BETWEEN THE COVERS OF "INTERNET, PHONE, MAIL AND MIXED-MODE SURVEYS"

Dillman, Smyth and Christian

Presentation for DC AAPOR
November 12, 2014

Agenda

4:00-5:00pm Opening Comments from the Authors

- Leah Christian – What's New in This Book and Why?
- Don Dillman – Applying Social Exchange in Today's Rapid-Fire Communication Environment
- Jolene Smyth – Creating Mixed-Mode Survey Designs that Work

5:00-5:30pm Open Discussion

5:30-6:00pm Informal Reception and Follow-up with the Authors

WHAT'S NEW IN THIS BOOK AND WHY?

Leah Christian

Director, Nielsen

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Who we are

- **Don A. Dillman.** Regents Professor, Department of Sociology and Deputy Director Research and Development, Social and Economic Sciences Research Center, Washington State University.

- **Jolene D. Smyth**. Associate Professor, Department of Sociology, Director, Bureau of Sociological Research. University of Nebraska-Lincoln.

- **Leah Melani Christian.** Director, Research Methods, Nielsen. Previously, Senior Researcher at the Pew Research Center and Researcher/Adjunct Professor at the University of Georgia.

Where we are


Pullman, WA
Lincoln, NE
Wash, DC
Atlanta, GA
United States of America
State Boundary
Road
River
National Capital
State Capital
City or Town
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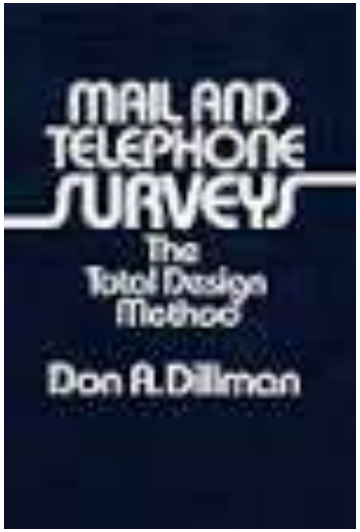
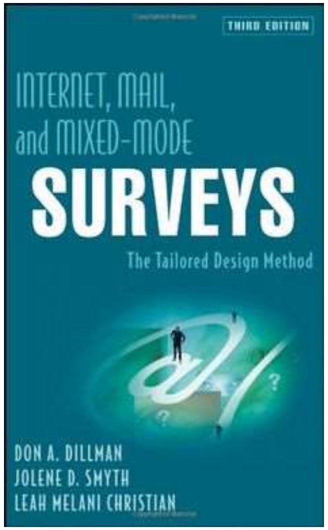
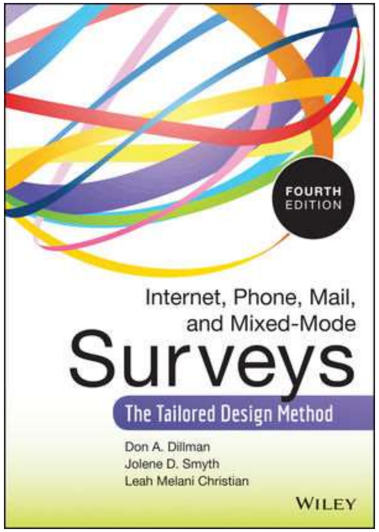
Evolution of the book







1978 **2000** **2009** **2014**

How is the book organized?

1. Sample Surveys in Our Electronic World
2. Reducing People's Reluctance to Respond to Surveys
3. Covering the Population and Selecting Who to Survey
4. The Fundamentals of Writing Questions
5. How to Write Open and Closed-Ended Questions
6. Aural vs. Visual Design of Questions and Questionnaires
7. Ordering Questions and Testing for Question Order Effects
8. Telephone Questionnaires and Implementation
9. Web Questionnaires and Implementation
10. Mail Questionnaires and Implementation
11. Mixed-Mode Questionnaires and Survey Implementation
12. Responding to Societal Change and Preparing for What Lies Ahead

Why a new edition now?

- Our communication environment has changed rapidly and that has implications for how we design and conduct surveys.
  - Social exchange theory continues to be relevant in designing effective strategies for maximizing response.

Why focus on mixed-mode surveys?

- Single mode surveys increasingly face coverage, sampling and nonresponse issues.
  - Single mode telephone and email/internet surveys often do not provide adequate quality.

- Mixed mode survey designs are often necessary to help address these limitations.
  - The increased use and research on mixed-mode surveys has helped us in better understanding which approaches are more effective and how best to leverage different modes.

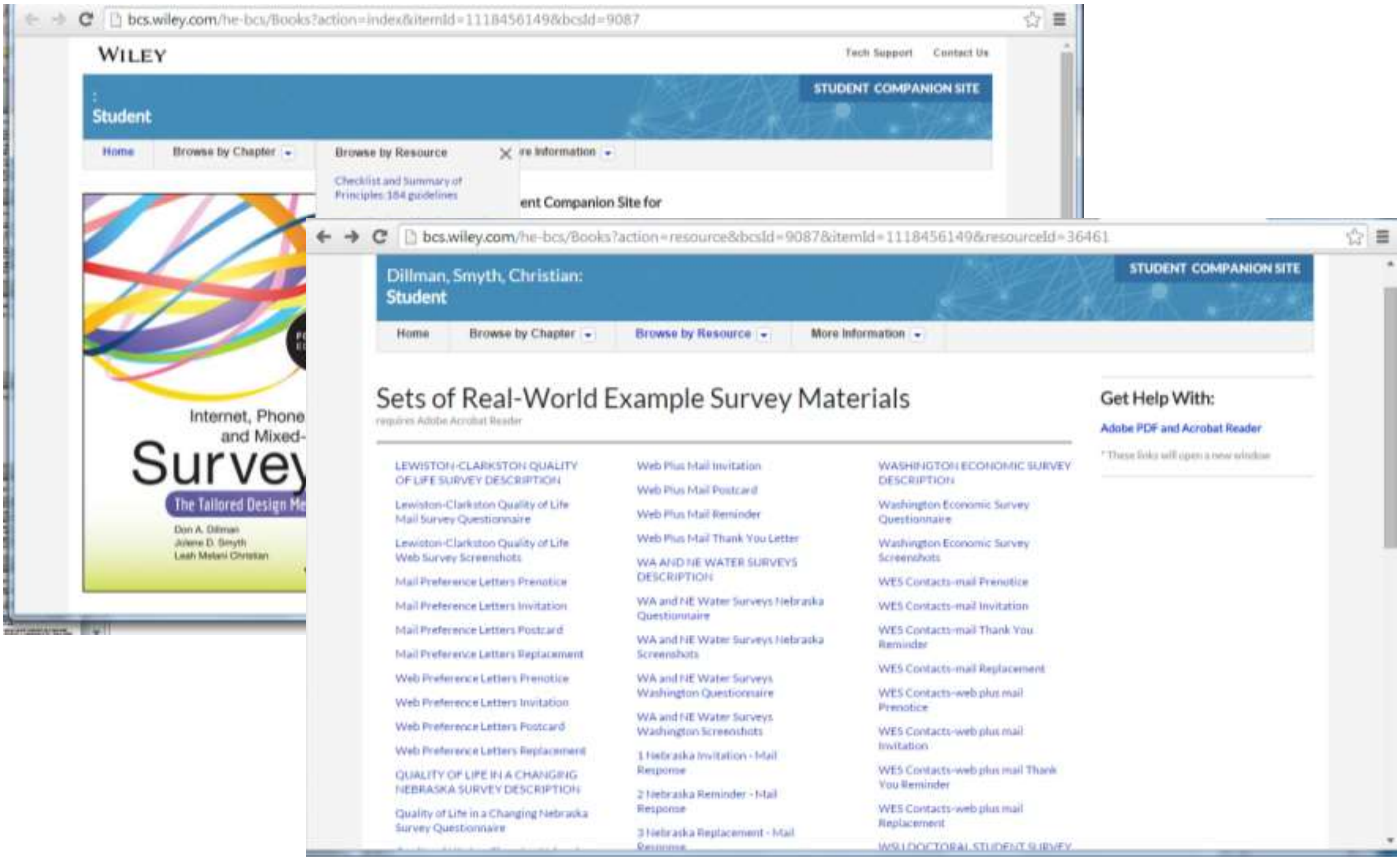
Key themes

- Survey quality depends on the joint contributions of surveyors and respondents to **reducing error** (coverage, sampling, nonresponse and measurement error).
- **Social exchange** provides an effective framework for maximizing response rates and quality.
- **Tailored designs**, customized to the survey situation, are more effective than attempting to use the same procedures for all situations.
- A **holistic design approach** that focuses on how information is presented throughout the implementation process is critical to maximizing cooperation.

Key themes

- Using **different modes of contact** increases the chance people will receive the communications and attend to them.
- Successful mixed-mode surveys depend on **how the mode of contact and mode of response are coordinated**.
- **Unified mode question construction** improves data quality in mixed-mode surveys (by minimizing measurement error).
- Methods for designing and implementing **single-mode surveys** are essential to deploying these modes in mixed-mode designs.

A new companion website



Where are we headed?

- Combining data from different sources (and understanding the biases associated with each)
  - Big data and administrative records
  - Other passive measurement via mobile devices and technology
  - Survey data, cross-sectional and longitudinal/panel data

- Greater variety of sampling approaches, including nonprobability methods

- More international and cross-cultural surveys

Can Social Exchange Explain Response Behavior in Today's Asynchronous Rapid-Fire Communication Environment ?

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Many people have their own theory about why people do not respond to survey questionnaires

- People are too busy.
- They hate answering survey questions.
- There are too many questions.
- The questions asked in surveys are:
  - Too difficult.
  - Invade my privacy.
  - Are silly.
- Answering surveys results in me getting more surveys.
- People hate surveys.
- I have heard each of these explanations for low survey response rates from some top-flight survey designers.

Others suggest theory is a waste of time and effort

- From a departmental colleague: “It must be nice to be a methodologist; that means you don’t need to use theory.”
- From students when I teach data collection I get two reactions:
  - Practitioner oriented students often glaze over.
  - The theory lovers want to talk forever--abstractly and without conclusion….
- From a statistician: Your theory of response is “not quite up there with the law of gravity”.
- Additional reaction—isn’t social exchange getting a little old. If a theory isn’t new, how can it be useful?

Many theories have been suggested for explaining why people respond to surveys

1 **Cognitive Dissonance theory** (Festinger, 1957): People seek consistency in their lives—response to previous surveys encourages response to your survey.

2 **Reasoned Action theory** (Ajzen and Fishbein, 1980): Appeal to positive attitudes and subjective norms that favor responding in order to encourage behavioral intention to respond.

3 **Interpersonal Influence theory** (Cialdini, 1984): Discrete actions, scarcity of opportunity, consistency with past behavior, reciprocation for previous favor, enjoyment, social proof, what others have done.

4 **Adult-to-adult communication style** (Comley, 2006): Approach people as adults rather than children who are told, “You must do this today!”

Additional theories

5 Leverage-salience theory (Groves, Singer and Corning, 2000): Identify and make more salient features that can have a positive effect, and deemphasize negative features.

6 Cost-Benefit Theory (Singer, 2011): Focus explicitly on reducing costs people associate with responding to surveys, and increase the benefits of responding.

7 Gamification Theory (Pulleston, 2012); Make responding to surveys fun through being more like a game, with full visual appeal and the awarding of games and points.

What's good and not so good about these theories?

- Each theory touches the (response) challenge in a somewhat different, but probably relevant, place.
- Most tend to focus either theoretically or practically on one or two features of design.
- All of these approaches seem to stop short of providing comprehensive guidance for designing specifics of the data collection process and how the completed design package (questionnaire and implementation procedures) might affect response behavior.

What do we want from a theory of survey response?

1 A theory needs to take into account when and where response to the survey request breaks-down.
2 We need a holistic theory that is consistent with a general theory of human behavior. Social exchange is such a theory.
3 We need to use social exchange to shape each aspect of the questionnaires and implementation process and connect them to each of the other parts in mutually supporting ways.
4 The response power of mixed-mode designs depends on contact modes as much or more than response modes.
5 I will elaborate each of these four assertions in the remainder of these brief comments.

1 A theory needs to take into account when and where response to the survey request often breaks-down.

The Response Process for mail/web can break down at different stages

- Unaware of response request (letter, email not received)
- No immediate action taken; request forgotten
- Response request not opened
- Response request not read
- Questionnaire not started
- Questionnaire started, but not completed
- Completed Questionnaire not returned

Non response does not happen at only one stage or reason. Multiple interventions are needed to overcome barriers to response.

The Telephone Process also breaks down at different stages

- Phone not answered.
- Immediate hang-up before request made.
- Hang-up during request, with or without comment.
- Termination after exchange of comments.
- Selected respondent not available.
- Termination after 1-2 questions.
- Termination comes later.
- Termination of refusal conversion call.
- Refusal conversion calls may be blocked/ignored.

One difference between telephone and other modes is feedback from call attempts may sometimes be obtained, but multiple interactions are especially difficult to achieve.

Implication

- Our best opportunity for overcoming these potential breakdown points, is likely to involve using multiple contacts
- Each aspect of the communication process, from appearance and timing to questionnaire layout and content needs to be designed to help.

2 We need a holistic theory that is consistent with a general theory of human behavior that will guide the design of our communication efforts. Social exchange is such a theory.

How Social Exchange Theory can help do that

- Original sociological application of social exchange was to explain the development and continuation of interaction with others.

- It posits that individuals respond to human requests on the basis of perceived **rewards** they **trust** will be received by responding to the request, and the belief that rewards will outweigh the perceived **costs** of providing that response.

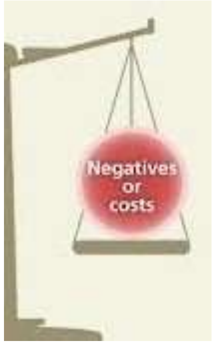
- These three elements can be mostly social (benefitting a group the person identifies with) or self-oriented. Most people derive a sense of reward from both.

- The combination of **rewards, trust** and **costs** plus the social and self-interest appeals provides a myriad of ways to consider how to motivate response.

Some ways of providing benefits (from a much longer list)

- How are results useful
- Ask for help/advice
- Ask interesting questions
- Sponsorship by legitimate organization
- Cash/material incentives to encourage reciprocity
- Benefits have additive effects

Some ways of decreasing perceived costs of responding



- Reduce length
- Reduce complexity
- Visual design to ease task of responding
- Avoid subordinating language
- Make it convenient
- Reduce uncertainty that request is legitimate
- Avoid requiring uncomfortable answers

Establishing trust that benefits will outweigh costs

- Provides means for authenticating legitimacy of request
- Sponsorship by legitimate authority
- Build on previous relationships/friendships
- Token of appreciation in advance
- Assure confidentiality and data protection
- Trust is a huge problem with internet and surveys from unknown sources

What’s different between applying social exchange in 1970’s and 2010’s?

- Social interaction is now more spontaneous.
- Communication now likely to be asynchronous.
- It now occurs in rapid-fire sequences.
- Trust in source of communication is now more likely to be withheld until proven.
- Trust now more important for making connection between “costs” and “rewards” of responding.

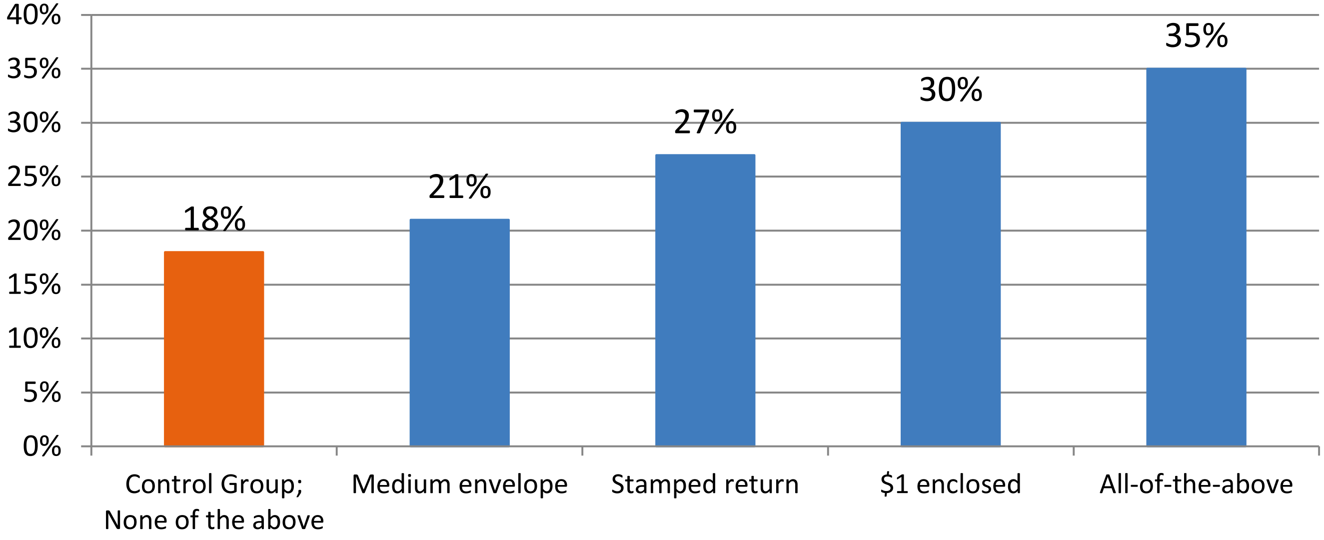
How certain design features may affect response process

• Plain brown larger envelope →	Get envelope open
• $ token of appreciation clipped to letter →	Get letter read
• Questionnaire cover →	Stimulate broad interest
• First questions →	Interesting to most of sample
• Booklet, < 12 pages →	reasonable burden
• Visual design principles →	Ease response task
• Enclosed stamped envelope →	Visible easy way of responding
• Thank you reminder →	Positive encouragement
• Replacement questionnaire →	This is important
• Second incentive →	Get new letter/appeals read
• Sponsorship →	Trust

How do we get kinds of actions to add up?

Even <u>small</u> design changes may be additive

- Tarnai and Schultz, 2012; medium (vs. small) envelope; $1 with request (vs. no incentive), Stamped (vs. business reply) return envelope. A replacement questionnaire was sent to all treatment groups.



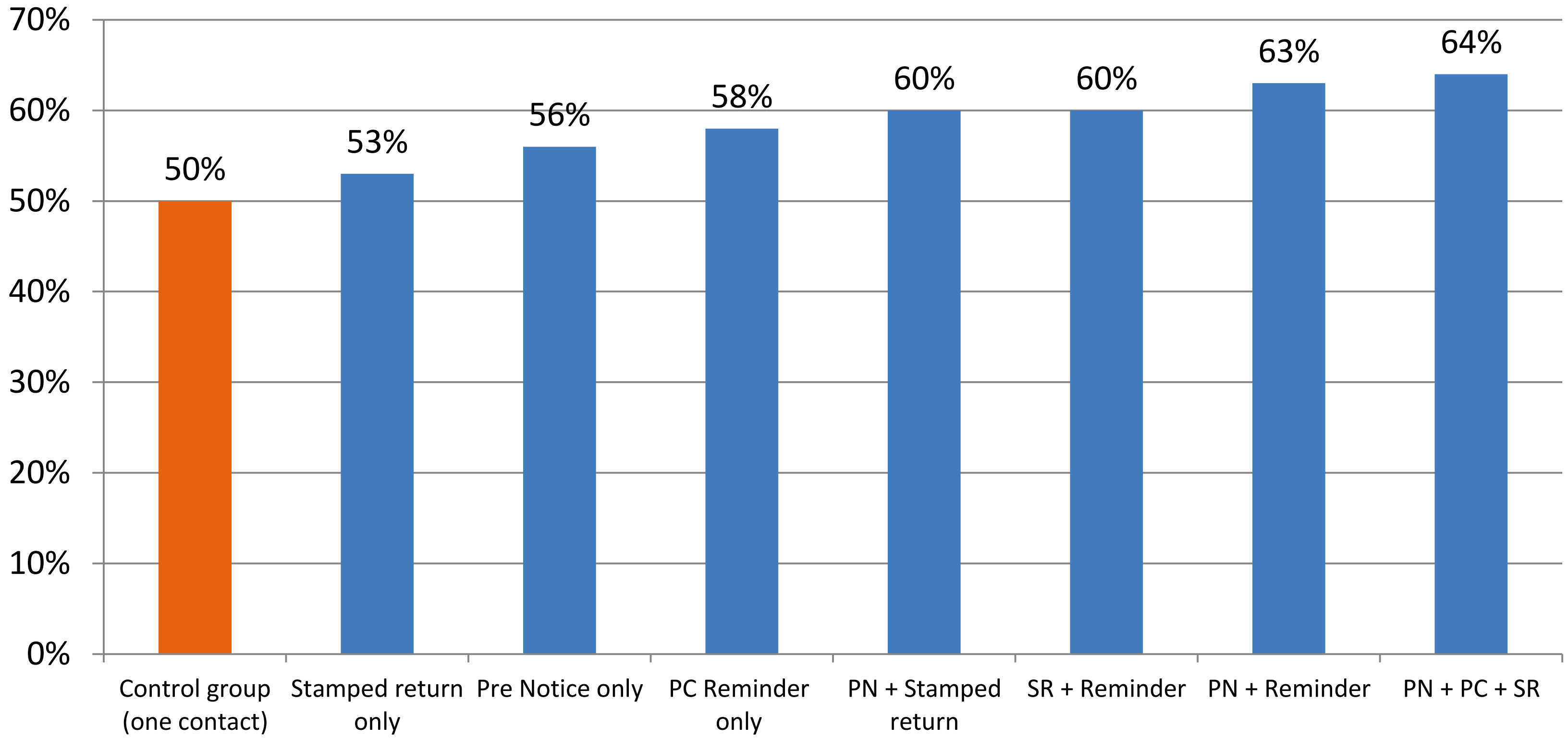
- **Conclusion; Small elements can add-up; theoretically their combined use makes sense.**

Expected response effects from adding QR Code and url/password options to these base elements?

	Effect
• $1 with request	base
• Medium envelope	base
• Stamped return	base
• Replacement questionnaire	+
• **QR Code and cell response**	**-**
• **URL, password, web option**	**-**
• **Change $1 to $5**	**+**

Negative effect of QR and URL is because “Choice” is being added and that makes decision-making more difficult; survey response by cell phone also requires “greater” effort.

Research on Census Questionnaires: Dillman, Sinclair and Clark, 1995



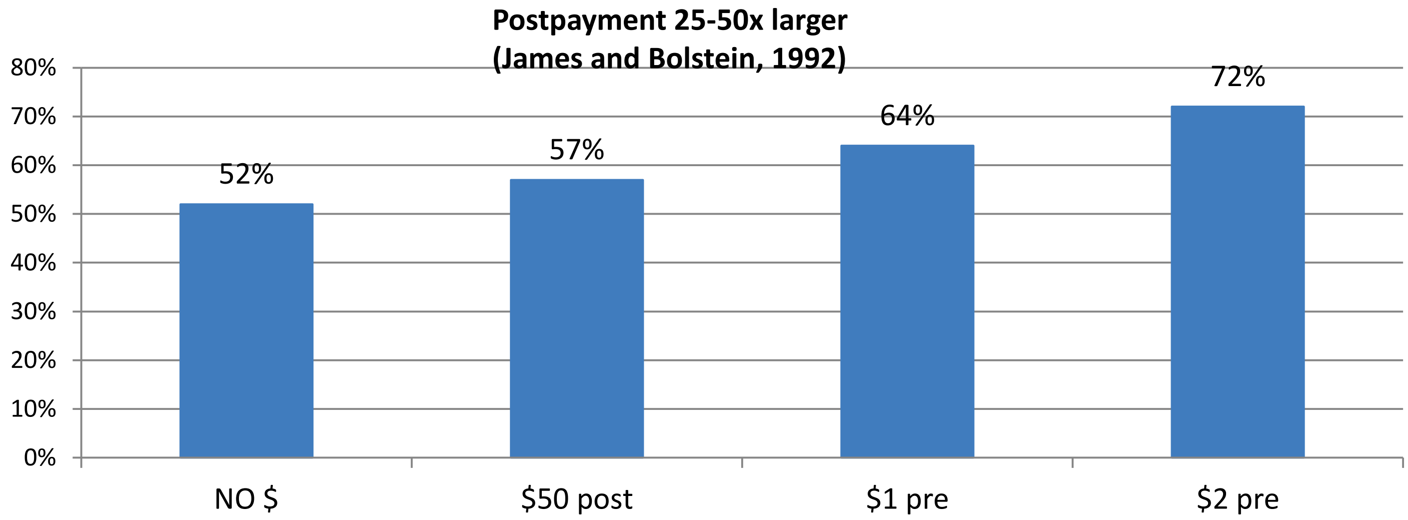
Proven Effects of Adding additional elements to the 2000 Census Questionnaire

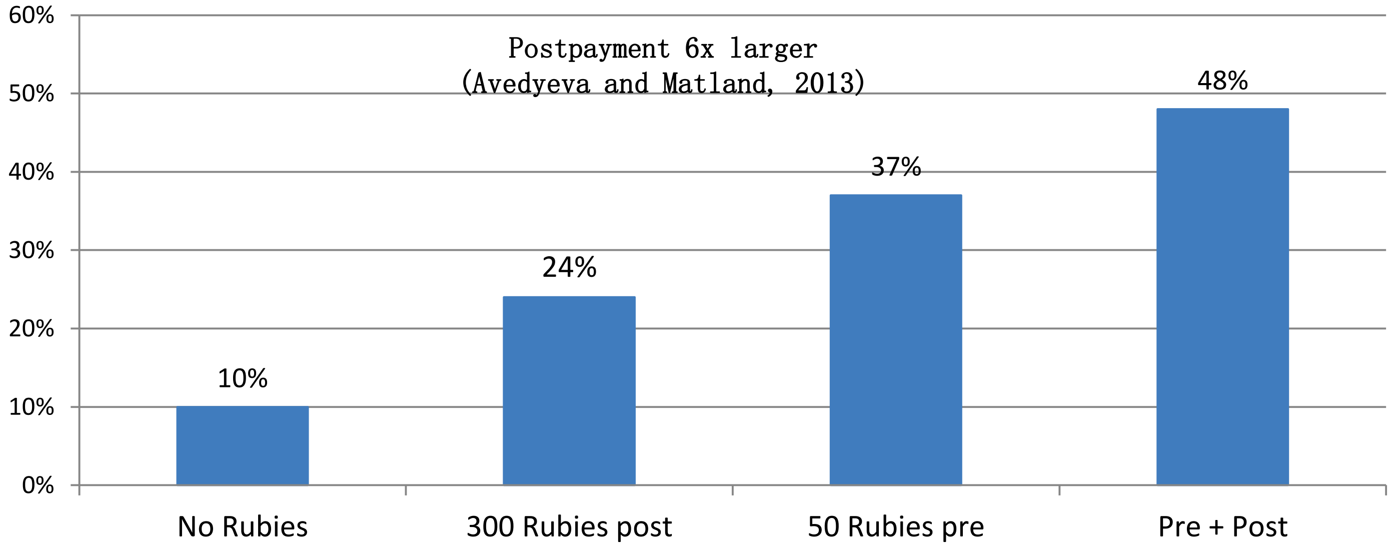
(Assume a base response of about 60%)

• Respondent friendly visual	+ 3 (already included)
• Replacement questionnaire	+ 6-12 (not included 2000)
• Envelope: Mandatory Resp.	+ 9-11
• Add Marketing style and color	- 5-9
• Greater Length	- 3-12

Interpretation: 2000 Census limited to "four elements" PN, Reminder, Friendly Design, Mandatory message. It produced response rate of ~70%.

Incentives: Small prepayments to establish reciprocal obligation override large payments afterwards, but both may be beneficial.





An Implication

- The decision on whether to add something to a design needs to take into account what's already there and whether the effect is likely to be additive.
- Not much of that research gets done—it requires too many test panels and the implications are inevitably constrained. My suggestion is to think through the possibilities theoretically, and then consider whether to add or take something away.

4 The response power of mixed-mode designs depends on contact modes as much or more than response modes.

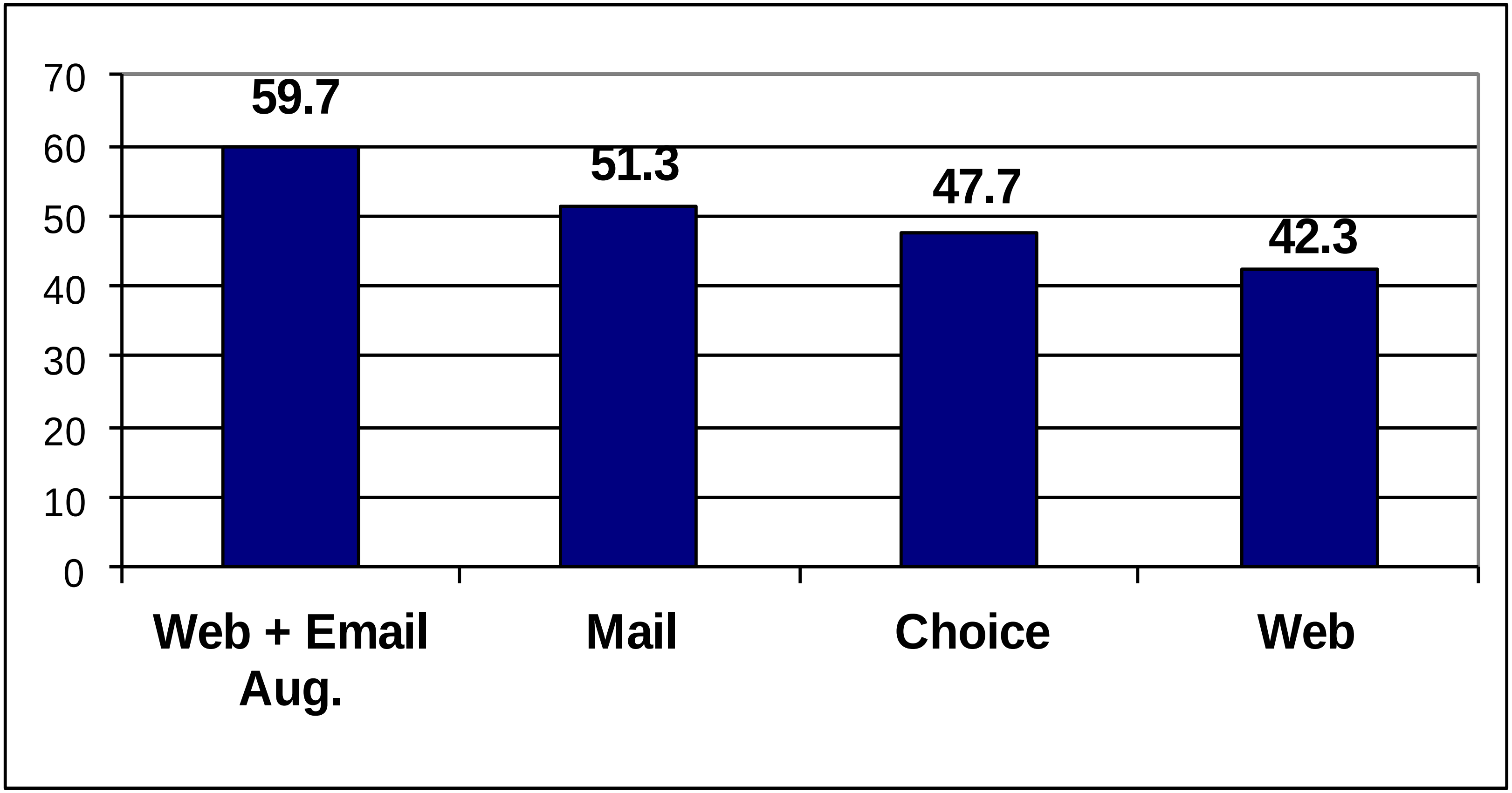
The strength of social exchange for influencing behavior depends upon:

- Understanding relative strength of means for affecting costs, rewards and trust
- Achieving additivity among those means
- Enhancing additivity through:
  - multiple contacts
  - multiple modes of communication
  - Changing communication across contacts to reach different audiences may be helpful.
  - Offering multiple modes of responding (but choice lowers response rates)

Good Survey Design Needs to turn negatives into positive

- Many surveyors think offering **choice** will improve response.
- **choice** produces two effects:
  - A lower response rate.
  - Most people respond by mail
- We can change that by adding **email augmentation**—a quick email (if email address is available) after mail contact that makes it easier for people to respond.

Response Rates: Mail > Choice > Web when only postal contact is used with student sample; Web with <u>email augmentation</u> had higher response rate! (Millar and Dillman, POQ, 2011)



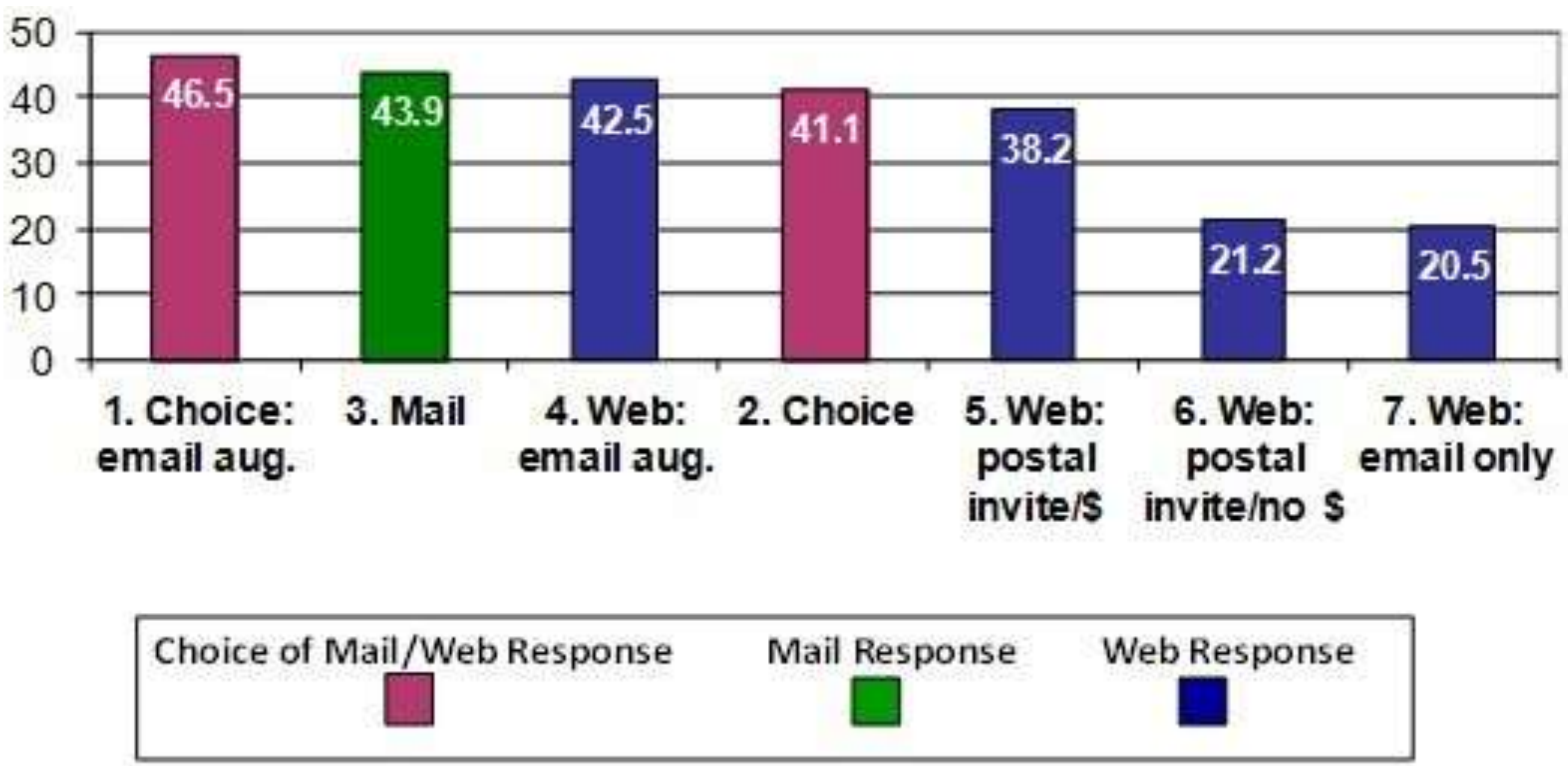
p=.001

Follow-up Test of How To Turn Choice from Negative to Positive (Millar and Dillman, POQ 2011).

Requested Mode of response	Nov 9/10 Invitation	Nov 12/13 Invite prompt	Nov 18/19 Thank you/reminder	Dec 7/8 Replacement	Dec 10/14 Replacement prompt
1. Choice	$ ■	▲	■	■	▲
2. Choice	$ ■	■	■	■	■
3. Mail	$ ■	■	■	■	■
4. Web	$ ■	▲	■	■	▲
5. Web	$ ■	▲	▲	▲	▲
6. Web	■	▲	▲	▲	▲
7. Web	▲	▲	▲	▲	▲

■ Contact sent via MAIL ▲ Contact sent via EMAIL $2 Incentive included

Results: Choice with email augmentation higher than alternatives.



Detailed Conclusions from 7 panel test

- Initial postal contact with $2 has largest effect ~18 percentage points.
- Choice with only mail contact adds ~3 percentage points over using email only following initial postal incentive.
- Choice with email augmentation adds ~5 points over limiting contacts to mail.
- Choice with email augmentation adds ~4 points over push-to-web with email augmentation.
- From social exchange perspective; we are cutting costs of responding to a preferred mode by adding convenience, thereby <u>overcoming the negative effect of choice</u>.

Application of email augmentation results: 12 page survey of 600 students writing dissertations (Millar, 2013)

Needed to implement survey in less than month and produce report within six weeks.

- **Day 1 Postal request for web response with$2 (reward with request; trust encouraged by sponsorship)**
- **Day 4 Email augmentation with electronic link (decrease inconvenience, i.e. cost)**
- **Day 10 Second email (survey is important, as social reward)**
- **Day 18 Postal request with paper questionnaire (reduce cost to some of respondents; also conveys message survey is important)**
- **Day 22 Final email. (survey is important and trust encouraged by repeated contacts.)**

The 4th contact paper questionnaire

Understanding the Doctoral Experience at WSU

Thank you for completing this questionnaire. This study will help us better understand the process students go through during the final stages of their doctoral education. As doctoral training in the United States continues to evolve, it is important that we learn more about students' perspectives and identify any obstacles that may stand in the way of successfully completing one's dissertation.

Your participation is voluntary and your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of the data. If you have any questions please feel free to contact Thom Allen, the study director, by email at ted@wsu.edu or by phone at (509) 335-1722.

Q1. In what year did you officially complete your preliminary examinations?

YYYY

Q2. Have you already selected a specific dissertation topic?

- No → **Skip to Q21 on page 5**
- Yes

Q3. If yes, which of the following best describes your current status in the dissertation process?

- Have not yet begun any research or writing for your dissertation → **Skip to Q21 on page 5**
- Working on a dissertation proposal
- Have completed a dissertation proposal
- Are in the early stages of research/writing for your dissertation
- Are about halfway completed with the research/writing for your dissertation
- Are mostly completed with the research/writing for your dissertation
- Have fully completed your dissertation

Q4a. Please write the name of the primary field of your dissertation research.

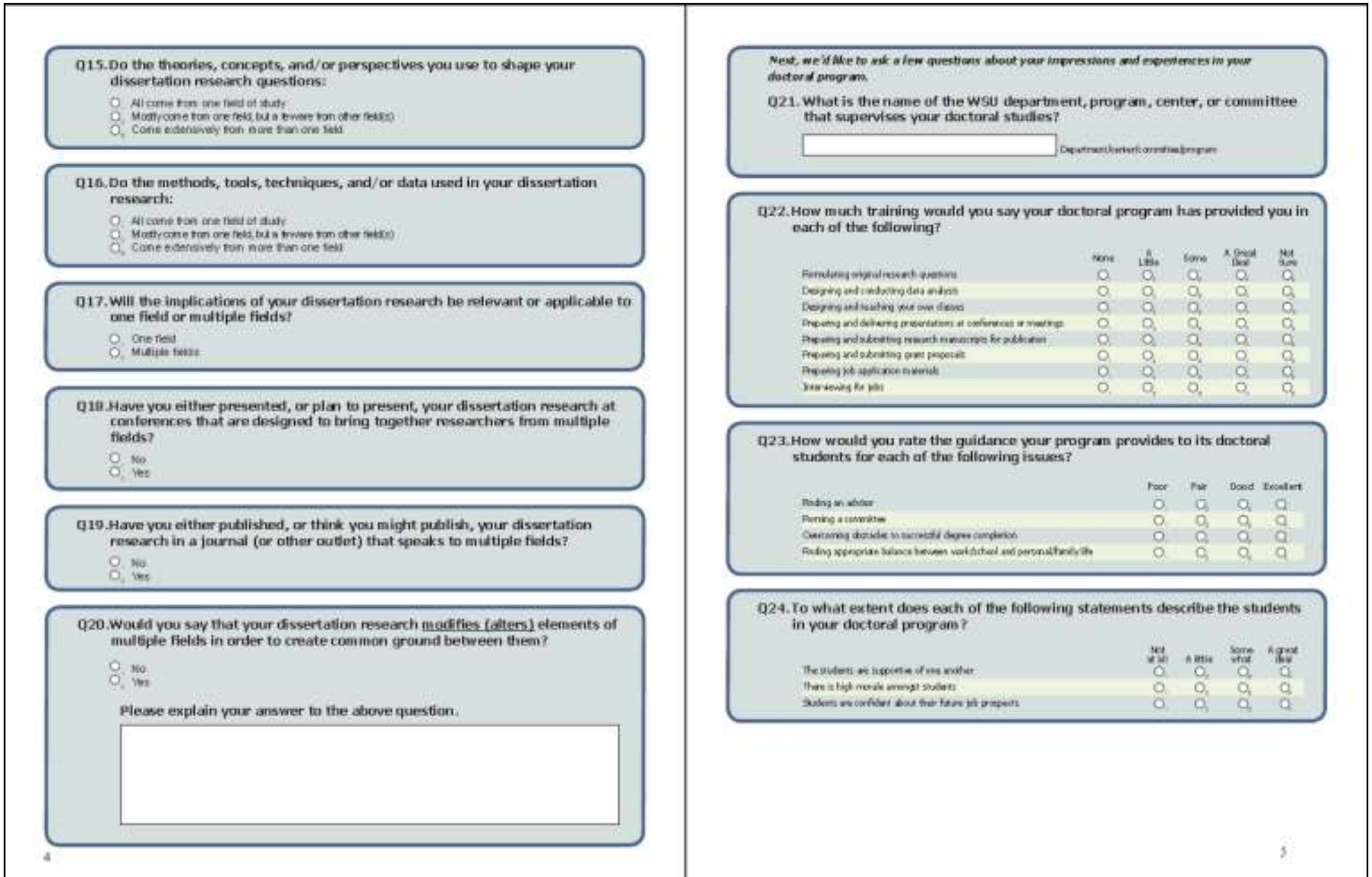
Name of primary field

Now, choose the code from the list on pages 10-11 that best describes the primary field of your dissertation research.

Number of primary field

1

Two inside pages of the 12 page paper questionnaire



Q15. Do the theories, concepts, and/or perspectives you use to shape your dissertation research questions:

- All come from one field of study
- Mostly come from one field, but a few are from other field(s)
- Come extensively from more than one field

Q16. Do the methods, tools, techniques, and/or data used in your dissertation research:

- All come from one field of study
- Mostly come from one field, but a few are from other field(s)
- Come extensively from more than one field

Q17. Will the implications of your dissertation research be relevant or applicable to one field or multiple fields?

- One field
- Multiple fields

Q18. Have you either presented, or plan to present, your dissertation research at conferences that are designed to bring together researchers from multiple fields?

- No
- Yes

Q19. Have you either published, or think you might publish, your dissertation research in a journal (or other outlet) that speaks to multiple fields?

- No
- Yes

Q20. Would you say that your dissertation research modifies (alters) elements of multiple fields in order to create common ground between them?

- No
- Yes

Please explain your answer to the above question.

4

Next, we'd like to ask a few questions about your impressions and experiences in your doctoral program.

Q21. What is the name of the WSU department, program, center, or committee that supervises your doctoral studies?

Department/center/committee/program

Q22. How much training would you say your doctoral program has provided you in each of the following?

	None	A Little	Some	A Great Deal	Not Sure
Formulating original research questions					
Designing and conducting data analysis					
Designing and teaching your own classes					
Preparing and delivering presentations at conferences or meetings					
Preparing and submitting research manuscripts for publication					
Preparing and submitting grant proposals					
Preparing job application materials					
Interviewing for jobs					

Q23. How would you rate the guidance your program provides to its doctoral students for each of the following issues?

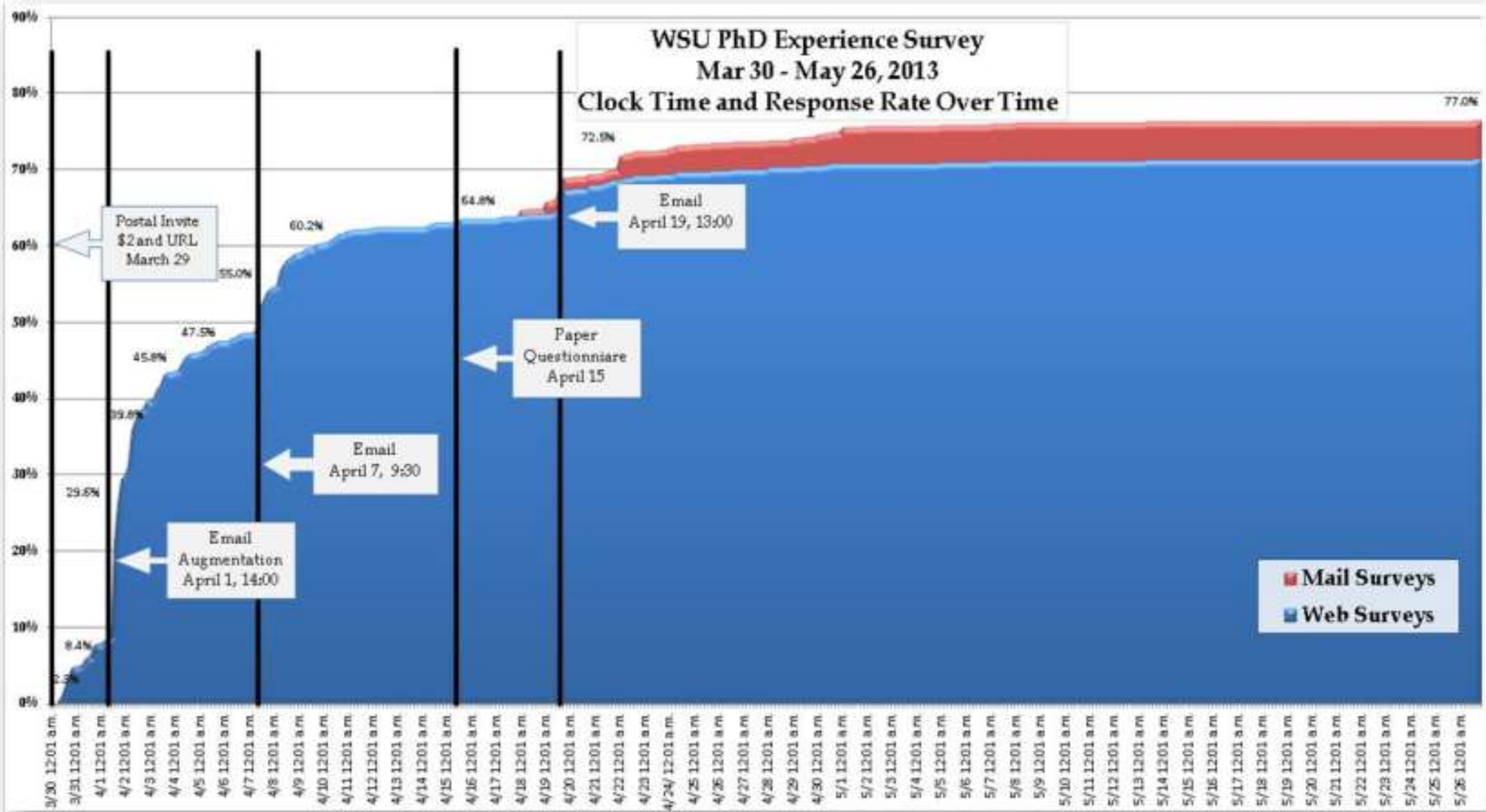
	Poor	Fair	Good	Excellent
Finding an advisor				
Forming a committee				
Overcoming obstacles to successful degree completion				
Finding appropriate balance between work/school and personal/family life				

Q24. To what extent does each of the following statements describe the students in your doctoral program?

	Not at all	A little	Somewhat	A great deal
The students are supportive of one another				
There is high morale amongst students				
Students are confident about their future job prospects				

5

Response rate was 77%; email augmentation moved response from 8 to 29% in 10 hours. Mail and 2nd email aug. produced additional 12%.



How did this happen?

- Postal mail used token cash incentive to provide a **reward** and get attention to the attached communication.
- Email augmentation of that contact to provide electronic link decreased costs of responding.
- Multiple communications by multiple modes and paper copy improved **trust** that responding to the survey was important.

Putting the Parts together

- Effective design of data collection means getting beyond thinking about single factor causation, whether achieving cognitive consonance, communicating adult-to-adult, gamification, scarcity of opportunity, or asking people what is important to them.
- We have to think about multiple factors all at once, and how they connect with one another.
- Social exchange encourages this kind of thinking and provides a behavioral matrix focusing on costs, benefits and trust, for combining elements together consistent with <u>a general theory of human behavior</u>.
- It also encourages us to link together modes of communication, and thinking simultaneously about practices that increase or decrease response when used with other implementation practices in mixed-mode designs.

Wrap-Up. The four points

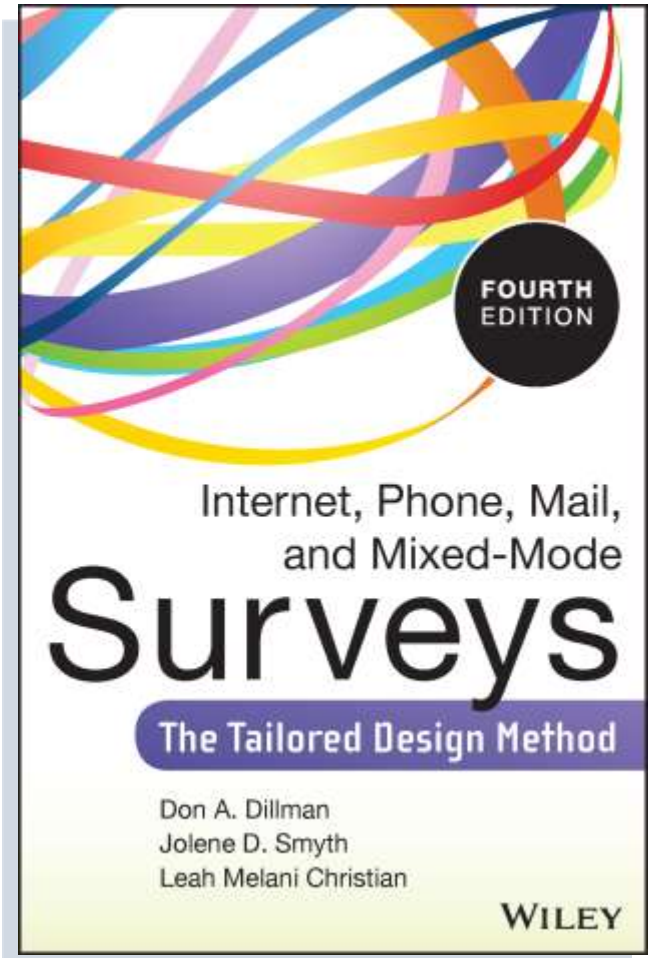
1 We need to take into account where the response can and often does break-down.

2 We need holistic theory consistent with a general theory of behavior that can encompass the specifics of survey design. Social exchange is such a theory.

3 We need to use social exchange to shape specific response stimuli as well as how each of them fits/connects with other parts.

4 The response power of mixed-mode designs depends on contact modes as much response modes.

For additional information…



- Chapter 2 describes how social exchange was rethought for the 4th edition.
- Elaboration is provided as it applies to questionnare design and implementation in 4-11.

Thank you!

- For additional information on these studies contact Don Dillman at: dillman@wsu.edu

- Web page information is at: http://www.sesrc.wsu.edu/dillman/

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Creating Mixed-Mode Survey Designs that Work

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My plan…

- Talk about some of the key ideas from the new edition of the book about how to design effective mixed-mode surveys.

The goal of mixed-mode design

- Bring together multiple features to…
  - Create a holistic design with all of the features working together to…
  - Address known areas where single-mode surveys break down…
  - With strategies intended to **establish trust**, **increase benefits**, and **reduce costs** of responding.

Since 2007, we have conducted 6 separate experiments that form the basis of our mixed-mode design guidelines

- Driving Question: How do we get the general public to respond by web?
- Most contained 12-page booklet mail questionnaires matched by web surveys with 50-60 screens.
  - One was a 4-page booklet questionnaire
- Topics varied
  - Community satisfaction
  - Economic issues
  - Electricity
  - Water management
  - Quality of life
- Sponsors
  - WSU
  - UNL

Let’s look at one example

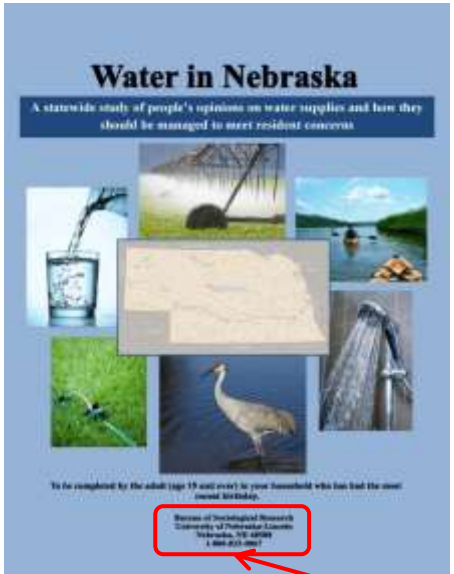
- The Washington and Nebraska Water Study
  - Intended to test the effects of sponsorship on response rates and response to the web.
  - Designed using much of what we had learned from previous experiments

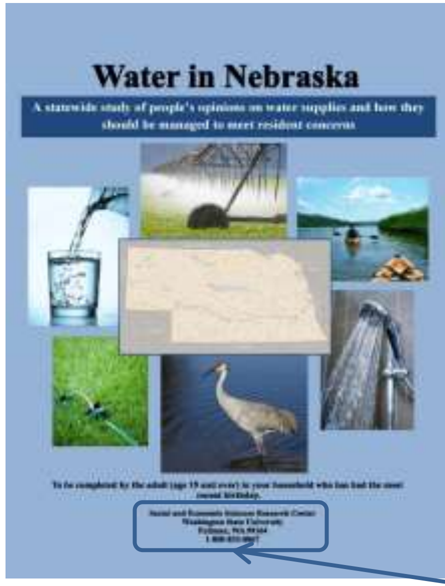
Source: Edwards, Michelle, Don A. Dillman and Jolene D. Smyth. 2014. “An Experimental Test of the Effects of Survey Sponsorship on Internet and Mail Survey Response.” *Public Opinion Quarterly*. *doi: 10.1093/poq/nfu027*

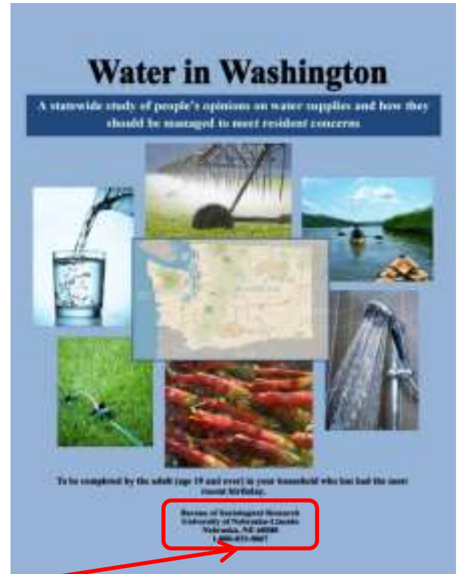
The vitals

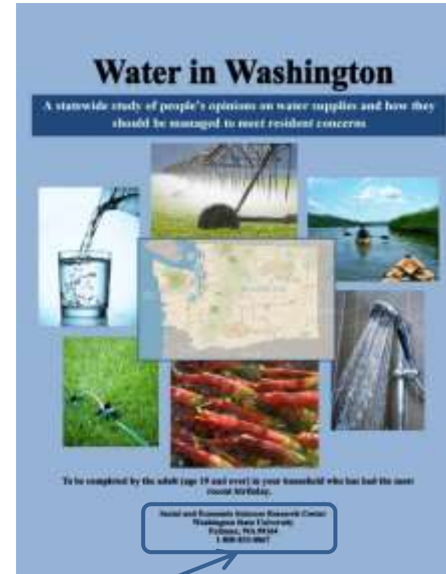
- April – June 2012
- Sample Frame: USPS Delivery Sequence File
- 8 Experimental Treatments

Sponsor	Mode	State
UNL BOSR	Mail-only	NE
UNL BOSR	Mail-only	WA
WSU SESRC	Mail-only	NE
WSU SESRC	Mail-only	WA
UNL BOSR	Web-First	NE
UNL BOSR	Web-First	WA
WSU SESRC	Web-First	NE
WSU SESRC	Web-First	WA









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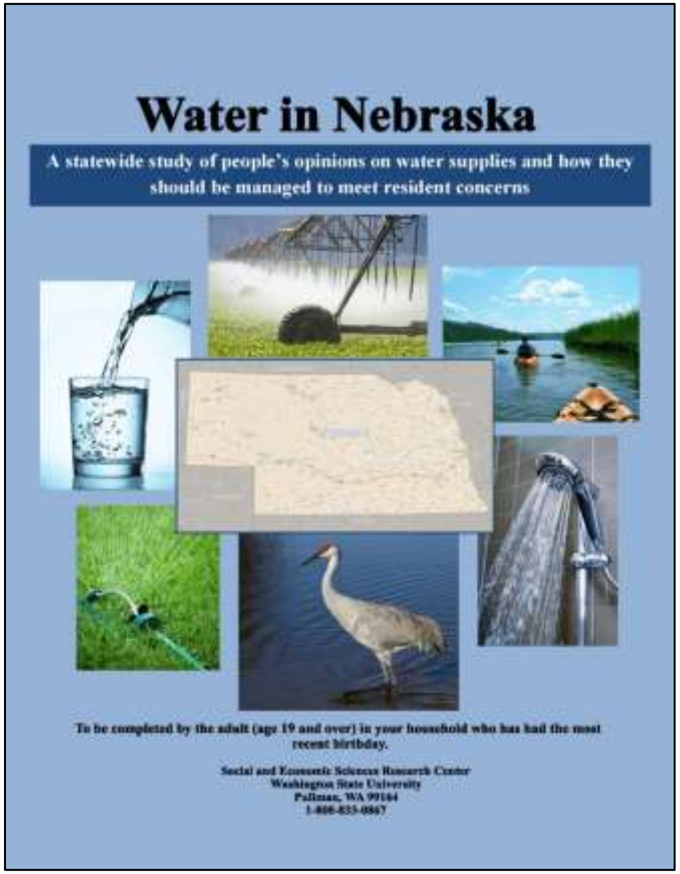
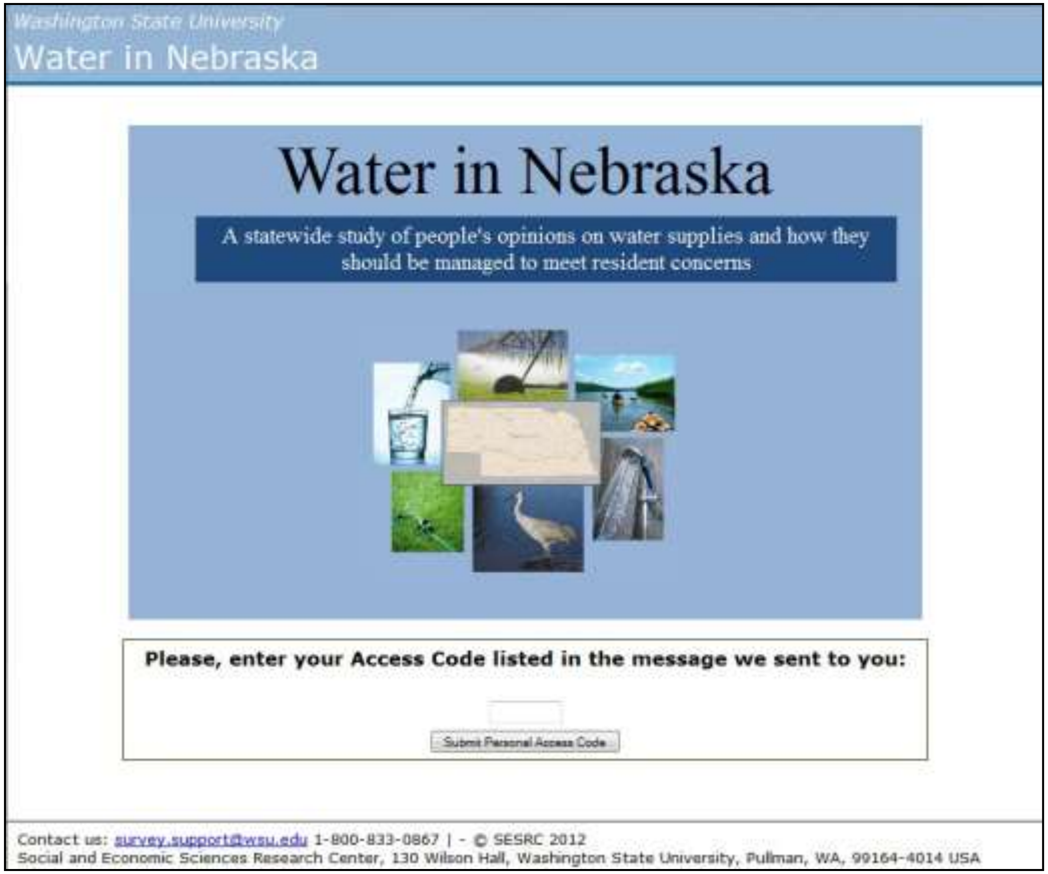
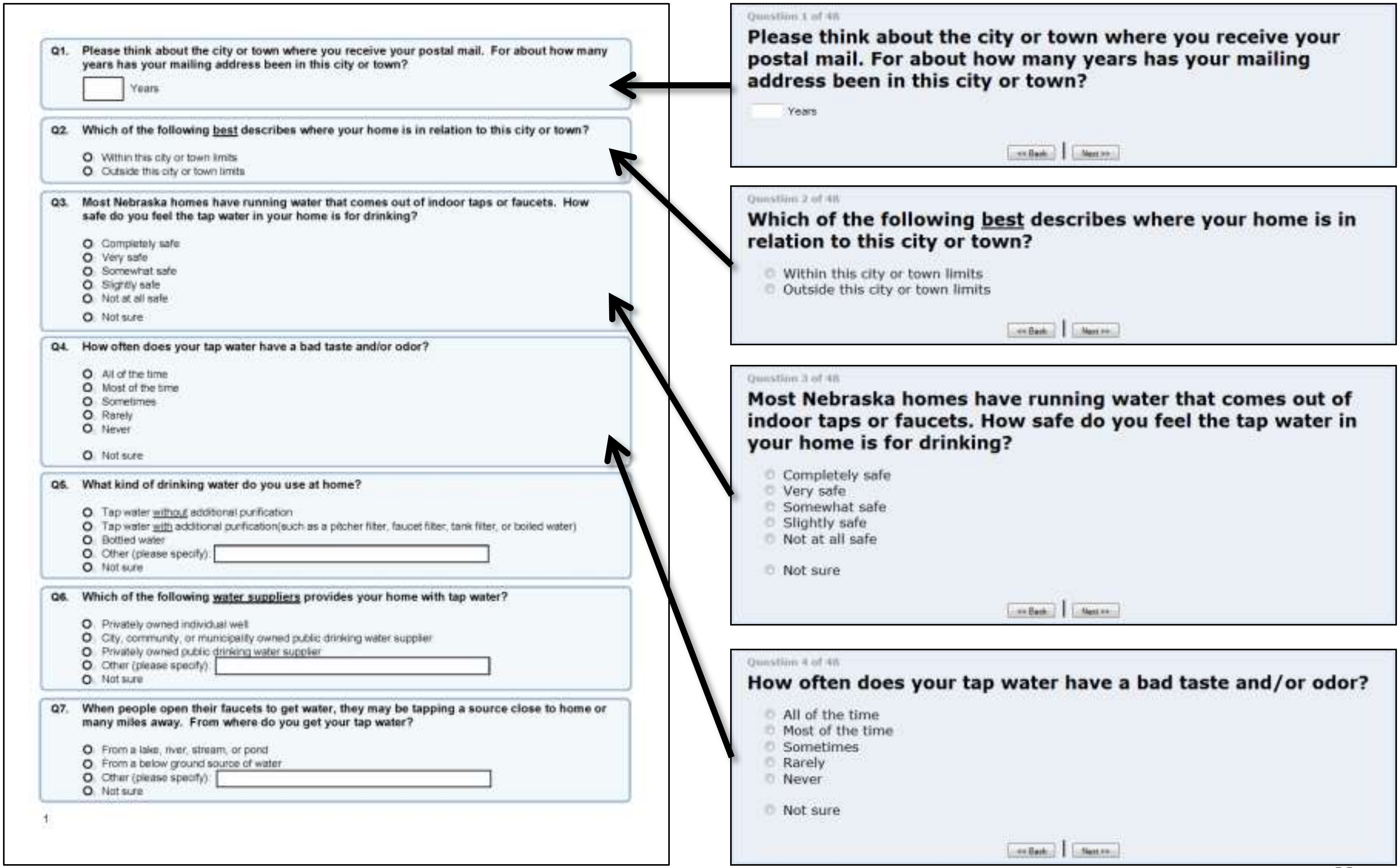
The questionnaires used a unified-mode design
(i.e., eliminate all unnecessary differences across modes)

- The mail and web used the same pictures, titles, subtitles and colors.





- The mail and web used the similar colors and the same fonts, question formats, answer spaces, spacing, emphasis, and single-item regions.


Q1. Please think about the city or town where you receive your postal mail. For about how many years has your mailing address been in this city or town?
Years

Q2. Which of the following best describes where your home is in relation to this city or town?
- Within this city or town limits
- Outside this city or town limits

Q3. Most Nebraska homes have running water that comes out of indoor taps or faucets. How safe do you feel the tap water in your home is for drinking?
- Completely safe
- Very safe
- Somewhat safe
- Slightly safe
- Not at all safe
- Not sure

Q4. How often does your tap water have a bad taste and/or odor?
- All of the time
- Most of the time
- Sometimes
- Rarely
- Never
- Not sure

Q5. What kind of drinking water do you use at home?
- Tap water without additional purification
- Tap water with additional purification(such as a pitcher filter, faucet filter, tank filter, or boiled water)
- Bottled water
- Other (please specify):
- Not sure

Q6. Which of the following water suppliers provides your home with tap water?
- Privately owned individual well
- City, community, or municipality owned public drinking water supplier
- Privately owned public drinking water supplier
- Other (please specify):
- Not sure

Q7. When people open their faucets to get water, they may be tapping a source close to home or many miles away. From where do you get your tap water?
- From a lake, river, stream, or pond
- From a below ground source of water
- Other (please specify):
- Not sure

1

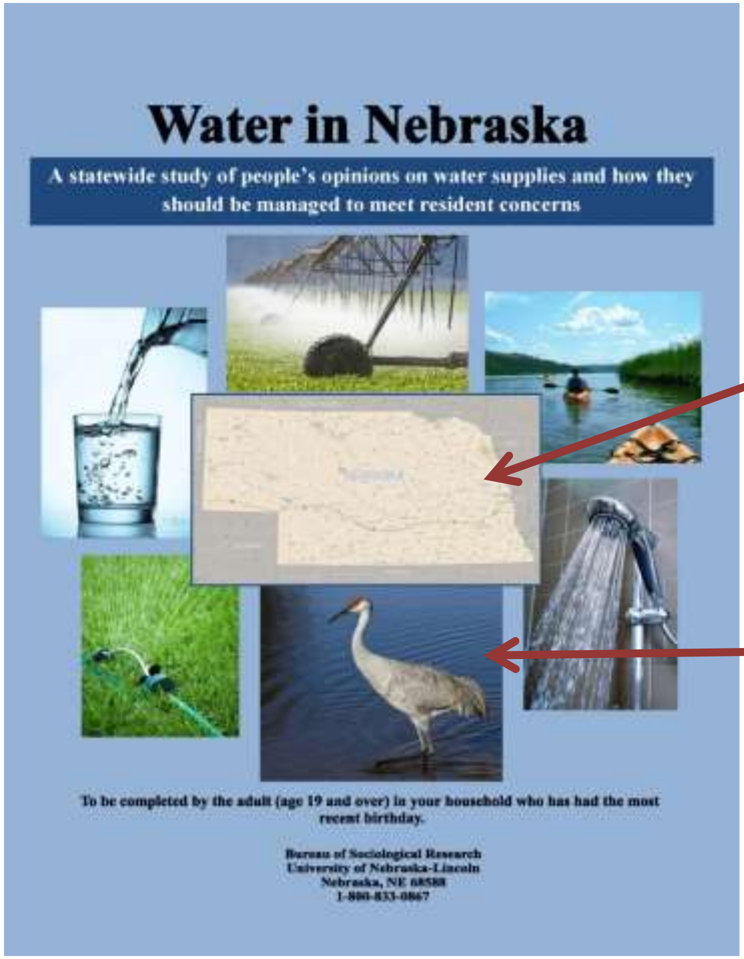
Question 1 of 48
Please think about the city or town where you receive your postal mail. For about how many years has your mailing address been in this city or town?
Years

Question 2 of 48
Which of the following best describes where your home is in relation to this city or town?
- Within this city or town limits
- Outside this city or town limits

Question 3 of 48
Most Nebraska homes have running water that comes out of indoor taps or faucets. How safe do you feel the tap water in your home is for drinking?
- Completely safe
- Very safe
- Somewhat safe
- Slightly safe
- Not at all safe
- Not sure

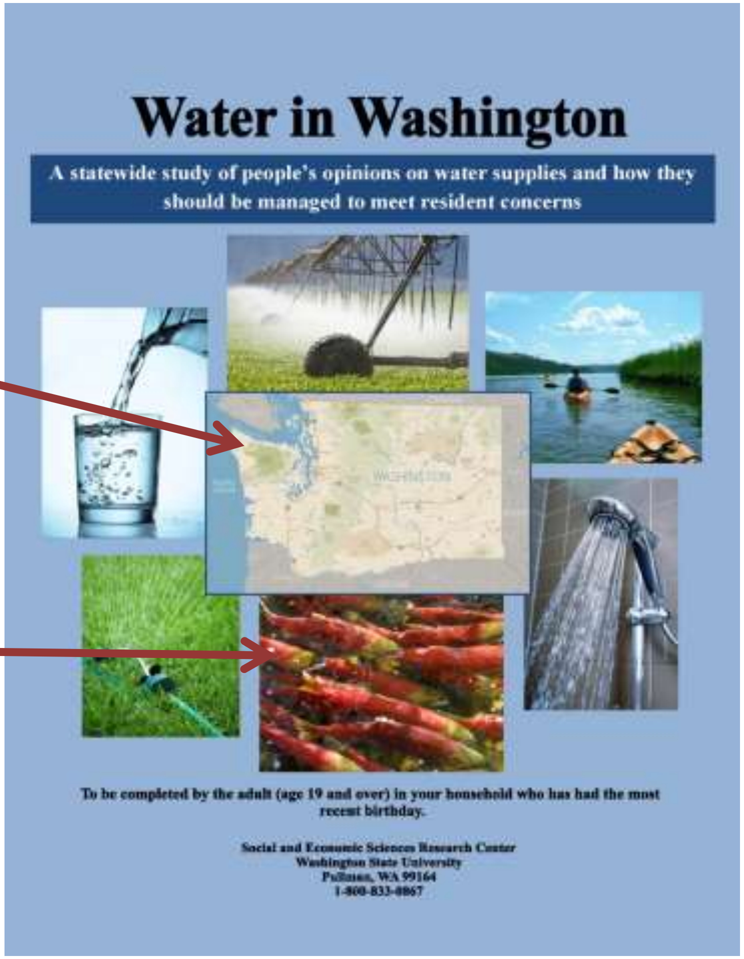
Question 4 of 48
How often does your tap water have a bad taste and/or odor?
- All of the time
- Most of the time
- Sometimes
- Rarely
- Never
- Not sure

Exceptions to unified mode design



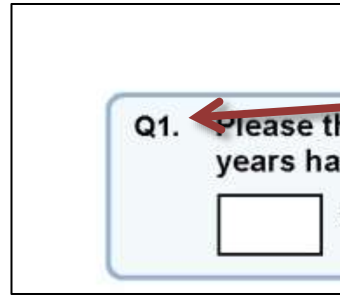
State-Specific Maps

State-Specific water wildlife



Exceptions to unified mode design

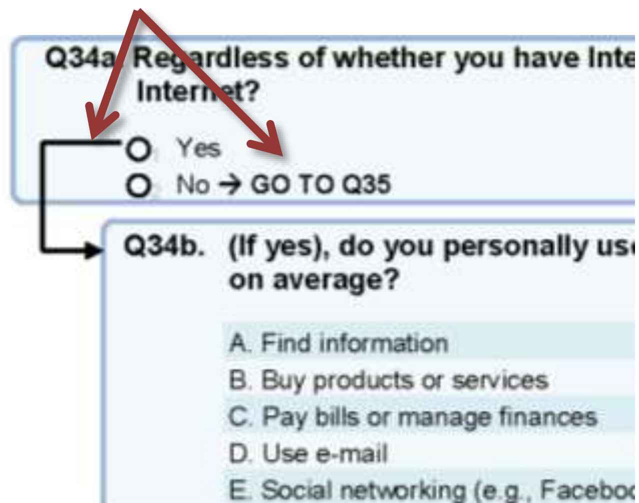
- Numbering differed so web respondents could have the same sense of total length as mail respondents.
- The web questionnaire automated skip patterns; the mail questionnaire did not.
- Both of these changes are expected to help respondents without negatively affecting measurement.



Standard numbering used in mail questionnaire

Counter used in web screens

Skip instructions in the mail questionnaire



Why make both the wording and visual design so similar? Why unified mode design?

- Previous research shows very few measurement differences between the web and mail modes when we unify the designs in this way.
  - Minor Exceptions:
    - Slightly higher item nonresponse in mail.
    - Better open-ended responses in web (i.e., longer with more information).

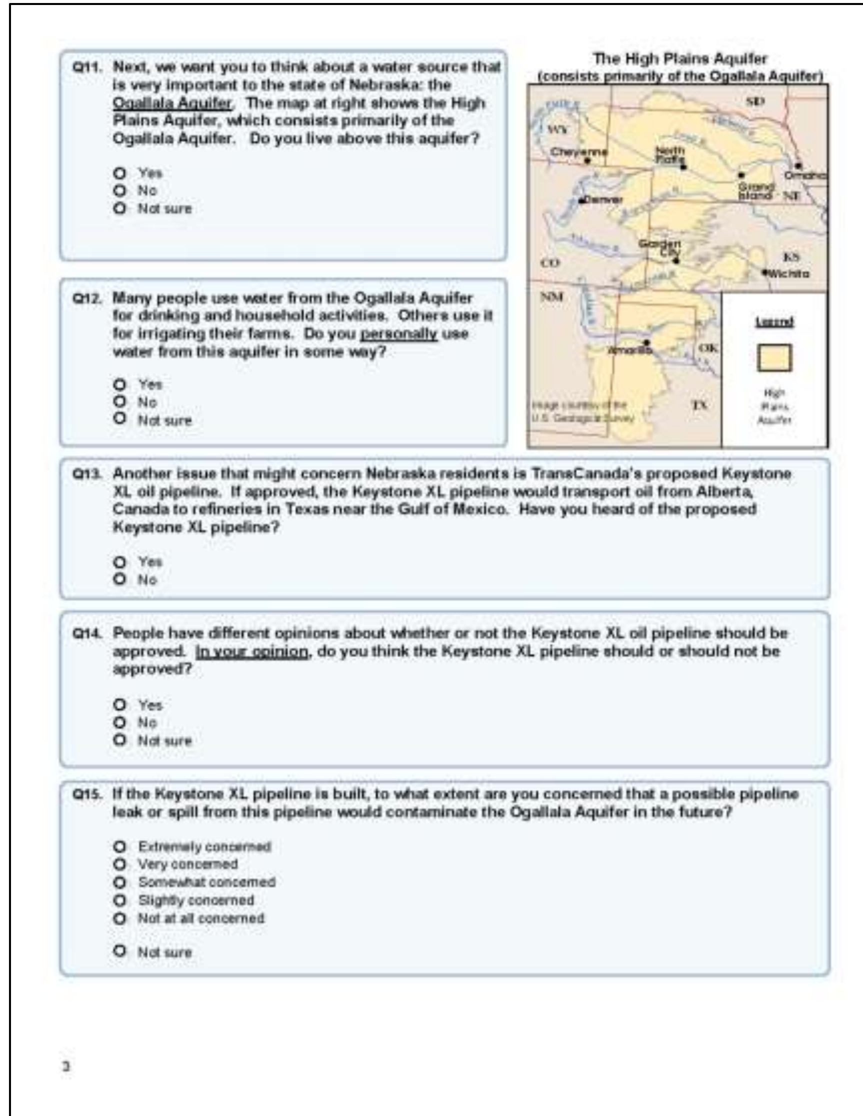
- We hope to get coverage and response advantages by mixing modes of response without increasing measurement error.

The questionnaire design was informed by social exchange principles

To **reduce costs**:
- The design was simple & consistent
- There was a clear navigational
- Lead with easy questions.

To **increase benefits**:
- The first questions were interesting.
- The cover design was state-specific.
- The questionnaire had highly salient state-specific water questions.

To **build trust**:
- Sponsor contact information was provided on the questionnaire.
- The questions were ordered in a logical conversational flow.
- The questionnaire design was professional in appearance.
- Gratitude and a genuine interest in people's responses were expressed.



Q11. Next, we want you to think about a water source that is very important to the state of Nebraska: the Ogallala Aquifer. The map at right shows the High Plains Aquifer, which consists primarily of the Ogallala Aquifer. Do you live above this aquifer?

- Yes
- No
- Not sure

The High Plains Aquifer (consists primarily of the Ogallala Aquifer)

Q12. Many people use water from the Ogallala Aquifer for drinking and household activities. Others use it for irrigating their farms. Do you personally use water from this aquifer in some way?

- Yes
- No
- Not sure

Q13. Another issue that might concern Nebraska residents is TransCanada's proposed Keystone XL oil pipeline. If approved, the Keystone XL pipeline would transport oil from Alberta, Canada to refineries in Texas near the Gulf of Mexico. Have you heard of the proposed Keystone XL pipeline?

- Yes
- No

Q14. People have different opinions about whether or not the Keystone XL oil pipeline should be approved. In your opinion, do you think the Keystone XL pipeline should or should not be approved?

- Yes
- No
- Not sure

Q15. If the Keystone XL pipeline is built, to what extent are you concerned that a possible pipeline leak or spill from this pipeline would contaminate the Ogallala Aquifer in the future?

- Extremely concerned
- Very concerned
- Somewhat concerned
- Slightly concerned
- Not at all concerned
- Not sure

3

We used postal mail contacts for all treatments; no email contacts

- Why?
  - Coverage
    - No email sample frame for the general public in Washington and Nebraska.
    - Using the USPS Delivery Sequence File as a frame gave us great coverage of these populations.
  - Response
    - Postal mail does not get caught in spam filters or rejected if there is a small typo in the address (i.e., increases the chances of delivery and making the initial contact).
    - Postal mail allows us to incorporate more social exchange elements into our contacts (i.e., increases the chances of cooperation once contact is made).

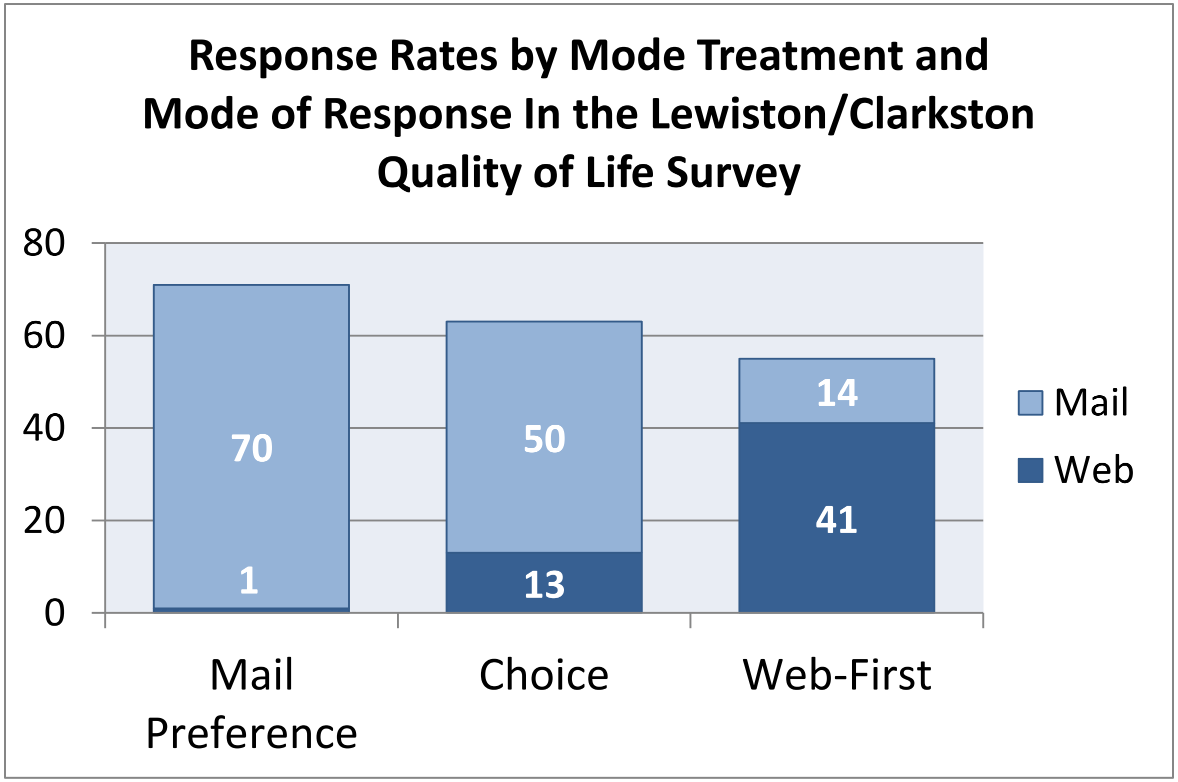
Contact materials were carefully designed from a social exchange framework, taking into account response mode

- 4 carefully timed postal mail contacts

Trust Inducing Features	Features to Increase Benefits	Features to Reduce Costs
• Printed in color on sponsor's letterhead • Real blue-ink signature • Multiple types of sponsor contact information provided • Incentive mentioned as token of appreciation • Consistency between contacts • Responsiveness problems	• Personalized to address and community • Message framed as request for help • Survey topic clearly stated • Incentive mentioned as a token of appreciation • Results website provided	• URL highly visible in color • URL made of meaningful words (www.opinion.wsu.edu/washingtonwater) • Addressed problems sample members alerted us to

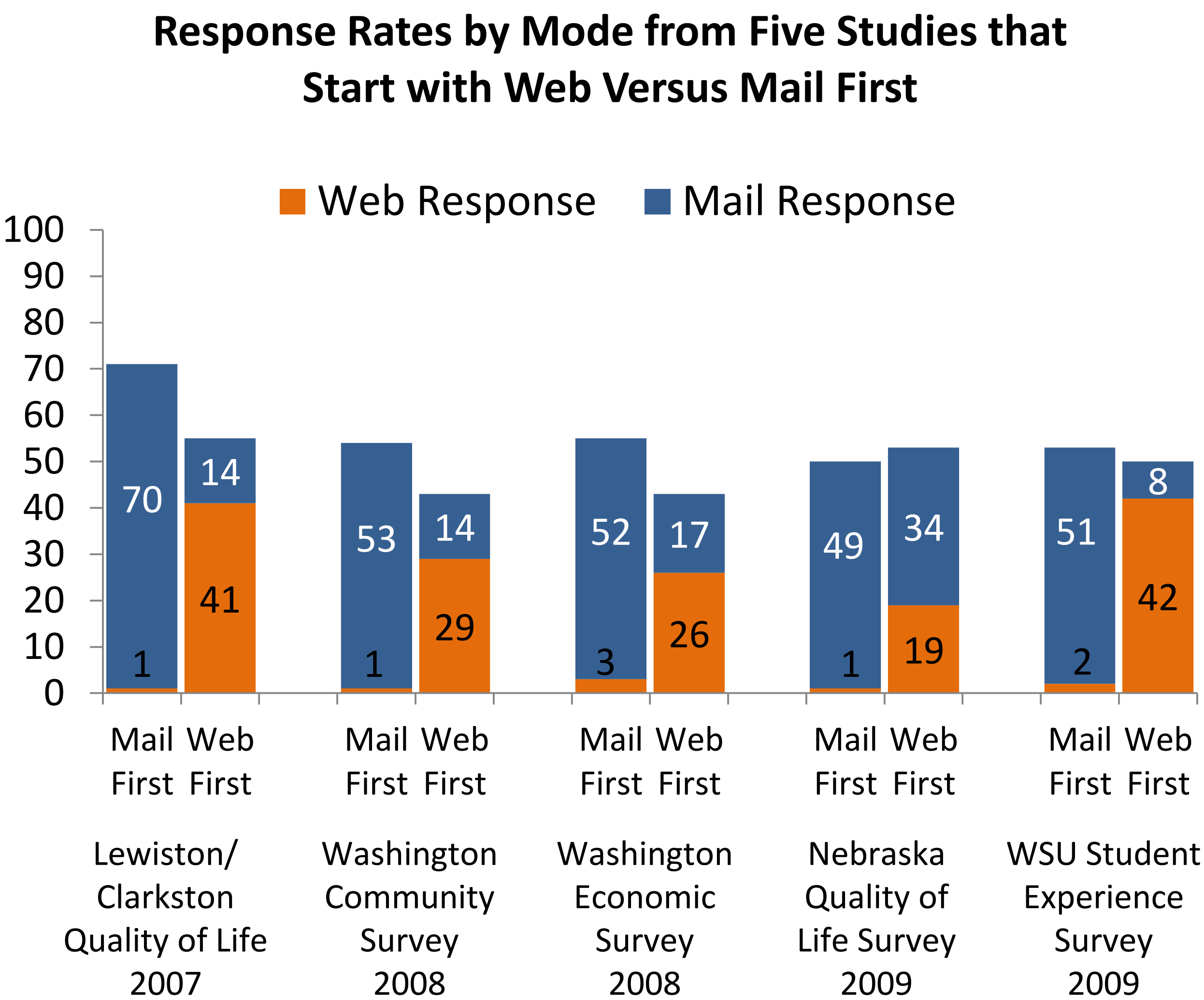
In the mixed-mode treatment, we used a sequential instead of a simultaneous (i.e., choice) design

- Why?
  - Previous research shows that choice designs…
    - Reduce response rates vis-à-vis mail-only designs (Medway & Fulton 2012)
    - Reduce the proportion responding by web in mixed-mode designs



Source: Smyth, Jolene D., Don A. Dillman, Leah Melani Christian, and Allison O'Neill. 2010. "Using the Internet to Survey Small Towns and Communities: Limitations and Possibilities in the early 21st Century." *American Behavioral Scientist*. 53:1423-1448.

In the mixed-mode treatment, we offered web-first and mail second

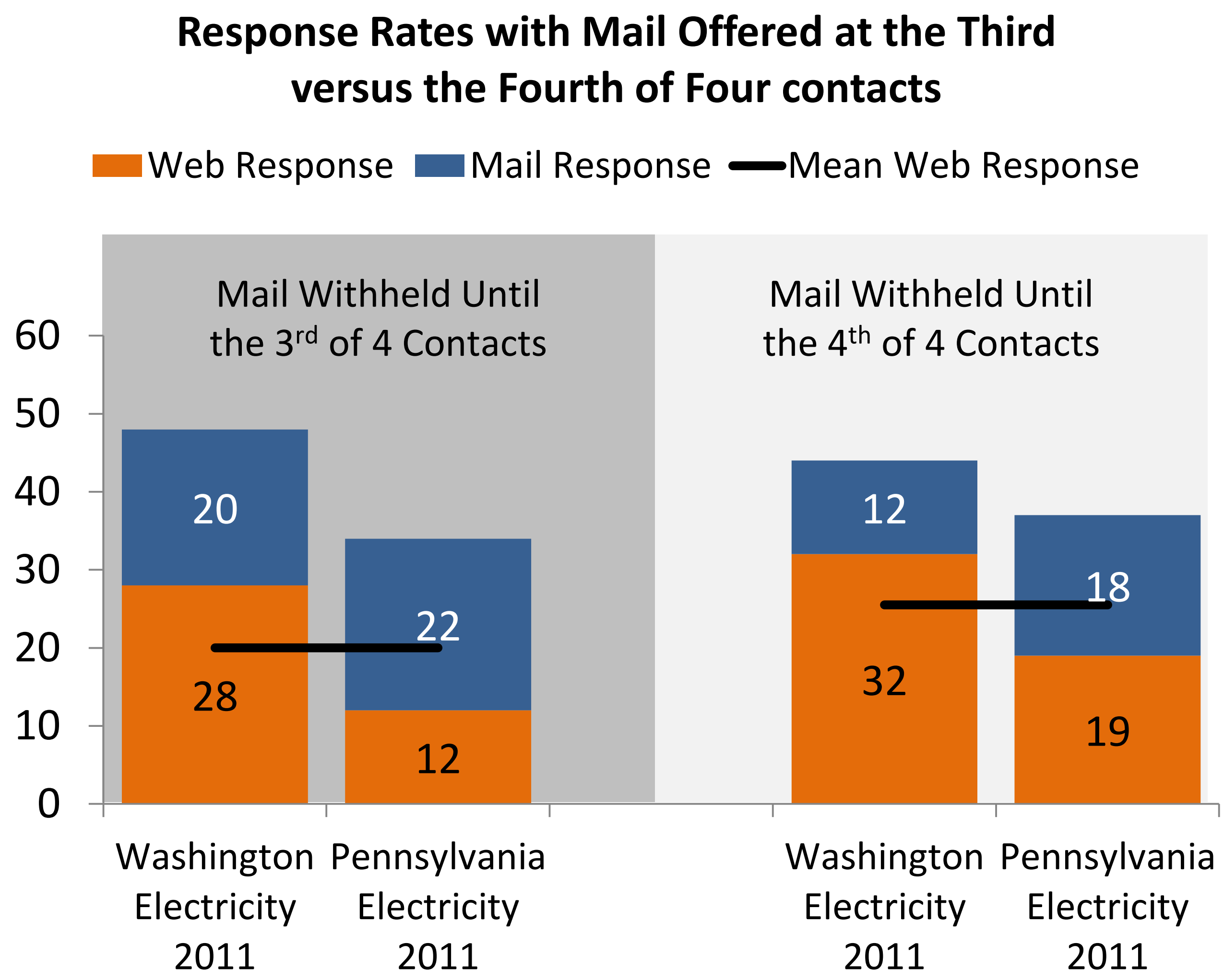


Why?

Our research shows that more people respond by web when it is offered first.

It is not worth the costs to program a web option in a mail-first design for the 1 to 3 percent who will use it.

In the mixed-mode treatment, we withheld the mail option until the fourth and final contact



Why?

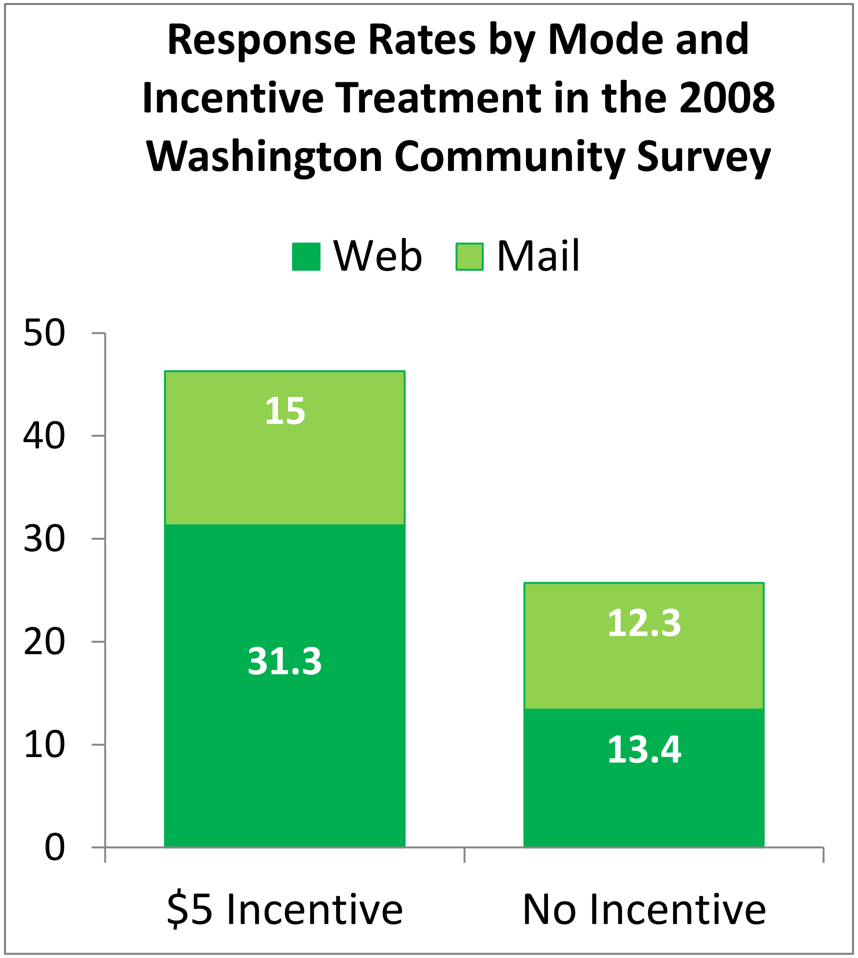
More people respond on the web when mail is withheld until the fourth of four contacts.

Mean = 25.5% vs. 20.0%

We used a $4 prepaid incentive in all treatments

Why?

- Previous research is clear that a prepaid incentive increases response rates.
- Our research suggests much of the benefit in web-first mixed-mode designs is in getting more people to respond in the web mode.

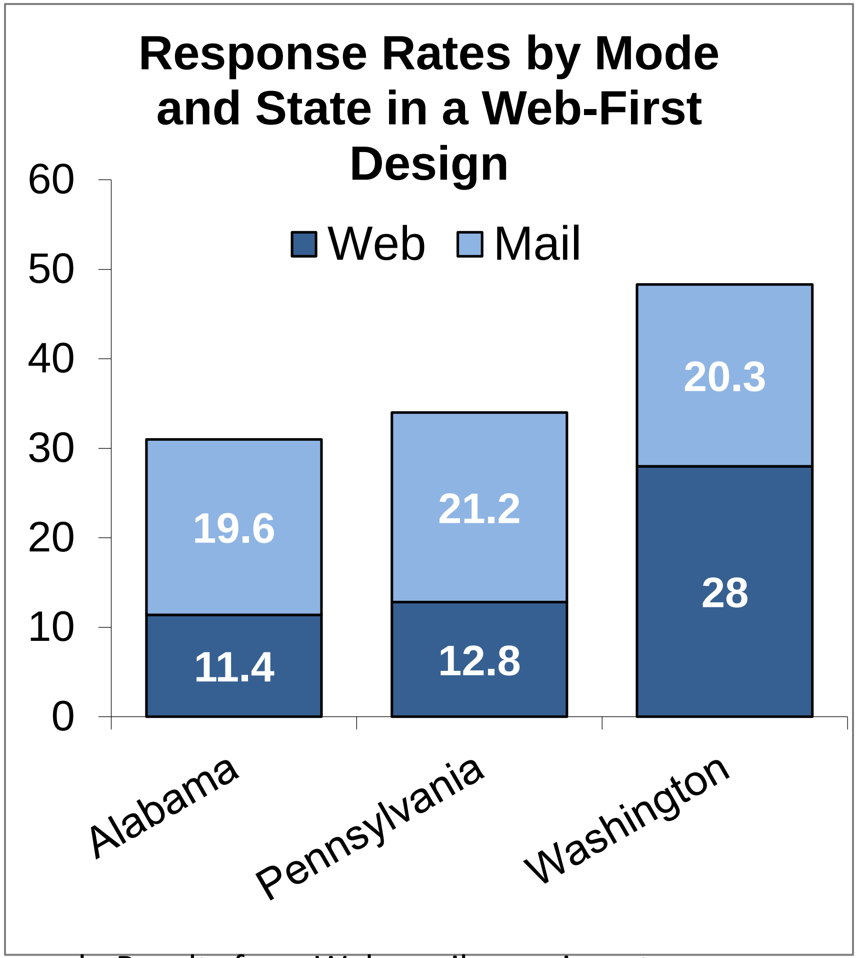


We also used an additional $2 incentive with the 3rd contact

- Why?
  - We hoped the second incentive would be an attention-getter making people more likely to read the appeal in the letter and thus more likely to be exposed to our messages about trust, benefits, and costs (i.e., interconnection of design features)
    - This idea is untested, but we think it has great promise.
  - One previous test resulted in a higher response rate in a web-first treatment with a second incentive (52%) than with no second incentive (48%) but this difference was not statistically significant.

We were testing the effects of sponsorship because previous research suggested it may be important

- 2011 Electricity Study
  - Sent to residents in three states
  - Sponsored by Washington State University.
- Proximity to the sponsor increased response rates by increasing the proportion responding on the web.
  - Response to the mail was virtually unchanged.



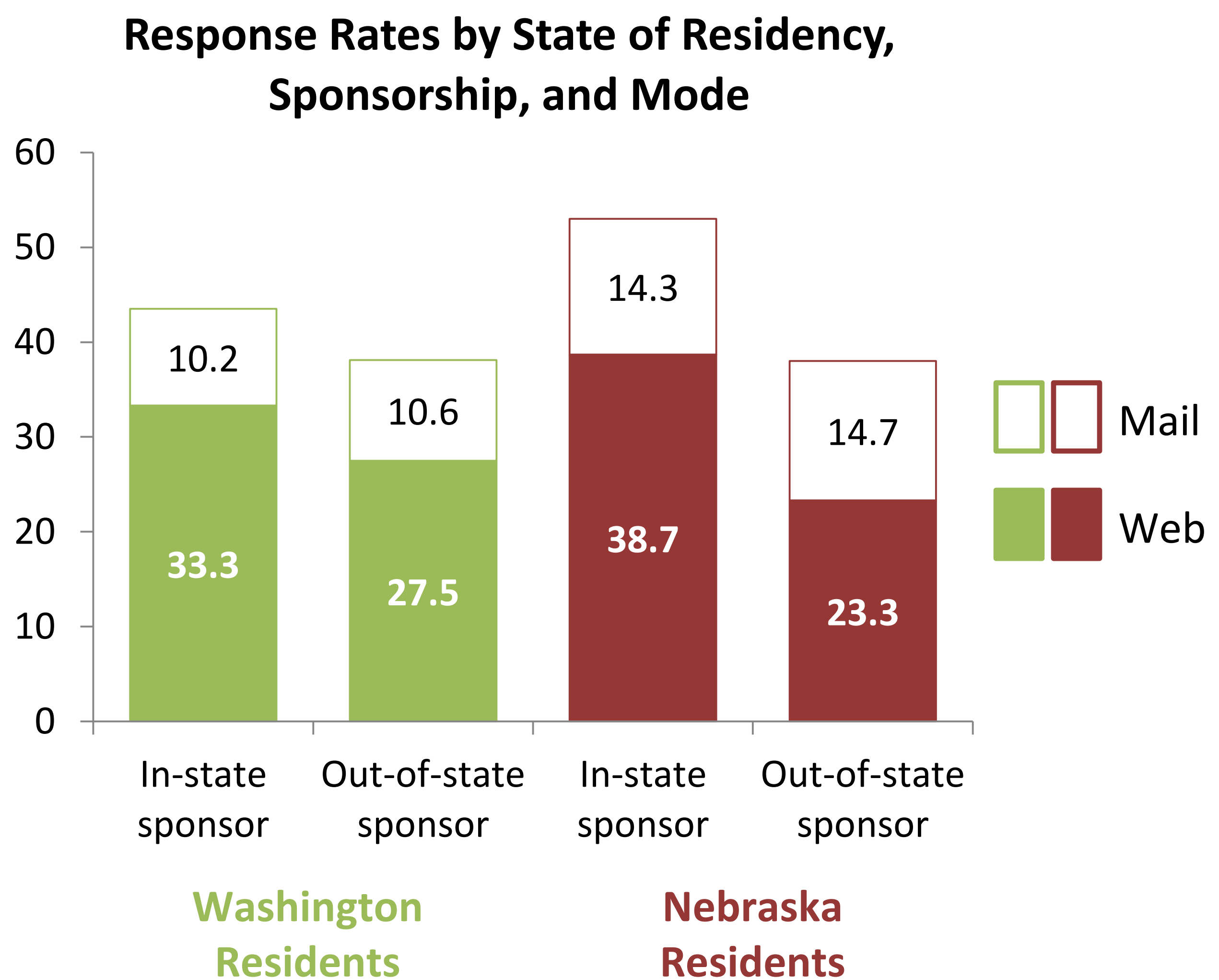
Source: Messer, Benjamin L. 2012. "Pushing households to the web: Results from Web+mail experiments using address based samples of the general public and mail contact procedures." Ph.D. Dissertation. Washington State University, Pullman.

So how did we do in the mixed-mode treatment in the water study?

- Response Rates (AAPOR RR2)
  - Overall = 43.1%
  - Washington = 40.7%
  - Nebraska = 45.6%

Did sponsorship matter in the water study?

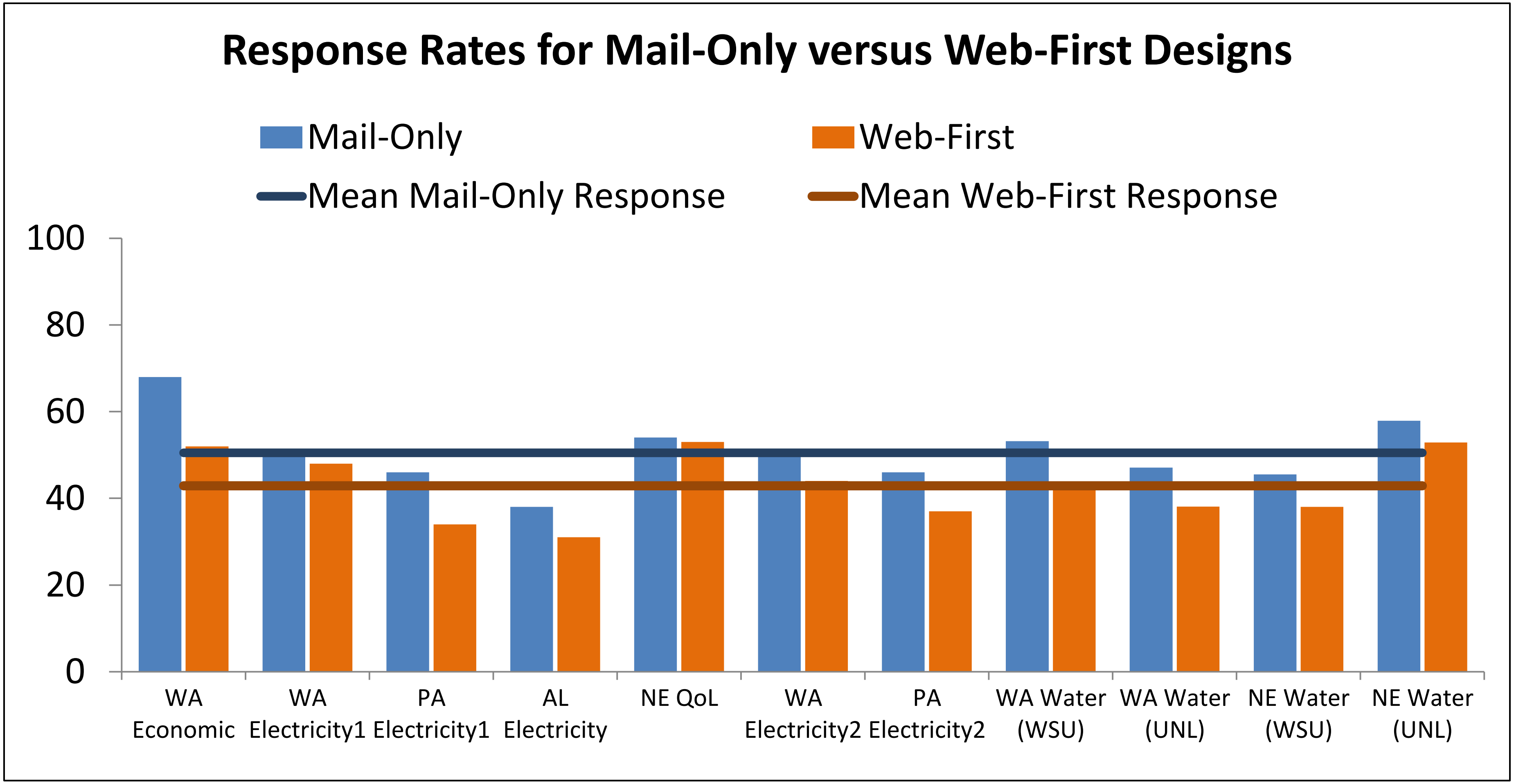
Yes!



- In both states, response rates are higher with the in-state sponsor.
- In-state sponsorship led to more respondents answering by web, but little change in response by mail.
- Trust is key to getting web response in these designs!!

What if we just used mail?

- In most of our studies, mail-only has produced higher response rates than web-first.



Why not just use mail then?

- With large projects there may be cost advantages to getting response by web.

- Looking to the future, as more people become comfortable with the web we expect web-first designs to perform better.

Water Study Summary

- Our goal was to create a holistically designed survey informed by social exchange to improve coverage and response with little impact on measurement.
- Questionnaire design used a unified mode strategy and a design meant to increase trust and benefits and reduce costs.
- Postal mail contacts allowed us to incorporate many social exchange elements as well as use a good sample frame.
- Sequential, web-first design with mail withheld until the end improved response rates and pushed more respondents to the web.

Conclusions

- ~10,000 design decisions (±5,000!) went into creating our mixed mode treatment.
- We chose a sample frame with the best coverage we could get and designed samples to fit our needs (Chapter 3)
- We used best practices for writing questions (Chapters 4 & 5), visual design (Chapter 6) and ordering questions (Chapter 7)
- We also followed many of the best practices for designing web and mail questionnaires (Chapters 9 and 10).
- But there were times when the mixed-mode nature of the study meant we could not rely on single-mode design strategies. We had to create synergy between the two modes (Chapter 11).
- All of the decisions were made within the social exchange framework, taking into consideration the goals of the project, target population, and budget (Chapter 2).

- Different circumstances might have required a different design, but the social exchange framework and holistic design goal would remain the same.

Questions/Comments?