

2019

Effects of Stem and Response Order on Response Patterns in Satisfaction Ratings

Jolene D. Smyth

University of Nebraska-Lincoln, jsmyth2@unl.edu

Glenn D. Israel

University of Florida, gdisrael@ufl.edu

Milton G. Newberry III

University of Georgia

Richard G. Hull

Nebraska Wesleyan University, rhull@nebrwesleyan.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/sociologyfacpub>



Part of the [Family, Life Course, and Society Commons](#), and the [Social Psychology and Interaction Commons](#)

Smyth, Jolene D.; Israel, Glenn D.; Newberry, Milton G. III; and Hull, Richard G., "Effects of Stem and Response Order on Response Patterns in Satisfaction Ratings" (2019). *Sociology Department, Faculty Publications*. 675.

<https://digitalcommons.unl.edu/sociologyfacpub/675>

This Article is brought to you for free and open access by the Sociology, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Sociology Department, Faculty Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Published in *Field Methods* 31:3 (2019), pp. 260–276; doi: 10.1177/1525822X19860648
Copyright © 2019 Jolene D. Smyth, Glenn D. Israel, Milton G. Newberry III, and Richard G. Hull.
Published by SAGE. Used by permission.
Published online July 1, 2019.

Supplemental material for this article follows the references.

Effects of Stem and Response Order on Response Patterns in Satisfaction Ratings

Jolene D. Smyth,¹ Glenn D. Israel,² Milton G. Newberry, III,³
and Richard G. Hull⁴

1. University of Nebraska–Lincoln, Lincoln, Nebraska, USA
2. University of Florida, Gainesville, Florida, USA
3. University of Georgia, Athens, Georgia, USA
4. Nebraska Wesleyan University, Lincoln, Nebraska, USA

Corresponding author – Jolene D. Smyth, University of Nebraska–Lincoln, 724 Oldfather Hall, Lincoln, NE 68588, USA, email jsmyth2@unl.edu

Abstract

Considerable research has examined the effect of response option order in ordinal bipolar questions such as satisfaction questions. However, no research we know of has examined the effect of the order of presentation of concepts in the question stem or whether stem order moderates response option order. In this article, we experimentally test the main and interaction effects of both stem and response option order for items in self-administered surveys on response distributions and answer changes in eight satisfied/dissatisfied questions. We find consistent evidence that response option order impacts answers. We also find that the order of “satisfied” or “dissatisfied” in the question stem impacts response distributions for four of our eight items but does not moderate the effect of response option order. We discuss the implications of our findings for questionnaire design and secondary data analyses.

Bipolar ordinal satisfaction questions are commonly used in surveys. Best practices guidelines advise using a balanced question stem that mentions both satisfaction and dissatisfaction (Dillman et al. 2014; Schuman and Presser 1981), but existing research that examines

response option order has largely ignored the order of concepts in the question stem. Thus, we do not know whether question stem order matters or how it may moderate the effects of response option order. In this article, we experimentally test the effects of question stem and response option order on response distributions and answer changes in self-administered surveys.

Background

Order of Concepts in Question Stems

It is generally agreed that balancing question stems (i.e., mentioning both positive and negative options) for both dichotomous and bipolar ordinal questions is best practice, and failing to do so can affect response distributions (Bishop 1990; Dillman et al. 2014; Narayan and Krosnick 1996; Schuman and Presser 1981). Mentioning only the positive option in a question stem implicitly suggests favoring a correct answer, while mentioning both makes it clear that respondents can express either positive or negative opinions (Dillman et al. 2014). While there seems to be some consensus that question stems should be balanced, only one study we know of has examined the effect of concept order in the question stem, finding no effect of stem order in dichotomous items (Schuman and Presser 1981). To the best of our knowledge, concept order has not been tested for ordinal items or in self-administered modes.

Order of Response Options

Far more empirical attention has been given to the ordering of response options. The majority of studies show either clear evidence that the order of response options in bipolar ordinal questions matters (i.e., leads to statistically significant differences in means or distributions) or mixed evidence in which order matters for 30–50% of items tested (Belson 1966; Carp 1974; Chan 1991; Christian et al. 2009; Dickson and Albaum 1975; Friedman et al. 1988; Hartley and Betts 2010; Kalton et al. 1978; Keusch 2012; Liu and Keusch 2017; Mathews 1929; Mingay and Greenwell 1989; Payne 1972; Sheluga et al. 1978; Toepoel et al. 2009; Yan and Keusch 2015). However, some studies have found no significant response option order effects (Christian et al. 2008; Israel and Taylor 1990; Johnson 1981; Powers et al. 1977; Rammstedt and Krebs 2007; Weng and Cheng 2000).

Where significant effects are found, they consistently show that responses are more positive when the positive end of the scale is presented first and more negative when the negative end of the scale is presented first, regardless of vertical/horizontal presentation of scales, balanced/unbalanced question stems, and survey mode. A review of 150 items in 11 previous studies (that we are aware of) reported differences in mean ratings between positive and negative scale orders ranged in magnitude from 3.2% to 16.7% of the scale length (i.e., 0.22–1.17 points on a 7-point scale or 0.35–1.8 points on an 11-point scale), suggesting the differences can vary in magnitude but overall tend to be small.

There are several commonly accepted theories for why response option order might affect responses in this way. The first is satisficing. While respondents engaged in strong satisficing might skip the question or make up an answer, those who are weak satisficing

might select the first response option that is acceptable or that falls into the range of reasonable responses for them, even if not optimal (i.e., the first satisfied option they come to if they are satisfied or the first dissatisfied option they come to if dissatisfied). In self-administered modes, this would be response options nearer to the start of the list (Krosnick 1991, 1999). The second, heuristic processing, suggests respondents sometimes rely on widely shared heuristics to make sense of information. Two heuristics respondents may use to assign meaning to visual cues are “left and top mean first” and “up means good” (Tourangeau et al. 2004). In addition, “first” is often considered to be the best (e.g., first place). Thus, these heuristics suggest that respondents will expect the most positive option to appear at the top of vertical lists or leftmost of horizontal lists and the rest to follow in a logical, ordinal progression. Breaches of this expectation may confuse some and be overlooked by others, resulting in mistaken responses.

The Relationship between Order in the Question Stem and in Response Options

Both satisficing and heuristic processing theories have focused exclusively on response option order, ignoring the potential influence of question stem order on respondent processing. However, it is possible that the order of concepts in the question stem influences expectations about the order of response options such that respondents expect the first response option to match the first concept in the question stem. Of course, this would depend heavily on respondents closely reading the question stem, suggesting that question stem order may influence expectations for response option order more strongly for respondents who read carefully and fully process information (i.e., optimize [Krosnick 1991, 1999]), than those who do not (i.e., weak satisficing).

Most existing response option order studies manipulate only the order of the response options, not the order of the question stem, resulting in comparisons between a version with satisfied first in both the stem and response options and a version with satisfied first in the stem and very dissatisfied first in the response options. If stem order matters, this latter design should shift response distributions toward the negative end of the scale as the scale order differs from both respondents’ preexisting expectations based on visual heuristics *and* the expectation set by the question stem.

Experiment and Hypotheses

In this article, we examine the effects of the question stem and response option order for ordinal satisfaction questions with the following experimental treatments:

- [1] Satisfied first in stem; very satisfied first in response options (i.e., match)
- [2] Dissatisfied first in stem; very satisfied first in response options (i.e., mismatch)
- [3] Dissatisfied first in stem; very dissatisfied first in response options (i.e., match)
- [4] Satisfied first in stem; very dissatisfied first in response options (i.e., mismatch)

First, we examine response distributions. Weak satisficing and heuristic processing theories predict that answers will trend toward the response options at the top of the list (i.e., more positive responses when “very satisfied” is first—1 and 2—and more negative responses when “very dissatisfied” is first—3 and 4) regardless of stem order (Hypothesis

1a, Online Supplement). Alternatively, if stem order sets expectations about response option order, we would expect more positive responses when the stem and response option orders are matched (1 and 3) than when they are mismatched (2 and 4; Hypothesis 1b, Online Supplement) as respondents will be less likely to mistakenly select negative response options in the matched versions (assuming an overall tendency toward positive responses for the questions examined here). If some respondents are weak satisficing, this effect may be somewhat attenuated in version 3 where dissatisfied comes first in the stem and response options.

Next, we examine answer changes, a common proxy for respondent confusion or difficulty (Christian and Dillman 2004; Olson and Parkhurst 2013; Stern 2008). We differentiate between nondirectional answer changes (i.e., changes between adjacent or similar response options), which we do not think signal confusion about the response scale, and directional answer changes (i.e., changes from one to the other side of the scale), which we believe do signal confusion. For this outcome, each of our theories leads to a different hypothesis. Satisficing theory suggests we will see similar low rates of directional answer changes in all versions as satisficing respondents are unlikely to recognize and change mistaken answers (Hypothesis 2a, Online Supplement). Heuristic processing theory suggests we will see more directional answer changes in versions 3 and 4 because “very dissatisfied” unexpectedly comes first in the response options (Hypothesis 2b, Online Supplement). Finally, the new notion introduced here that the question stem affects expectations for response option order suggests we will see higher rates of answer changes in the versions where the order of the question stem and response options are inconsistent (2 and 4) than in the versions where they are consistent (1 and 3; Hypothesis 2c, Online Supplement).

Method

Data

The data for this study came from four surveys: (1) the 2015 customer satisfaction survey of Florida Cooperative Extension Services (2015 FCES), (2) the 2016 FCES customer satisfaction survey, (3) the 2015 Florida Master Naturalist Program survey (2015 FMNP), and (4) the 2015 Nebraska Annual Social Indicators Survey (2015 NASIS). For both 2015 FCES and 2016 FCES, self-administered mixed-mode surveys designed to solicit feedback on FCES services were delivered to a sample of FCES clients drawn from client lists using a stratified (by county) sampling design. Sample members were assigned to web-only, mail-only, or web + mail response modes depending on whether they provided an e-mail address, postal address, or both. Up to five contacts were used, yielding an overall response rate of 51.7% (RR2, American Association for Public Opinion Research [AAPOR] 2016) with 1,627 partial and complete responses in 2015 and 52.6% with 1,391 partial and complete responses in 2016 (see supplemental material for sample sizes and response rates by treatment).

The mail and web versions of the FCES questionnaire followed Dillman et al.’s (2014) unimode design principles to minimize differences across modes. Five 2015 FCES items (out of the 21 total questions) asking about satisfaction with information accuracy, timely

delivery, relevance, ease of understanding (Q1–Q4 in a grid with horizontal response categories), and overall satisfaction (Q7—a stand-alone item with horizontal response categories) were included in this experiment using consistent stem-and-response order for the items within treatment groups.^{1,2} One item in the 2016 FCES asked about overall satisfaction (Q7) using vertical response categories (*Note*: Q1–Q4 were asked as unipolar items with the most positive response option first in 2016 but were not experimentally manipulated). See supplemental material for display of all questions by treatment.

The 2015 FMNP was a web survey with e-mail contacts. Of the 6,122 FMNP units in the frame, a random sample of 5,251 was selected. The first e-mail resulted in many bounced e-mails, so the adjusted sample size was 3,732 reachable FMNs. A final response rate based on this adjusted sample size was 53.1% (RR2, 1983). The instrument contained 79 items. A single item (Q1), which used a vertical format to ask how satisfied or dissatisfied the respondent was with the FMNP experience, was experimentally manipulated.

The 2015 NASIS was an omnibus postal mail survey of Nebraskans (3,500 residential addresses sampled from the USPS Delivery Sequence file). The next birthday method was used to sample an adult from each household (Gaziano 2005; Salmon and Nichols 1983). Three contacts (with a US\$1 prepaid incentive) were used, resulting in an AAPOR RR2 of 32.7% ($n = 1,143$). The questionnaire contained 108 questions, one of which (Q1, satisfaction with living in Nebraska) was included in this experiment.³ This question used a vertical format.

Analyses and Measures

We first examine response distributions and means for each question, testing for differences across versions with a χ^2 test for the distributions (using a Fisher's exact test with a Monte Carlo estimate of the p value when cell sizes were less than five) and an F test for the means. We also calculate Cramer's V and η^2 to assess effect sizes (0 = no association, 1 = complete association). We then use multinomial logistic regression to test the main and interaction effects of stem and response option order for each question individually.⁴ In addition, to get a sense of the overall results (across all questions), we conducted multinomial logistic regression analyses in which we pooled results from all four data sets into mixed models (see supplemental material for detailed description of the modeling approach). The results of the pooled analyses largely mirror those of the individual item-level analyses. Thus, for brevity, we note below where the pooled results support, contradict, or add to the individual item analyses but delegate the full pooled results to the supplemental material.

To assess answer changes, for the 2015 and 2016 FCES and 2015 NASIS, we reviewed the completed mail questionnaires and coded whether markings that indicated a response had been changed (e.g., erasures, crossouts) appeared for each question. For each marking, we recorded the initial and final answer. We then created dichotomous indicators for non-directional and directional answer changes (0 = no change, 1 = change). We compared the frequency of each type of answer change across the four experimental treatments.

For questions 1–4 in the 2015 FCES, we also created an indicator for “any change” that was coded 1 if five or more clicks were made on the screen by web respondents or if any answer to one of these items was changed on the mail questionnaire and zero if no changes

were made.⁵ We test for differences in rates of “any changes” across the four versions using a χ^2 test, followed by logistic regression to test the main effects of stem and response option order and their interaction on whether or not any answer change occurred. Analyses were conducted using SAS 9.4 (SAS Institute, Inc. n.d.).

Findings

For all eight questions, the response distributions varied significantly across the four experimental treatments ($p \leq .014$), although the effect sizes were small as reflected by Cramer’s V ranging from 0.073 to 0.17 (see Table S2 in the supplemental material). The top panel of Figure 1 shows that, consistent with satisficing and heuristic processing theory, the percent selecting “very satisfied” was consistently higher when it appeared first (solid bars) and lower when it appeared last (hashed bars). Similarly, the bottom panel shows that “very dissatisfied” was selected more often when it appeared at the top of the list (hashed) than at the bottom (solid). However, while question stem order (black vs. gray color) appears to have little effect for the selection of “very satisfied,” it seems more strongly related to the selection of “very dissatisfied.” “Very dissatisfied” is selected most often when there is a mismatch between the question stem and response option orders, such that “satisfied” is mentioned first in the question stem and “very dissatisfied” appears first in the response options (black hashed). Confirming the effect of response option order, mean responses are significantly higher in seven of the eight questions ($p < .050$) when “very satisfied” appears first versus last, but there is little effect of the order of concepts in the question stem on mean responses (see supplemental material).

The multinomial logistic regression results shown in Table 1 largely confirm results from the bivariate analyses. Overall, response option order was significant for all eight of the items as per the Wald χ^2 . For all eight items, when “very dissatisfied” came first in the response options, the log odds of selecting it relative to “very satisfied” increased (odds ratios [ORs] from 2.2 to 42.7), confirming the patterns observed in Figure 1. The results of the pooled analysis (see Tables S4 and S5) also consistently showed a significant effect of response order, although they suggest the horizontal orientation of response categories mitigate some of the effect of leading with “very dissatisfied.”

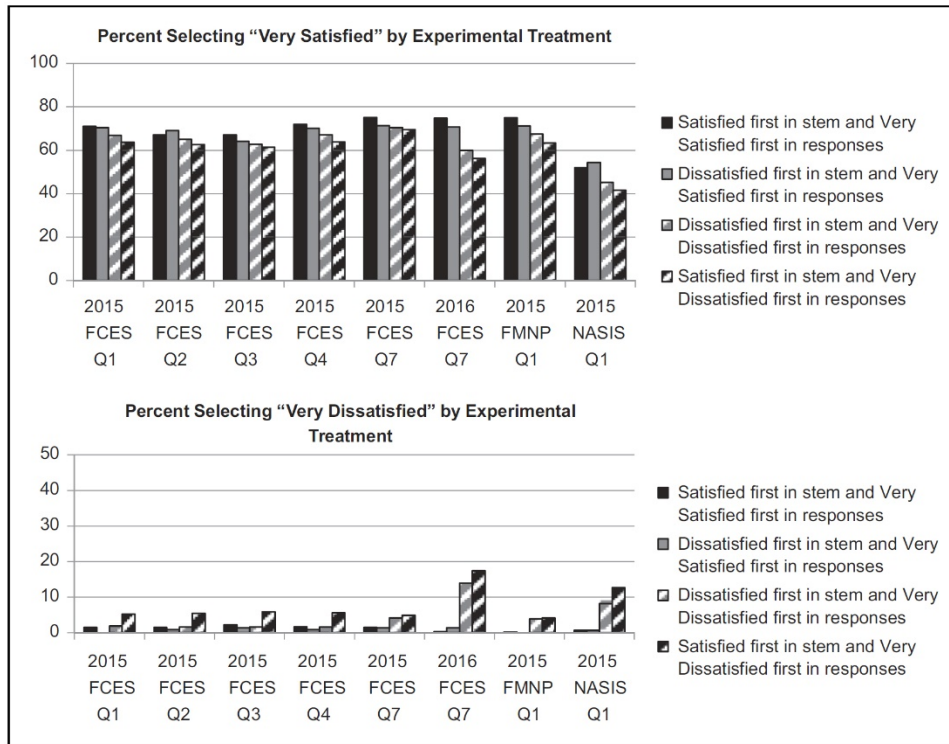


Figure 1. Percent selecting most positive and negative response options.

Table 1. Parameter Estimates, Wald χ^2 Values, and Model Fit Statistics for Multinomial Logistic Regression of Responses on Stem Order and Response Order

| | 2015 FCES | | | | | 2016 FCES | 2015 FMNP | 2015 NASIS |
|--|-----------|-----------|-----------|-----------|-----------|-----------|--------------------|---------------------|
| | Q1 | Q2 | Q3 | Q4 | Q7 | Q7 | Q1 | Q1 |
| Intercept | | | | | | | | |
| Very satisfied (reference category) | | | | | | | | |
| (Somewhat) Satisfied | -1.137*** | -1.008*** | -0.983*** | -1.176*** | -1.424*** | -1.235*** | -1.066*** | -0.528*** |
| Neutral/neither | -3.008*** | -2.809*** | -2.768*** | -2.954*** | -2.943*** | -3.191*** | -3.948*** | -1.508*** |
| (Somewhat) Dissatisfied | -3.483*** | -3.340*** | -3.447*** | -3.802*** | -3.254*** | -3.973*** | -5.088*** | -2.384*** |
| Very dissatisfied | -3.711*** | -3.636*** | -3.222*** | -3.576*** | -3.863*** | -4.419*** | -6.480*** | -4.099*** |
| Stem order: dissatisfied first | | | | | | | | |
| Very satisfied (reference category) | | | | | | | | |
| (Somewhat) Satisfied | 0.079 | 0.032 | 0.137 | 0.127 | 0.153 | 0.078 | -0.133 | 0.080 |
| Neutral/neither | -0.507 | -0.341 | 0.097 | -0.266 | 0.017 | 0.098 | 0.413 | -0.271 |
| (Somewhat) Dissatisfied | -0.562 | -0.494 | -0.310 | -1.441* | -0.449 | -0.228 | -0.145 | 0.222 |
| Very dissatisfied | -0.878* | -1.002** | -0.942** | -1.041** | -0.107 | -0.137 | -0.133 | -0.496 [†] |
| Response option order: very dissatisfied first | | | | | | | | |
| Very satisfied (reference category) | | | | | | | | |
| (Somewhat) Satisfied | 0.262* | 0.165 | 0.181 | 0.251* | 0.162 | 0.197 | 0.183 [†] | 0.250 [†] |
| Neutral/neither | -0.180 | 0.014 | -0.279 | -0.324 | -0.128 | 0.234 | 0.361 | -0.127 |
| (Somewhat) Dissatisfied | -0.909 | -0.035 | -0.400 | -0.104 | -0.900* | 0.654 | 1.545** | 0.453 [†] |
| Very dissatisfied | 1.173** | 1.131** | 0.783* | 1.083** | 1.183*** | 3.182*** | 3.755*** | 2.904*** |
| Wald χ^2 | | | | | | | | |
| Stem order | 10.452* | 10.203* | 10.479* | 15.584** | 3.050 | 1.253 | 2.061 | 5.705 |
| Response option order | 18.290*** | 11.635* | 10.619* | 14.417** | 18.213*** | 58.223*** | 24.456*** | 35.680*** |

Table 1 continued next page

Table 1, continued

| | 2015 FCES | | | | | 2016 FCES | 2015 FMNP | 2015 NASIS |
|--------------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|------------|
| | Q1 | Q2 | Q3 | Q4 | Q7 | Q7 | Q1 | Q1 |
| Model fit | | | | | | | | |
| Likelihood ratio | 31.589*** | 24.547** | 22.900** | 34.108*** | 23.475** | 128.574*** | 62.457*** | 73.814*** |
| -2 Log L | 2,690.296 | 2,855.037 | 2,958.442 | 2,676.221 | 2,683.467 | 2,541.667 | 3,158.704 | 2,768.260 |
| AIC for full model | 2,714.296 | 2,879.037 | 2,982.442 | 2,700.221 | 2,707.467 | 2,565.667 | 3,182.704 | 2,792.260 |
| AIC for null model | 2,729.886 | 2,887.584 | 2,989.342 | 2,718.329 | 2,714.943 | 2,678.242 | 3,229.161 | 2,850.074 |

Note: Each survey used slightly different designs for the satisfaction scale (see supplemental material) with the biggest differences being somewhat satisfied/dissatisfied versus simply satisfied/dissatisfied for interior scale points and the labeling of the midpoint. These differences are designated here by the putting of “somewhat” in parentheses and the use of neutral/neither for the midpoint label.

FCES = Florida Cooperative Extension Services, FMNP = Florida Master Naturalist Program survey, NASIS = Nebraska Annual Social Indicators Survey

† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

In addition, the log odds of selecting “somewhat satisfied” relative to “very satisfied” increased significantly ($p < .10$ or $p < .05$; ORs 1.20 to 1.30) when the negative end of the scale came first in four of the eight items (with effects in the same direction for the remaining four), a finding that is consistent with the notion from weak satisficing theory that respondents will select the first reasonable response option they encounter. This higher selection of the “somewhat satisfied” option was confirmed in the pooled analyses (Table S4).

As expected, there are fewer and mixed effects for the other response options. Taken together, these results suggest that some did not notice the scale was not ordered as they may have expected based on heuristic processing while others processed the scale order, but satisfied by selected the first reasonable, if not optimal, response option.

The multivariate analyses show that question stem order significantly affected responses to the four 2015 FCES items that appeared in a grid, such that when “dissatisfied” appeared first in the question stem, the log odds of selecting “very dissatisfied” relative to “very satisfied” decreased (ORs 0.35 to 0.42), but not for the remaining item (Q7) outside the grid. In the pooled analysis for these five questions (Table S5), the effect of question stem order is moderately statistically significant. The effect of stem order on responses was in the same direction for the remaining three items in Table 1, all of which were displayed as individual items, but only reached moderate statistical significance for one of them (Q1 2015 NASIS). The pooled analyses containing these items (Table S4) largely mirror this result. Likewise, there was no statistically significant interaction between question stem and response option order for any of the questions individually nor was the interaction term significant in the pooled analyses (analyses not shown).

Among mail survey respondents, there were only 12 nondirectional answer changes and 55 directional changes across all of the questions examined here. As shown in Table 2, 48 of the 55 (87%) directional changes occurred in the two treatments in which the “very dissatisfied” response option was presented first. This finding supports the heuristic processing theory idea that presenting the negative end of the scale first breaks preexisting expectations.

Incorporating web respondents and examining the percentage of respondents with any answer change in questions 1–4 of the 2015 FCES reveal similar patterns. Around 13% of respondents had answer changes in each of versions 1 and 2 where “very satisfied” came first in the response options compared to 18.6% in version 3 and 17.1% in version 4, both of which lead with the “very dissatisfied” response option ($\chi^2 = 8.277, p = .041$). This result is confirmed in a logistic regression model, in which the coefficient for response option order was positive and significant, but the coefficients for stem order and the interaction between stem and response option order were not significant (see Table S6 in the supplemental material).

Table 2. Frequency of Directional Answer Changes among Mail Respondents

| | Version 1 | Version 2 | Version 3 | Version 4 |
|----------------------------|----------------|----------------|-------------------|-------------------|
| First in Stem: | Satisfied | Dissatisfied | Dissatisfied | Satisfied |
| First in Response Options: | Very Satisfied | Very Satisfied | Very Dissatisfied | Very Dissatisfied |
| 2015 FCES | | | | |
| Q1 | 2 | 0 | 9 | 6 |
| Q2 | 1 | 0 | 4 | 2 |
| Q3 | 0 | 0 | 2 | 3 |
| Q4 | 0 | 0 | 1 | 2 |
| Q7 | 0 | 0 | 0 | 2 |
| 2016 FCES: Q7 | 0 | 0 | 6 | 7 |
| 2015 NASIS: Q1 | 1 | 3 | 2 | 2 |
| Total | 4 | 3 | 24 | 24 |

Note: FCES = Florida Cooperative Extension Services, FMNP = Florida Master Naturalist Program survey, NASIS = Nebraska Annual Social Indicators Survey

Discussion and Conclusions

Our findings confirm previous research showing that answers to bipolar satisfaction items are affected by response option order, although the effects are small. These effects appear to be due to both heuristic processing and satisficing. The increased selection of the “very dissatisfied” response option and the increased frequency of directional answer changes when “very dissatisfied” appears first suggests that respondents are utilizing heuristic processing in which they expect “very satisfied” to appear first. Only some of them appear to catch and correct their mistake. Other respondents appear to be satisficing. This, we think, is evidenced by the higher selection of “somewhat satisfied” when the response options start with “very dissatisfied” and higher selection of “very satisfied” when they start with “very satisfied.” It appears that at least some satisfied respondents are registering the first satisfied response they come to. We note that the questions we tested were located early in these surveys; we would expect even stronger satisficing effects for items appearing later in surveys where burden and fatigue are likely greater factors.

This is the first study to examine the effect of the order of concepts in the question stem of self-administered surveys and to test whether the question stem order moderates the impact of response option order on responses and answer changes. We found mixed evidence that the order of concepts in the question stem affects answers; stem order only impacted answers for the four items displayed in a grid. In addition, question stem and response option order appear to operate independently; there was no interaction between the two.

Our findings suggest that researchers should avoid violating the “left and top means first” and “up means good” heuristics. Positive response options should come first in bipolar satisfaction questions. The implications for stem order are less clear, but logic suggests that they should be consistent with the order of the response options. In addition, since our findings suggest that respondents rely on heuristic processing, both stem order and response option order should be consistent across all questions within a survey to

avoid breaking respondent expectations learned from early items in the survey. Inconsistencies in response option order may be particularly problematic when early items lead with the most positive response option (confirming and strengthening heuristic expectations) and later items do not, as we found for the 2016 FCES item here (see also Israel 2006).

During post-data collection analyses, care should be taken when comparing point estimates and distributions for satisfaction questions across studies in which stem and/or response option order is not consistent, such as across two cross-sectional data collections or two surveys in a longitudinal data collection. In such instances, the error due to inconsistent stem and/or response option order across surveys has real potential to lead to erroneous conclusions.

A strength of this study is that the experiments were conducted in four different surveys with quite varying samples and question content. The consistency of response order findings across such varying survey contexts suggests to us that these findings are robust. However, more research is clearly needed to better understand the conditions in which stem order effects are likely to occur. While our study does not yield clear practical implications for design in this regard, it is clear that stem order does matter in some satisfaction/dissatisfaction questions and thus should be further studied. Moreover, future research should extend this work to other common types of Likert items such as agree/disagree and likely/unlikely items as well as to construct specific items, examine questions appearing both early and late in questionnaires, and further examine the relationship between scale order and scale orientation (horizontal/vertical).

Acknowledgment – The authors thank James Colee, UF/IFAS Statistical Consulting, for help with the data analysis.

Declaration of Conflicting Interests – The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding – This research was supported by project FLA-AEC-05352 of the Florida Agricultural Experiment Station and by the Bureau of Sociological Research at the University of Nebraska–Lincoln.

Notes

1. The question number refers to the item's position in the questionnaire (e.g., Q7 was the seventh question).
2. Although the experimental items display the response options horizontally, respondents using smart phones likely saw the response options displayed vertically (see supplemental material for screenshots). Paradata for 2015 show that about 20% of web respondents used a smart phone.
3. Two additional Nebraska Annual Social Indicators Survey questions (Q77, finances; Q96, jobs) are excluded from this article because the experimental manipulation is confounded with the design of other satisfied/dissatisfied questions that came prior to them.
4. The data failed to meet the proportional odds assumption of ordinal logistic regression.
5. The click count data did not allow for the identification of initial and final answers or type of answer change. Due to technical difficulties, click count data are not available for Q7 in either the 2015 or 2016 Florida Cooperative Extension Services.

References

- American Association for Public Opinion Research (AAPOR). 2016. *Standard definitions: Final dispositions of case codes and outcome rates for surveys*. http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf. (accessed April 18, 2017).
- Belson, W. A. 1966. The effects of reversing the presentation order of verbal rating scales. *Journal of Advertising Research* 6: 30–37.
- Bishop, G. F. 1990. Issue involvement and response effects in public opinion surveys. *Public Opinion Quarterly* 54: 209–18.
- Carp, F. M. 1974. Position effects on interview responses. *Journal of Gerontology* 29: 581–87.
- Chan, J. C. 1991. Response-order effects in Likert-type scales. *Educational and Psychological Measurement* 51: 531–40.
- Christian, L. M., and D. A. Dillman. 2004. The influence of graphical and symbolic language manipulations on responses to self-administered questions. *Public Opinion Quarterly* 68: 58–81.
- Christian, L. M., D. A. Dillman, and J. D. Smyth. 2008. The effects of mode and format on answers to scalar questions in telephone and web surveys. In *Advances in telephone survey methodology*, eds. J. M. Lepkowski, C. Tucker, J. M. Brick, E. de Leeuw, L. Japac, P. J. Lavrakas, M. W. Link, and R. L. Sangster, 250–75. Hoboken, NJ: John Wiley.
- Christian, L. M., N. Parsons, and D. A. Dillman. 2009. Designing scalar questions for web surveys. *Sociological Methods and Research* 37: 393–425.
- Dickson, J., and G. Albaum. 1975. Effects of polarity of semantic differential scales in consumer research. *Advances in Consumer Research* 2: 507–14.
- Dillman, D. A., J. D. Smyth, and L. M. Christian. 2014. *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. Hoboken, NJ: John Wiley.
- Friedman, H. H., L. W. Friedman, and B. Gluck. 1988. The effects of scale-checking styles on responses to semantic differential scale. *Journal of the Market Research Society* 30: 477–81.
- Gaziano, C. 2005. Comparative analysis of within-household respondent selection techniques. *Public Opinion Quarterly* 69: 124–57.
- Hartley, J., and L. R. Betts. 2010. Four layouts and a finding: The effects of changes in the order of the verbal labels and numerical values on Likert-type scales. *International Journal of Social Research Methodology* 13: 17–27.
- Israel, G. D. 2006. Visual cues and response format effects in mail surveys. Presented at the annual meeting of the Southern Rural Sociological Association, Orlando, FL, February 7.
- Israel, G. D., and C. L. Taylor. 1990. Can response order bias evaluations? *Evaluation and Program Planning* 13:1–7.
- Johnson, D. J. 1981. Effects of the order of presentation of evaluative dimensions for bipolar scales in four societies. *The Journal of Social Psychology* 113: 21–27.
- Kalton, G., M. Collins, and L. Brook. 1978. Experiments in wording opinion questions. *Journal of the Royal Statistical Society. Series C (Applied Statistics)* 27: 149–61.
- Keusch, F. 2012. The direction of rating scales and its influence on response behavior in web surveys. Presented at the American Association for Public Opinion Research Conference, Orlando, FL, May 17–20.
- Krosnick, J. A. 1991. Response strategies for coping with cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology* 5: 213–36.

- Krosnick, J. A. 1999. Survey research. *Annual Review of Psychology* 50: 537–67.
- Liu, M., and F. Keusch. 2017. Effects of scale direction on response style of ordinal rating scales. *Journal of Official Statistics* 33: 137–54.
- Mathews, C. O. 1929. The effect of the printed response words on an interest questionnaire. *Journal of Educational Psychology* 30: 128–34.
- Mingay, D. J., and M. T. Greenwell. 1989. Memory bias and response-order effects. *Journal of Official Statistics* 5: 253–63.
- Narayan, S., and J. A. Krosnick. 1996. Education moderates some response effects in attitude measurement. *Public Opinion Quarterly* 60: 58–88.
- Olson, K., and B. Parkhurst. 2013. Collecting paradata for measurement error evaluations. In *Improving surveys with paradata: Analytic uses of process information*, ed. F. Kreuter, 43–72. Hoboken, NJ: John Wiley.
- Payne, J. D. 1972. The effects of reversing the order of verbal rating scales in a postal survey. *Journal of the Market Research Society* 14: 30–44.
- Powers, E. A., P. Morrow, W. J. Goudy, and P. M. Keith. 1977. Serial order preference in survey research. *Public Opinion Research* 41: 80–85.
- Rammstedt, B., and D. Krebs. 2007. Does response scale format affect the answering of personality scales? Assessing the big five dimensions of personality with different response scales in a dependent sample. *European Journal of Psychological Assessment* 23: 32–38.
- Salmon, C., and J. Nichols. 1983. The next-birthday method of respondent selection. *Public Opinion Quarterly* 47: 270–76.
- SAS Institute, Inc. n.d. *Software, Version 9.4*. Cary, NC: SAS Institute, Inc.
- Schuman, H., and S. Presser. 1981. *Questions and answers in attitude surveys: Experiments on question form, wording, and context*. Thousand Oaks, CA: Sage.
- Sheluga, D., J. Jacoby, and B. Major. 1978. Whether to agree–disagree or disagree–agree: The effects of anchor order on item nonresponse. *Advances in Consumer Research* 5: 109–13.
- Stern, M. J. 2008. The use of client-side paradata in analyzing the effects of visual layout on changing responses in web surveys. *Field Methods* 20: 377–98.
- Toepoel, V., M. Das, and A. van Soest. 2009. Design of web questionnaires: The effects of layout in rating scales. *Journal of Official Statistics* 25: 509–28.
- Tourangeau, R., M. P. Couper, and F. Conrad. 2004. Spacing, position, and order: Interpretive heuristics for visual features of surveys questions. *Public Opinion Quarterly* 68: 368–93.
- Weng, L.-J., and C.-P. Cheng. 2000. Effects of response order on Likert-type scales. *Educational and Psychological Measurement* 60: 908–24.
- Yan, T., and F. Keusch. 2015. The effects of the direction of rating scales on survey responses in a telephone survey. *Public Opinion Quarterly* 79: 145–65.

Supplemental Material

Table S1. Sample Sizes and Response Rates Overall and by Treatment.

| | Overall | Satisfied first in stem and Very Satisfied first in responses | Dissatisfied first in stem and Very Satisfied first in responses | Dissatisfied first in stem and Very Dissatisfied first in responses | Satisfied first in stem and Very Dissatisfied first in responses |
|-------------------|---------|---|--|--|---|
| 2015 FCES | | | | | |
| Sample size | 3,144 | 802 | 799 | 760 | 783 |
| Responded | 1,627 | 410 | 432 | 371 | 414 |
| AAPOR RR2 | 51.7% | 51.1% | 54.1% | 48.8% | 52.9% |
| 2016 FCES | | | | | |
| Sample size | 2,646 | 684 | 687 | 600 | 675 |
| Responded | 1,391 | 372 | 372 | 304 | 343 |
| AAPOR RR2 | 52.6% | 54.4% | 54.1% | 50.7% | 50.8% |
| 2015 FMNP | | | | | |
| Sample size | 3,732 | 910 | 927 | 932 | 963 |
| Responded | 1,983 | 465 | 496 | 494 | 528 |
| AAPOR RR2 | 53.1% | 51.1% | 53.5% | 53.0% | 54.8% |
| 2015 NASIS | | | | | |
| Sample size | 3,500 | 875 | 875 | 875 | 875 |
| Responded | 1,143 | 274 | 312 | 272 | 285 |
| AAPOR RR2 | 32.7% | 31.3% | 35.7% | 31.1% | 32.6% |

Table S2. Item Distributions and Means by Experimental Treatment.

| | <u>Version 1</u> | <u>Version 2</u> | <u>Version 3</u> | <u>Version 4</u> | | | |
|---|------------------|------------------|-------------------|-------------------|---------------|----------------------|---------------|
| First in Stem: | Satisfied | Dissatisfied | Dissatisfied | Satisfied | | | Cramer's |
| First in Response Options: | Very Satisfied | Very Satisfied | Very Dissatisfied | Very Dissatisfied | χ^2 or F | p-value ^a | V or η^2 |
| 2015 FCES | | | | | | | |
| Q1 – Information is accurate and up to date | | | | | | | |
| Very satisfied | 71.0 | 70.4 | 66.9 | 63.7 | | | |
| Satisfied | 22.0 | 25.2 | 29.2 | 27.4 | | | |
| Neither | 3.2 | 2.4 | 1.4 | 2.9 | 35.24 | 0.001 | .086 |
| Dissatisfied | 2.2 | 1.2 | 0.5 | 0.7 | | | |
| Very Dissatisfied | 1.5 | 0.9 | 1.9 | 5.3 | | | |
| Mean | 4.60 | 4.63 | 4.59 | 4.43 | 4.70 | 0.003 | .009 |
| Q2 – Delivered in time to be useful | | | | | | | |
| Very satisfied | 67.1 | 69.1 | 65.0 | 62.7 | | | |
| Satisfied | 25.2 | 25.3 | 29.8 | 26.2 | | | |
| Neither | 3.7 | 3.3 | 2.5 | 4.2 | 29.37 | 0.011 | .078 |
| Dissatisfied | 2.5 | 1.4 | 1.1 | 1.5 | | | |
| Very Dissatisfied | 1.5 | 0.9 | 1.6 | 5.4 | | | |
| Mean | 4.54 | 4.60 | 4.56 | 4.40 | 4.73 | 0.003 | .009 |
| Q3 – Relevant to client's situation | | | | | | | |
| Very satisfied | 67.2 | 64.2 | 62.8 | 61.5 | | | |
| Satisfied | 24.2 | 28.2 | 31.4 | 28.3 | | | |
| Neither | 4.0 | 4.7 | 3.0 | 3.2 | 27.36 | 0.017 | .075 |
| Dissatisfied | 2.2 | 1.4 | 1.1 | 1.2 | | | |
| Very Dissatisfied | 2.2 | 1.4 | 1.6 | 5.9 | | | |
| Mean | 4.52 | 4.53 | 4.53 | 4.38 | 2.72 | 0.043 | .005 |
| Q4 – Easy to understand | | | | | | | |
| Very satisfied | 71.9 | 70.2 | 67.1 | 63.9 | | | |
| Satisfied | 21.5 | 25.3 | 29.3 | 26.1 | | | |
| Neither | 3.5 | 3.1 | 1.6 | 2.7 | 37.59 | <0.001 | .088 |
| Dissatisfied | 1.5 | 0.5 | 0.3 | 1.7 | | | |
| Very Dissatisfied | 1.7 | 0.9 | 1.6 | 5.6 | | | |
| Mean | 4.60 | 4.63 | 4.60 | 4.41 | 6.55 | <0.001 | .012 |
| Q7 – Overall Service | | | | | | | |
| Very satisfied | 75.1 | 71.4 | 70.4 | 69.5 | | | |
| Satisfied | 16.7 | 21.4 | 21.5 | 21.1 | | | |
| Neither satisfied nor dissatisfied | 3.7 | 4.0 | 3.1 | 3.4 | 25.10 | 0.017 | .073 |
| Dissatisfied | 3.0 | 1.7 | 0.8 | 1.0 | | | |
| Very Dissatisfied | 1.5 | 1.4 | 4.2 | 4.9 | | | |
| Mean | 4.61 | 4.60 | 4.53 | 4.49 | 1.58 | 0.192 | .003 |

2016 FCES

Q7 – Overall Service

| | | | | | | | |
|------------------------------------|------|------|------|------|--------|--------|------|
| Very satisfied | 74.8 | 70.8 | 60.0 | 56.2 | | | |
| Satisfied | 20.8 | 23.2 | 21.7 | 21.0 | | | |
| Neither satisfied nor dissatisfied | 2.5 | 3.8 | 2.3 | 3.6 | 117.01 | <0.001 | .169 |
| Dissatisfied | 1.6 | 0.8 | 2.0 | 1.8 | | | |
| Very Dissatisfied | 0.3 | 1.4 | 14.0 | 17.4 | | | |
| Mean | 4.68 | 4.61 | 4.12 | 3.97 | 35.43 | <0.001 | .072 |

2015 FMNP

Q1 – Overall Experience

| | | | | | | | |
|-------------------|------|------|------|------|-------|--------|------|
| Very satisfied | 74.9 | 71.2 | 67.5 | 63.4 | | | |
| Satisfied | 24.0 | 25.4 | 25.2 | 27.9 | | | |
| Neutral | 0.6 | 2.8 | 2.0 | 2.5 | 58.37 | <0.001 | .099 |
| Dissatisfied | 0.2 | 0.6 | 1.4 | 2.1 | | | |
| Very Dissatisfied | 0.2 | 0.0 | 3.9 | 4.2 | | | |
| Mean | 4.73 | 4.67 | 4.51 | 4.44 | 15.24 | <0.001 | .023 |

2015 NASIS

Q1 – Living in NE

| | | | | | | | |
|-----------------------|------|------|------|------|-------|--------|------|
| Very satisfied | 52.0 | 54.4 | 45.2 | 41.7 | | | |
| Somewhat Satisfied | 30.1 | 30.2 | 31.0 | 32.2 | | | |
| Neutral | 12.6 | 8.2 | 7.8 | 7.1 | 69.15 | <0.001 | .143 |
| Somewhat Dissatisfied | 4.5 | 6.6 | 7.8 | 6.4 | | | |
| Very dissatisfied | 0.7 | 0.7 | 8.2 | 12.7 | | | |
| Mean | 4.28 | 4.31 | 3.97 | 3.84 | 12.19 | <0.001 | .032 |

^a Monte Carlo Estimate for Fisher's Exact Test.

Table S3. Odds Ratios for the Main Effects of Stem Order and Response Order Based on Models in Table 1.

| | | ----- Stem Order ----- | | | ----- Response Order ----- | | |
|-------------------|-------------------------|------------------------|--------------|--------------|----------------------------|--------------|--------------|
| | | Odds Ratio | Lower 95% CI | Upper 95% CI | Odds Ratio | Lower 95% CI | Upper 95% CI |
| FCES 2015 | | | | | | | |
| Q1 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 1.083 | 0.863 | 1.358 | 1.299 | 1.036 | 1.629 |
| | Neutral/Neither | 0.602 | 0.314 | 1.155 | 0.835 | 0.441 | 1.583 |
| | (Somewhat) Dissatisfied | 0.570 | 0.222 | 1.461 | 0.403 | 0.144 | 1.127 |
| | Very dissatisfied | 0.415 | 0.204 | 0.845 | 3.233 | 1.558 | 6.707 |
| Q2 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 1.033 | 0.825 | 1.294 | 1.180 | 0.942 | 1.478 |
| | Neutral/Neither | 0.711 | 0.410 | 1.232 | 1.015 | 0.589 | 1.747 |
| | (Somewhat) Dissatisfied | 0.610 | 0.274 | 1.358 | 0.703 | 0.316 | 1.566 |
| | Very dissatisfied | 0.367 | 0.176 | 0.765 | 3.099 | 1.488 | 6.454 |
| Q3 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 1.146 | 0.918 | 1.432 | 1.199 | 0.960 | 1.497 |
| | Neutral/Neither | 1.102 | 0.654 | 1.857 | 0.757 | 0.445 | 1.287 |
| | (Somewhat) Dissatisfied | 0.733 | 0.323 | 1.667 | 0.671 | 0.291 | 1.547 |
| | Very dissatisfied | 0.390 | 0.199 | 0.764 | 2.189 | 1.162 | 4.124 |
| Q4 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 1.136 | 0.904 | 1.427 | 1.285 | 1.023 | 1.614 |
| | Neutral/Neither | 0.767 | 0.417 | 1.409 | 0.723 | 0.389 | 1.343 |
| | (Somewhat) Dissatisfied | 0.237 | 0.067 | 0.835 | 1.109 | 0.412 | 2.983 |
| | Very dissatisfied | 0.353 | 0.171 | 0.731 | 2.952 | 1.458 | 5.980 |
| Q7 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 1.165 | 0.909 | 1.494 | 1.176 | 0.917 | 1.508 |
| | Neutral/Neither | 1.017 | 0.597 | 1.733 | 0.880 | 0.514 | 1.504 |
| | (Somewhat) Dissatisfied | 0.639 | 0.287 | 1.422 | 0.407 | 0.169 | 0.976 |
| | Very dissatisfied | 0.899 | 0.498 | 1.621 | 3.266 | 1.677 | 6.359 |
| FCES 2016 | | | | | | | |
| Q7 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 1.081 | 0.831 | 1.406 | 1.217 | 0.934 | 1.586 |
| | Neutral/Neither | 1.103 | 0.598 | 2.035 | 1.263 | 0.684 | 2.334 |
| | (Somewhat) Dissatisfied | 0.796 | 0.332 | 1.910 | 1.924 | 0.802 | 4.614 |
| | Very dissatisfied | 0.872 | 0.572 | 1.330 | 24.092 | 10.458 | 55.500 |
| FMNP 2015 | | | | | | | |
| Q1 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 0.966 | 0.788 | 1.185 | 1.200 | 0.979 | 1.473 |
| | Neutral/Neither | 1.511 | 0.795 | 2.870 | 1.434 | 0.759 | 2.711 |
| | (Somewhat) Dissatisfied | 0.865 | 0.371 | 2.021 | 4.688 | 1.578 | 13.928 |
| | Very dissatisfied | 0.875 | 0.469 | 1.632 | 42.726 | 5.860 | 311.518 |
| NASIS 2015 | | | | | | | |
| Q1 | Very Satisfied (ref.) | | | | | | |
| | (Somewhat) Satisfied | 0.923 | 0.704 | 1.209 | 1.284 | 0.980 | 1.682 |
| | Neutral/Neither | 0.762 | 0.497 | 1.170 | 0.881 | 0.571 | 1.359 |
| | (Somewhat) Dissatisfied | 1.248 | 0.756 | 2.061 | 1.573 | 0.956 | 2.587 |
| | Very dissatisfied | 0.609 | 0.351 | 1.057 | 18.243 | 6.528 | 50.985 |

Pooled Analysis Data Structure and Methods

Our pooled data analyses include data from all of the surveys at once to give overall estimates of the effects rather than item-by-item estimates. In these analyses we use generalized linear mixed models to estimate the effects of stem and response option order on responses.

We start with the observation that the 2015 FCES data contains repeated measures across 5 items within subjects, but the other surveys each contained only one question and thus do not have this clustering of questions within respondents. This complicated the process of pooling all of the data into a single analysis and getting models to converge. As a result, we used a two-step process. The first step eliminates the need to account for questions nested within respondents in the 2015 FCES data by estimating models using one question from each of the four surveys, with the models rotating through the five items from the 2015 FCES data as shown below.

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---------------|---------|---------|---------|---------|---------|
| 2015 FCES | | | | | |
| Q1 | X | | | | |
| Q2 | | X | | | |
| Q3 | | | X | | |
| Q4 | | | | X | |
| Q7 | | | | | X |
| 2016 FCES Q7 | X | X | X | X | X |
| 2015 FMNP Q1 | X | X | X | X | X |
| 2015 NASIS Q1 | X | X | X | X | X |

Essentially, across these 5 models, the only change is which question from the 2015 FCES is included. We estimated the models in SAS 9.4 using PROC GLIMMIX with the Laplace method and random intercepts with surveys as subjects using the multinomial distribution and generalized logit link. Results of these models are shown in Table S4.

In the second step we pool the data from the five questions in the 2015 FCES into a single repeated measures model. This allows us to account for clustering of questions within respondents in this single survey without the added complication of the other surveys. We estimated this model in SAS 9.4 using PROC GLIMMIX with the RMPL method and with random intercepts with respondents as subjects using the multinomial distribution and generalized logit link. Results are shown in Table S5.

Table S4. Parameter Estimates, F Values, and Model Fit Statistics for Multinomial Logistic Regression of Responses on Stem Order and Response Order, Controlling for Response Mode, Question Position and Response Orientation Using Pooled Data.

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|--|-----------|-----------|-----------|-----------|-----------|
| Intercept | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | -1.060*** | -1.039*** | -1.061*** | -1.028*** | -1.062*** |
| Neutral/Neither | -3.070*** | -2.875*** | -2.921*** | -2.979*** | -2.839*** |
| (Somewhat) Dissatisfied | -3.663*** | -3.602*** | -3.685*** | -3.675*** | -3.505*** |
| Very Dissatisfied | -5.387*** | -5.312*** | -5.305*** | -5.322*** | -4.952*** |
| Stem Order: Dissatisfied first=1 | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | 0.008 | -0.004 | 0.027 | 0.021 | 0.022 |
| Neutral/Neither | -0.117 | -0.098 | 0.006 | -0.076 | -0.009 |
| (Somewhat) Dissatisfied | -0.009 | -0.024 | 0.019 | -0.078 | -0.003 |
| Very Dissatisfied | -0.348* | -0.365* | -0.366** | -0.372** | -0.212 |
| Response Option Order: Very Dissatisfied first=1 | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | 0.196** | 0.210** | 0.218** | 0.215** | 0.194** |
| Neutral/Neither | 0.042 | 0.025 | 0.060 | 0.041 | 0.017 |
| (Somewhat) Dissatisfied | 0.576** | 0.612** | 0.573** | 0.662*** | 0.375* |
| Very Dissatisfied | 3.190*** | 3.179*** | 3.186*** | 3.188*** | 2.558*** |
| Response Mode: Mail=0 versus Web=1 | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | 0.430*** | 0.389*** | 0.394*** | 0.348* | 0.437*** |
| Neutral/Neither | 0.848** | 0.598** | 0.560* | 0.787** | 0.426+ |
| (Somewhat) Dissatisfied | 0.336 | 0.409 | 0.598+ | 0.548 | 0.494 |
| Very Dissatisfied | 0.438* | 0.383* | 0.329+ | 0.374+ | 0.672** |
| Question Position: Not first=0 versus First=1 | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | -0.333*** | -0.282*** | -0.294*** | -0.265* | -0.356*** |
| Neutral/Neither | -0.362 | -0.224 | -0.420 | -0.398 | -0.497 |
| (Somewhat) Dissatisfied | -0.581 | -0.736 | -0.485 | -1.098 | -0.415 |
| Very Dissatisfied | 0.846* | 0.408 | 0.400 | 0.417 | 0.596+ |
| Response Orientation: Horizontal=0 vs. Vertical=1 | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | -0.264* | 0.129 | 0.259* | -0.050 | -0.153+ |
| Neutral/Neither | -0.490 | -0.428 | 0.369 | -0.180 | 0.266 |
| (Somewhat) Dissatisfied | -0.156 | 0.634 | -0.085 | 0.733 | -0.645 |
| Very Dissatisfied | 1.377** | 1.356* | 1.869** | 1.425* | -0.776+ |
| Response Order X Orientation | | | | | |
| Very Satisfied (Reference Category) | | | | | |
| (Somewhat) Satisfied | 0.114 | -0.039 | -0.054 | 0.035 | |
| Neutral/Neither | -0.112 | 0.174 | -0.324 | -0.242 | |
| (Somewhat) Dissatisfied | -1.150* | -0.782+ | -0.632 | -0.499 | |
| Very Dissatisfied | -2.194*** | -2.202*** | -2.555*** | -2.261*** | |
| F Value | | | | | |
| Stem Order | 1.81 | 1.87 | 1.99+ | 2.04+ | 0.71 |
| Response Option Order | 20.02*** | 18.67*** | 18.89*** | 20.28*** | 35.22*** |
| Response Mode | 14.44*** | 11.79*** | 12.08*** | 3.61** | 14.42*** |
| Question Position | 6.24*** | 4.05** | 4.30** | 2.20+ | 6.83*** |
| Response Orientation | 2.92* | 0.73 | 2.33+ | 0.33 | 1.91 |
| Response Order X Orientation | 6.25*** | 5.70*** | 8.28*** | 5.80*** | |
| Model Fit | | | | | |
| -2 Log L | 11206.10 | 11382.43 | 11483.42 | 11204.50 | 11222.47 |
| AIC for final model | 11268.10 | 11444.43 | 11545.42 | 11268.50 | 11276.47 |

| | | | | | |
|------------------------------|----------|----------|----------|----------|----------|
| AIC for intercept only model | 11535.85 | 11677.14 | 11794.53 | 11524.36 | 11521.96 |
|------------------------------|----------|----------|----------|----------|----------|

Note: + $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$

Each survey used slightly different designs for the satisfaction scale (see online supplement) with the biggest differences being somewhat satisfied/dissatisfied versus simply satisfied/dissatisfied for interior scale points and the labeling of the midpoint. These differences are designated here by the putting of “somewhat” in parentheses and the use of neutral/neither for the midpoint label.

The pooled analyses combined responses for one item in the 2015 FCES survey (Q1 for Model 1, Q2 for Model 2, Q3 for Model 3, Q4 for Model 4 and Q7 for Model 5) with the data (one item each) from 2016 FCES, 2015 FMNP, and 2015 NASIS surveys.

Table S5. Parameter Estimates and F Values for Multinomial Logistic Regression of Responses on Stem Order and Response Order, Controlling for Response Mode and Question Position Using a Repeated Measures Model for the Five Items in the 2015 FCES Survey.

| | Parameter Estimate |
|---|--------------------|
| Intercept | |
| Very Satisfied (Reference Category) | |
| Satisfied | -1.451*** |
| Neither | -2.752*** |
| Dissatisfied | -3.533*** |
| Very Dissatisfied | -3.587*** |
| Stem Order: Dissatisfied first | |
| Very Satisfied (Reference Category) | |
| Satisfied | 0.132 |
| Neither | -0.108 |
| Dissatisfied | -0.527+ |
| Very Dissatisfied | -0.612* |
| Response Option Order: Very Dissatisfied first | |
| Very Satisfied (Reference Category) | |
| Satisfied | 0.025 |
| Neither | -0.827** |
| Dissatisfied | -0.513 |
| Very Dissatisfied | 1.117** |
| Response Mode: Mail versus Web | |
| Very Satisfied (Reference Category) | |
| Satisfied | 0.043 |
| Neither | -0.306 |
| Dissatisfied | 0.376 |
| Very Dissatisfied | 0.082 |
| Response Order X Mode | |
| Very Satisfied (Reference Category) | |
| Satisfied | 0.405* |
| Neither | 1.322** |
| Dissatisfied | 0.041 |
| Very Dissatisfied | -0.230 |
| Question Position (Q7 is reference position versus grid with Q1-Q4) | |
| Very Satisfied (Reference Category) | |
| Satisfied | 0.345*** |
| Neither | -0.058 |
| Dissatisfied | -0.119 |
| Very Dissatisfied | -0.074 |
| F Values | |
| Stem Order | 2.26+ |
| Response Option Order | 4.72*** |
| Response Mode | 2.52* |
| Response Order X Mode | 3.38** |
| Question Position | 6.69*** |

Note: + p<.1; * p<.05; ** p<.01; *** p<.001

Model estimated using Residual MPL method in SAS PROC GLIMMIX

Table S6. Logistic Regression of Extra Clicks or Changed Answers on Stem Order and Response Order Treatments for Q1-Q4 of 2015 FCES survey.

| | Parameter estimates | |
|--|---------------------|----------|
| | Model 1 | Model 2 |
| Intercept | -1.930 | -1.886 |
| Stem order (Dissatisfied first) | 0.027 | -0.060 |
| Response order (Very Dissatisfied first) | 0.390*** | 0.311 |
| Stem X Response Order | | 0.159 |
| Likelihood ratio Chi-square | 7.930* | 8.256* |
| -2 Log Likelihood | 1381.194 | 1380.868 |
| AIC for full model | 1387.194 | 1388.868 |
| AIC for null model | 1391.124 | 1391.124 |

Table S7. Odds Ratios for the Main Effects of Stem Order, Response Order, Response Mode, Question Position and Question Orientation Based on the Models for the Pooled Data in Table S4.

| | Odds Ratio | Lower 95% CI | Upper 95% CI |
|---|------------|--------------|--------------|
| Model 1 | | | |
| Stem Order: Dissatisfied versus Satisfied | | | |
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.008 | 0.896 | 1.135 |
| Neutral/Neither | 0.889 | 0.676 | 1.169 |
| (Somewhat) Dissatisfied | 0.991 | 0.698 | 1.406 |
| Very dissatisfied | 0.706 | 0.539 | 0.924 |
| Response Order: Very dissatisfied is first versus Very satisfied is first | | | |
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.287 | 1.121 | 1.479 |
| Neutral/Neither | 0.986 | 0.682 | 1.426 |
| (Somewhat) Dissatisfied | 1.001 | 0.570 | 1.759 |
| Very dissatisfied | 8.105 | 4.984 | 13.181 |
| Response Mode: Mail vs Web | | | |
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.537 | 1.360 | 1.736 |
| Neutral/Neither | 2.336 | 1.370 | 3.982 |
| (Somewhat) Dissatisfied | 1.399 | 0.690 | 2.836 |
| Very dissatisfied | 1.550 | 1.052 | 2.284 |
| Question Position: Q7 is reference position versus grid with Q1-Q4 | | | |
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.716 | 0.614 | 0.836 |
| Neutral/Neither | 0.696 | 0.297 | 1.634 |
| (Somewhat) Dissatisfied | 0.559 | 0.121 | 2.579 |
| Very dissatisfied | 2.330 | 1.117 | 4.860 |
| Question Orientation: Horizontal vs Vertical | | | |
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.813 | 0.702 | 0.940 |
| Neutral/Neither | 0.579 | 0.266 | 1.261 |
| (Somewhat) Dissatisfied | 0.482 | 0.163 | 1.427 |
| Very dissatisfied | 1.322 | 0.639 | 2.735 |

Model 2

Stem Order: Dissatisfied versus Satisfied

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.996 | 0.885 | 1.121 |
| Neutral/Neither | 0.906 | 0.695 | 1.181 |
| (Somewhat) Dissatisfied | 0.977 | 0.694 | 1.374 |
| Very dissatisfied | 0.694 | 0.530 | 0.909 |

Response Order: Very dissatisfied is first
versus Very satisfied is first

| | | | |
|----------------------------|-------|-------|--------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.209 | 1.053 | 1.389 |
| Neutral/Neither | 1.119 | 0.805 | 1.556 |
| (Somewhat) Dissatisfied | 1.247 | 0.792 | 1.964 |
| Very dissatisfied | 7.987 | 4.915 | 12.981 |

Response Mode: Mail vs Web

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.476 | 1.308 | 1.666 |
| Neutral/Neither | 1.819 | 1.182 | 2.797 |
| (Somewhat) Dissatisfied | 1.506 | 0.799 | 2.839 |
| Very dissatisfied | 1.467 | 1.005 | 2.141 |

Question Position: Q7 is reference position
versus grid with Q1-Q4

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.755 | 0.652 | 0.874 |
| Neutral/Neither | 0.799 | 0.318 | 2.006 |
| (Somewhat) Dissatisfied | 0.479 | 0.132 | 1.740 |
| Very dissatisfied | 1.504 | 0.557 | 4.065 |

Question Orientation: Horizontal vs
Vertical

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.115 | 0.939 | 1.325 |
| Neutral/Neither | 0.711 | 0.344 | 1.472 |
| (Somewhat) Dissatisfied | 1.275 | 0.408 | 3.990 |
| Very dissatisfied | 1.291 | 0.502 | 3.319 |

Model 3

Stem Order: Dissatisfied versus Satisfied

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.027 | 0.913 | 1.155 |
| Neutral/Neither | 1.006 | 0.774 | 1.308 |
| (Somewhat) Dissatisfied | 1.019 | 0.723 | 1.437 |
| Very dissatisfied | 0.693 | 0.531 | 0.905 |

Response Order: Very dissatisfied is first
versus Very satisfied is first

| | | | |
|----------------------------|-------|-------|--------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.210 | 1.056 | 1.387 |
| Neutral/Neither | 0.903 | 0.658 | 1.239 |
| (Somewhat) Dissatisfied | 1.294 | 0.797 | 2.100 |
| Very dissatisfied | 6.742 | 4.306 | 10.555 |

Response Mode: Mail vs Web

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.483 | 1.315 | 1.674 |
| Neutral/Neither | 1.750 | 1.139 | 2.689 |
| (Somewhat) Dissatisfied | 1.818 | 0.953 | 3.469 |
| Very dissatisfied | 1.390 | 0.964 | 2.004 |

Question Position: Q7 is reference position
versus grid with Q1-Q4

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.745 | 0.643 | 0.863 |
| Neutral/Neither | 0.657 | 0.260 | 1.660 |
| (Somewhat) Dissatisfied | 0.616 | 0.195 | 1.946 |
| Very dissatisfied | 1.492 | 0.535 | 4.159 |

Question Orientation: Horizontal vs
Vertical

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.261 | 0.719 | 4.529 |
| Neutral/Neither | 1.230 | 0.247 | 1.817 |
| (Somewhat) Dissatisfied | 0.670 | 0.564 | 2.684 |
| Very dissatisfied | 1.805 | 1.063 | 1.495 |

Model 4

Stem Order: Dissatisfied versus Satisfied

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.021 | 0.907 | 1.149 |
| Neutral/Neither | 0.927 | 0.707 | 1.215 |
| (Somewhat) Dissatisfied | 0.925 | 0.649 | 1.318 |
| Very dissatisfied | 0.690 | 0.527 | 0.903 |

Response Order: Very dissatisfied is first
versus Very satisfied is first

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.262 | 1.097 | 1.451 |
| Neutral/Neither | 0.923 | 0.644 | 1.322 |
| (Somewhat) Dissatisfied | 1.510 | 0.887 | 2.569 |

| | | | |
|-------------------|-------|-------|--------|
| Very dissatisfied | 7.830 | 4.869 | 12.591 |
|-------------------|-------|-------|--------|

Response Mode: Mail vs Web

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.417 | 1.054 | 1.904 |
| Neutral/Neither | 2.196 | 1.326 | 3.636 |
| (Somewhat) Dissatisfied | 1.730 | 0.815 | 3.671 |
| Very dissatisfied | 1.453 | 0.989 | 2.133 |

Question Position: Q7 is reference position
versus grid with Q1-Q4

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.768 | 0.609 | 0.967 |
| Neutral/Neither | 0.672 | 0.305 | 1.480 |
| (Somewhat) Dissatisfied | 0.334 | 0.075 | 1.476 |
| Very dissatisfied | 1.518 | 0.560 | 4.114 |

Question Orientation: Horizontal vs
Vertical

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 0.968 | 0.596 | 1.573 |
| Neutral/Neither | 0.740 | 0.346 | 1.581 |
| (Somewhat) Dissatisfied | 1.621 | 0.285 | 9.223 |
| Very dissatisfied | 1.343 | 0.526 | 3.428 |

Model 5

Stem Order: Dissatisfied versus Satisfied

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.022 | 0.905 | 1.153 |
| Neutral/Neither | 0.991 | 0.761 | 1.290 |
| (Somewhat) Dissatisfied | 0.997 | 0.709 | 1.403 |
| Very dissatisfied | 0.809 | 0.622 | 1.051 |

Response Order: Very dissatisfied is first
versus Very satisfied is first

| | | | |
|----------------------------|--------|-------|--------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.215 | 1.076 | 1.371 |
| Neutral/Neither | 1.017 | 0.780 | 1.326 |
| (Somewhat) Dissatisfied | 1.455 | 1.033 | 2.049 |
| Very dissatisfied | 12.913 | 8.358 | 19.949 |

Response Mode: Mail vs Web

| | | | |
|----------------------------|-------|-------|-------|
| Very Satisfied (reference) | | | |
| (Somewhat) Satisfied | 1.548 | 1.367 | 3.528 |
| Neutral/Neither | 1.531 | 0.995 | 1.752 |
| (Somewhat) Dissatisfied | 1.639 | 0.882 | 2.357 |

| | | | |
|-------------------|-------|-------|-------|
| Very dissatisfied | 1.957 | 1.288 | 3.047 |
|-------------------|-------|-------|-------|

Question Position: Q7 is reference position
versus grid with Q1-Q4

Very Satisfied (reference)

| | | | |
|----------------------|-------|-------|-------|
| (Somewhat) Satisfied | 0.700 | 0.603 | 0.813 |
|----------------------|-------|-------|-------|

| | | | |
|-----------------|-------|-------|-------|
| Neutral/Neither | 0.609 | 0.217 | 1.710 |
|-----------------|-------|-------|-------|

| | | | |
|-------------------------|-------|-------|-------|
| (Somewhat) Dissatisfied | 0.660 | 0.191 | 2.287 |
|-------------------------|-------|-------|-------|

| | | | |
|-------------------|-------|-------|-------|
| Very dissatisfied | 1.815 | 0.934 | 3.528 |
|-------------------|-------|-------|-------|

Question Orientation: Horizontal vs

Vertical

Very Satisfied (reference)

| | | | |
|----------------------|-------|-------|-------|
| (Somewhat) Satisfied | 0.858 | 0.715 | 1.029 |
|----------------------|-------|-------|-------|

| | | | |
|-----------------|-------|-------|-------|
| Neutral/Neither | 1.305 | 0.560 | 3.041 |
|-----------------|-------|-------|-------|

| | | | |
|-------------------------|-------|-------|-------|
| (Somewhat) Dissatisfied | 0.525 | 0.199 | 1.384 |
|-------------------------|-------|-------|-------|

| | | | |
|-------------------|-------|-------|-------|
| Very dissatisfied | 0.460 | 0.198 | 1.071 |
|-------------------|-------|-------|-------|

Table S8. Odds Ratios for the Main Effects of Stem Order, Response Order, Response Mode and Question Position Based on the Model for the Pooled Data for FCES 2015 in Table S5.

| | Odds Ratio | Lower 95% CI | Upper 95% CI |
|--|------------|--------------|--------------|
| Stem Order: Dissatisfied versus Satisfied | | | |
| Very Satisfied (reference) | | | |
| Satisfied | 1.141 | 0.941 | 1.382 |
| Neither | 0.898 | 0.594 | 1.358 |
| Dissatisfied | 0.590 | 0.316 | 1.103 |
| Very dissatisfied | 0.542 | 0.298 | 0.988 |
| Response Order: Very dissatisfied is first versus Very satisfied is first | | | |
| Very Satisfied (reference) | | | |
| Satisfied | 1.256 | 1.035 | 1.524 |
| Neither | 0.847 | 0.557 | 1.288 |
| Dissatisfied | 0.611 | 0.326 | 1.145 |
| Very dissatisfied | 2.725 | 1.488 | 4.989 |
| Response Mode: Mail vs Web | | | |
| Very Satisfied (reference) | | | |
| Satisfied | 1.279 | 1.054 | 1.552 |
| Neither | 1.426 | 0.938 | 2.167 |
| Dissatisfied | 1.487 | 0.795 | 2.782 |
| Very dissatisfied | 0.967 | 0.528 | 1.771 |
| Question Position: Q7 is reference position versus grid with Q1-Q4 | | | |
| Very Satisfied (reference) | | | |
| Satisfied | 1.412 | 1.231 | 1.618 |
| Neither | 0.943 | 0.696 | 1.278 |
| Dissatisfied | 0.888 | 0.568 | 1.389 |
| Very dissatisfied | 0.929 | 0.664 | 1.298 |

Questions and Experimental Treatments by Survey

2015 FCES Items Mail Mode

Form A: Satisfied first in stem and Very Satisfied first in responses

First, we would like to find out how you feel about the information you received from the Extension office.
Please mark your answers with an "X".

| | Very Satisfied ▼ | Satisfied ▼ | Neither ▼ | Dissatisfied ▼ | Very Dissatisfied ▼ |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. How satisfied or dissatisfied are you that the information was up to date and accurate? ² | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. How satisfied or dissatisfied are you that the information was delivered in time to be useful? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. How satisfied or dissatisfied are you that the information was relevant to your situation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. How satisfied or dissatisfied are you that the information was easy to understand? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

Very satisfied
 Satisfied
 Neither satisfied nor dissatisfied
 Dissatisfied
 Very dissatisfied

Form B: Dissatisfied first in stem and Very Satisfied first in responses

First, we would like to find out how you feel about the information you received from the Extension office.
Please mark your answers with an "X".

| | Very Satisfied ▼ | Satisfied ▼ | Neither ▼ | Dissatisfied ▼ | Very Dissatisfied ▼ |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. How dissatisfied or satisfied are you that the information was up to date and accurate? ² | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. How dissatisfied or satisfied are you that the information was delivered in time to be useful? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. How dissatisfied or satisfied are you that the information was relevant to your situation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. How dissatisfied or satisfied are you that the information was easy to understand? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7. Overall, how dissatisfied or satisfied are you with the service provided by the Extension office?

Very satisfied
 Satisfied
 Neither satisfied nor dissatisfied
 Dissatisfied
 Very dissatisfied

Form C: Dissatisfied first in stem and Very Dissatisfied first in responses

First, we would like to find out how you feel about the information you received from the Extension office. Please mark your answers with an "X".

| | Very Dissatisfied | Dissatisfied | Neither | Satisfied | Very Satisfied |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. How dissatisfied or satisfied are you that the information was up to date and accurate? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. How dissatisfied or satisfied are you that the information was delivered in time to be useful? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. How dissatisfied or satisfied are you that the information was relevant to your situation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. How dissatisfied or satisfied are you that the information was easy to understand? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7. Overall, how dissatisfied or satisfied are you with the service provided by the Extension office?

Very dissatisfied
 Dissatisfied
 Neither dissatisfied nor satisfied
 Satisfied
 Very satisfied

Form D: Satisfied first in stem and Very Dissatisfied first in responses

First, we would like to find out how you feel about the information you received from the Extension office. Please mark your answers with an "X".


| | Very Dissatisfied | Dissatisfied | Neither | Satisfied | Very Satisfied |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. How satisfied or dissatisfied are you that the information was up to date and accurate? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. How satisfied or dissatisfied are you that the information was delivered in time to be useful? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. How satisfied or dissatisfied are you that the information was relevant to your situation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. How satisfied or dissatisfied are you that the information was easy to understand? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

Very dissatisfied
 Dissatisfied
 Neither dissatisfied nor satisfied
 Satisfied
 Very satisfied

2015 FCES Web and Mobile Web (iPhone 6) Mode Examples

Web Form A




Customer Satisfaction Survey

First, we would like to find out how you feel about the information you received from the Extension office. *Please select an answer for each item.*

| | Very Satisfied | Satisfied | Neither | Dissatisfied | Very Dissatisfied |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. How satisfied or dissatisfied are you that the information was up to date and accurate? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. How satisfied or dissatisfied are you that the information was delivered in time to be useful? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. How satisfied or dissatisfied are you that the information was relevant to your situation? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. How satisfied or dissatisfied are you that the information was easy to understand? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

<< Back Next >>



Customer Satisfaction Survey

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

| | | | | |
|-----------------------|-----------------------|------------------------------------|-----------------------|-----------------------|
| Very Satisfied | Satisfied | Neither satisfied nor dissatisfied | Dissatisfied | Very Dissatisfied |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

<< Back Next >>

Mobile Web Form A

Back to Mail 10:17 AM 94%
ufl.qualtrics.com

UF UNIVERSITY of FLORIDA
IFAS Extension
Customer Satisfaction Survey

First, we would like to find out how you feel about the information you received from the Extension office. *Please select an answer for each item.*

1. How satisfied or dissatisfied are you that the information was up to date and accurate? ^

Very Satisfied

< > [Share] [Bookmarks] [Tabs]

Back to Mail 10:17 AM 94%
ufl.qualtrics.com

First, we would like to find out how you feel about the information you received from the Extension office. *Please select an answer for each item.*

1. How satisfied or dissatisfied are you that the information was up to date and accurate? ^

Very Satisfied
 Satisfied
 Neither
 Dissatisfied
 Very Dissatisfied

2. How satisfied or dissatisfied

Back to Mail 10:17 AM 94%
ufl.qualtrics.com

Neither
 Dissatisfied
 Very Dissatisfied

2. How satisfied or dissatisfied are you that the information was delivered in time to be useful? v

3. How satisfied or dissatisfied are you that the information was relevant to your situation? v

4. How satisfied or dissatisfied are you that the information was easy to understand? v

<< Back Next >>

Back to Mail 10:17 AM 94%
ufl.qualtrics.com

UF UNIVERSITY of FLORIDA
IFAS Extension
Customer Satisfaction Survey

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

Very Satisfied
 Satisfied
 Neither satisfied nor dissatisfied
 Dissatisfied
 Very Dissatisfied

< > [Share] [Bookmarks] [Tabs]

Back to Mail 10:17 AM 94%
ufl.qualtrics.com

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

Very Satisfied

Satisfied

Neither satisfied nor dissatisfied

Dissatisfied

Very Dissatisfied

<< Back Next >>

2016 FCES Item, Mail Mode

Form A: Satisfied first in stem and Very Satisfied first in responses

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

Form B: Dissatisfied first in stem and Very Satisfied first in responses

7. Overall, how dissatisfied or satisfied are you with the service provided by the Extension office?

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

Form C: Dissatisfied first in stem and Very Dissatisfied first in responses

7. Overall, how dissatisfied or satisfied are you with the service provided by the Extension office?

- Very dissatisfied
- Dissatisfied
- Neither dissatisfied nor satisfied
- Satisfied
- Very satisfied

Form D: Satisfied first in stem and Very Dissatisfied first in responses

7. Overall, how satisfied or dissatisfied are you with the service provided by the Extension office?

- Very dissatisfied
- Dissatisfied
- Neither dissatisfied nor satisfied
- Satisfied
- Very satisfied

2015 FMNP Item

Form A: Satisfied first in stem and Very Satisfied first in responses

Overall, how satisfied or dissatisfied are you with your experience with the FMNP?

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

Form B: Dissatisfied first in stem and Very Satisfied first in responses

Overall, how dissatisfied or satisfied are you with your experience with the FMNP?

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

Form C: Dissatisfied first in stem and Very Dissatisfied first in responses

Overall, how dissatisfied or satisfied are you with your experience with the FMNP?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

Form D: Satisfied first in stem and Very Dissatisfied first in responses

Overall, how satisfied or dissatisfied are you with your experience with the FMNP?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

2015 NASIS Item

Form A: Satisfied first in stem and Very Satisfied first in responses

1. Overall, how satisfied or dissatisfied are you with living in Nebraska?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Very dissatisfied

Form B: Dissatisfied first in stem and Very Satisfied first in responses

1. Overall, how dissatisfied or satisfied are you with living in Nebraska?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Very dissatisfied

Form C: Dissatisfied first in stem and Very Dissatisfied first in responses

1. Overall, how dissatisfied or satisfied are you with living in Nebraska?

- Very dissatisfied
- Somewhat dissatisfied
- Neutral
- Somewhat satisfied
- Very satisfied

Form D: Satisfied first in stem and Very Dissatisfied first in responses

1. Overall, how satisfied or dissatisfied are you with living in Nebraska?

- Very dissatisfied
- Somewhat dissatisfied
- Neutral
- Somewhat satisfied
- Very satisfied