush Thermometer**

	Cognitive Skills		
	LOW HIG		
	(n=98)	(n=107)	
Expectations for Foreign Relations	.22**	.36**	
Mode	.02	.02	
Expectations x Mode	.23*	.06	





<u>Response Order S</u>	Response Order Studies Using Categorical Items		
	<u>Primacy</u>	<u>Recency</u>	<u>Non-Significant</u>
Campbell & Mohr (1950)	1		
Becker (1954)			1
Kalton et al. (1978)			1
Schuman & Presser (1981)	2	5	8
McClendon (1986)		4	3
Bishop (1987)		3	3
Krosnick & Alwin (1987)	1		
Bishop et al. (1988)	1		1
Israel & Taylor (1990)	2		8
Ayidiya & McClendon (1990)) 2		1
McClendon (1991)		7	9
Krosnick (1992)		1	3
Schwarz et al. (1992)	1	4	
Krosnick et al. (1996)		1	3

	Primacy	<u>Recency</u>	<u>Non-Significant</u>
Visual			
Campbell & Mohr (1950)	1		
Becker (1954)			1
Krosnick & Alwin (1987)	1		
Bishop et al. (1988)	1		1
Israel & Taylor (1990)	2		8
Ayidiya & McClendon (199	0) 2		1
Schwarz et al. (1992)	1		
Oral			
Kalton et al. (1978)			1
Schuman & Presser (1981)	2	5	8
McClendon (1986)		4	3
Bishop (1987)		3	3
McClendon (1991)		7	9
Krosnick (1992)		1	3
Krosnick et al. (1996)		1	3
Schwarz et al. (1992)		4	

Voting in Elections

- 3% average primacy effect in the voting booth.
- 3% average recency effect in pre-election telephone surveys.
- Last 4 presidential election exit polls overestimated Democratic share of the vote.
- All exit poll questionnaires listed the Democratic candidate first.







	<u>SRBI</u>	<u>Knowledge</u> <u>Networks</u>
Days in the Field	84	15
RR3	36%	
Completion Rate		73%









So ...

- Mixing modes can compromise response quality:
 - Satisficing
 - Social Desirability Response Bias
 - Inaccuracy
- Mixing modes can reverse response order effects:
 - Visual: primacy
 - Oral: recency

Mixing modes can compromise correlational analyses:

- Respondents self-select into second mode
- Type of person is confounded with measurement artifacts
- Correlation between two person attributes could be due to mode differences instead
- Control for mode?
 - What if mode effects are interactive (different in different subpopulations)?

Cross-National Comparisons

If mode is confounded with country, we cannot simply control for mode during the analysis.

Test impact on sample representativeness of mixing modes intended to increase response rates.

> Even if sample representativeness is improved, is response quality/comparability compromised?