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# Evidence-Based Survey Design: The Use of Ascending or Descending Order of Likert Response Options

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## Purpose: To Understand Response Order Effect

Developed in the 1930s by Rensis Likert, an American Psychologist, the Likert Scale has been widely used to measure attitude-related propositions.

Certain survey designs, however, can cause response biases, which reduce validity and reliability of survey data. Survey developers should be aware of their survey designs and assess if they could be producing biased results. For example,

**Is there a difference between having the Likert scale go in descending order (strongly agree– strongly disagree) versus ascending order (strongly disagree – strongly agree)?**

Our research looked at the effects of the Likert scale presented in descending or ascending order with a horizontal layout.

### Ascending Order:

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree  
           

### Descending Order:

Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree  
           

## Procedure: A Review of Theories and Research

Our research included an analysis of 24 peer-reviewed research articles that focused on survey design, especially the impact of the order of response options on respondent behavior.

Research shows that survey developers should be aware of the following response biases:

### 1. Primacy and Recency Effects

**Primacy Effects:** The tendency to select the options at the beginning of the response option list.

**Recency Effects:** The tendency to select the options at the end of the response option list.

### 2. Satisficing Bias

The tendency to select options that are satisfactory to minimize psychological costs, even though they may not be the most accurate.

Sure, that sounds fine...

Sure, I agree with that... right?

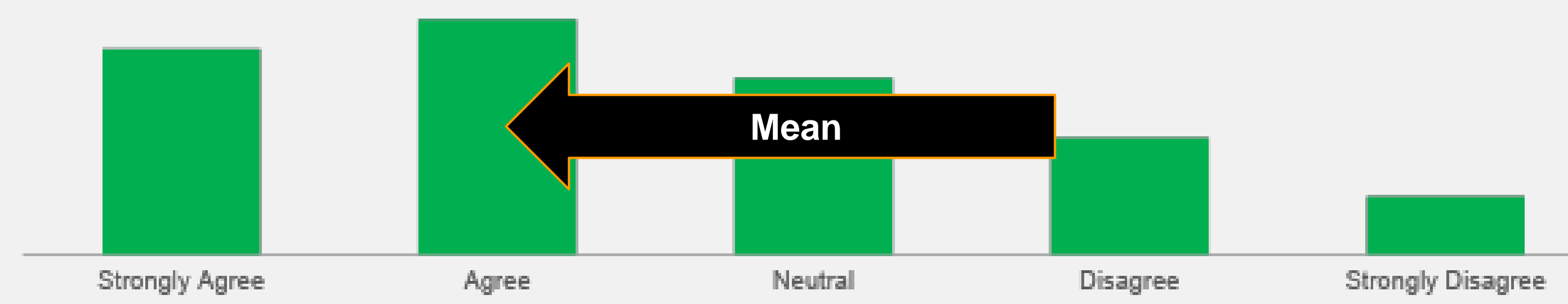
### 3. Acquiescence Bias

The tendency to agree with the statement even though it may not be the most accurate response (aka yea-saying bias).

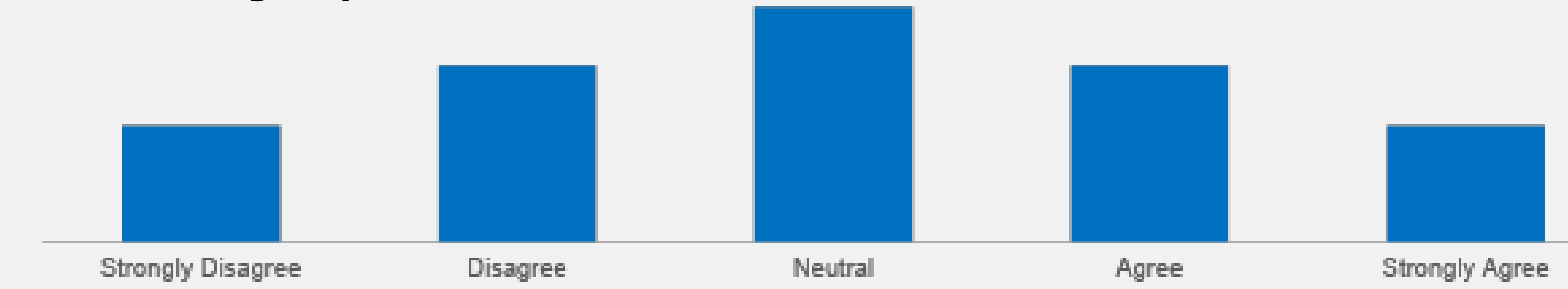
## Results: Left-Side Bias Causes Higher Ratings

**Friedman et al. (1994):** Respondents' ratings from the descending-ordered scale were higher than the ratings from the ascending-ordered scale.

### A: Descending response order



### B: Ascending response order



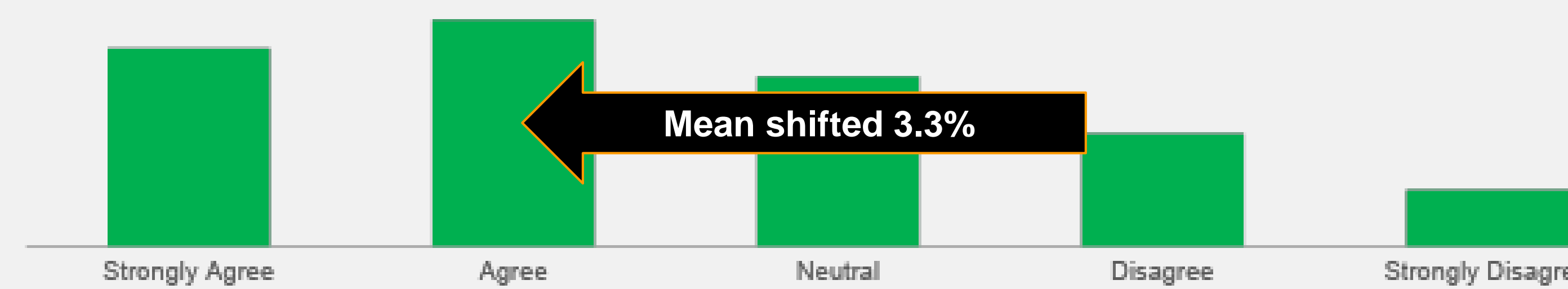
**Hartley and Betts (2010):** Adult respondents were biased toward the positively-worded label associated with higher numbers presented on the left side of the scale (Clear 10 ... 0 Unclear). This resulted in that option having higher ratings.

1.	Clear	10 9 8 7 6 5 4 3 2 1 0	Unclear
2.	Clear	0 1 2 3 4 5 6 7 8 9 10	Unclear
3.	Unclear	10 9 8 7 6 5 4 3 2 1 0	Clear
4.	Unclear	0 1 2 3 4 5 6 7 8 9 10	Clear

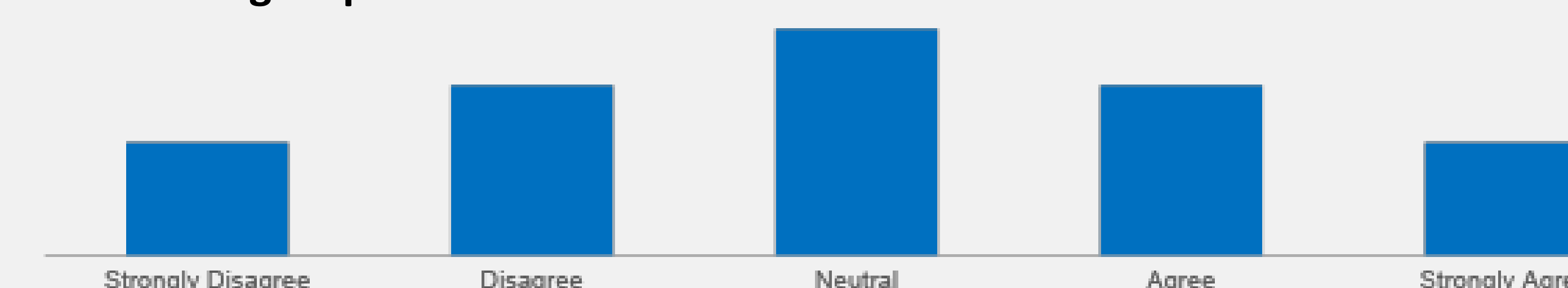
Option 1 with the positive label and descending numeric scale received the highest ratings

**Maeda (2015):** There was a significant difference between the descending and ascending groups. Respondents given the descending-ordered scale selected responses on the left by .13 increments – or 3.3% of the scale.

### A: Descending response order



### B: Ascending response order



## Implications: To Create Stronger Surveys

Researchers recommended:

### 1. Use ascending-ordered response scales when possible

There was less evidence to show that ascending-ordered scales had the same influence of left side bias that the descending-ordered scales did.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree  
           

### 2. Utilize vertically presented response labels when possible (Maeda, 2015)

Vertically presented response options showed no top-down response order effects.

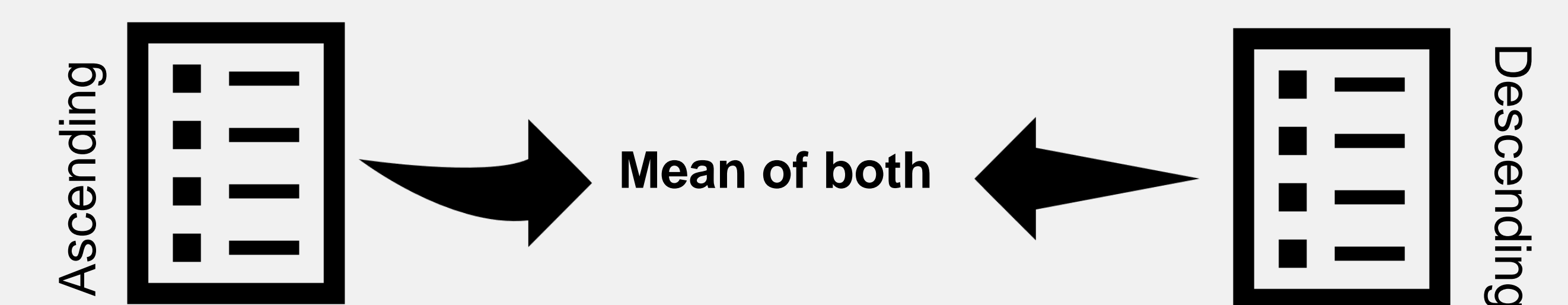
### 3. Ask respondents to verbalize their responses (Hartley and Betts, 2010)

This can help respondents identify inconsistencies in their selections when given different response orders.

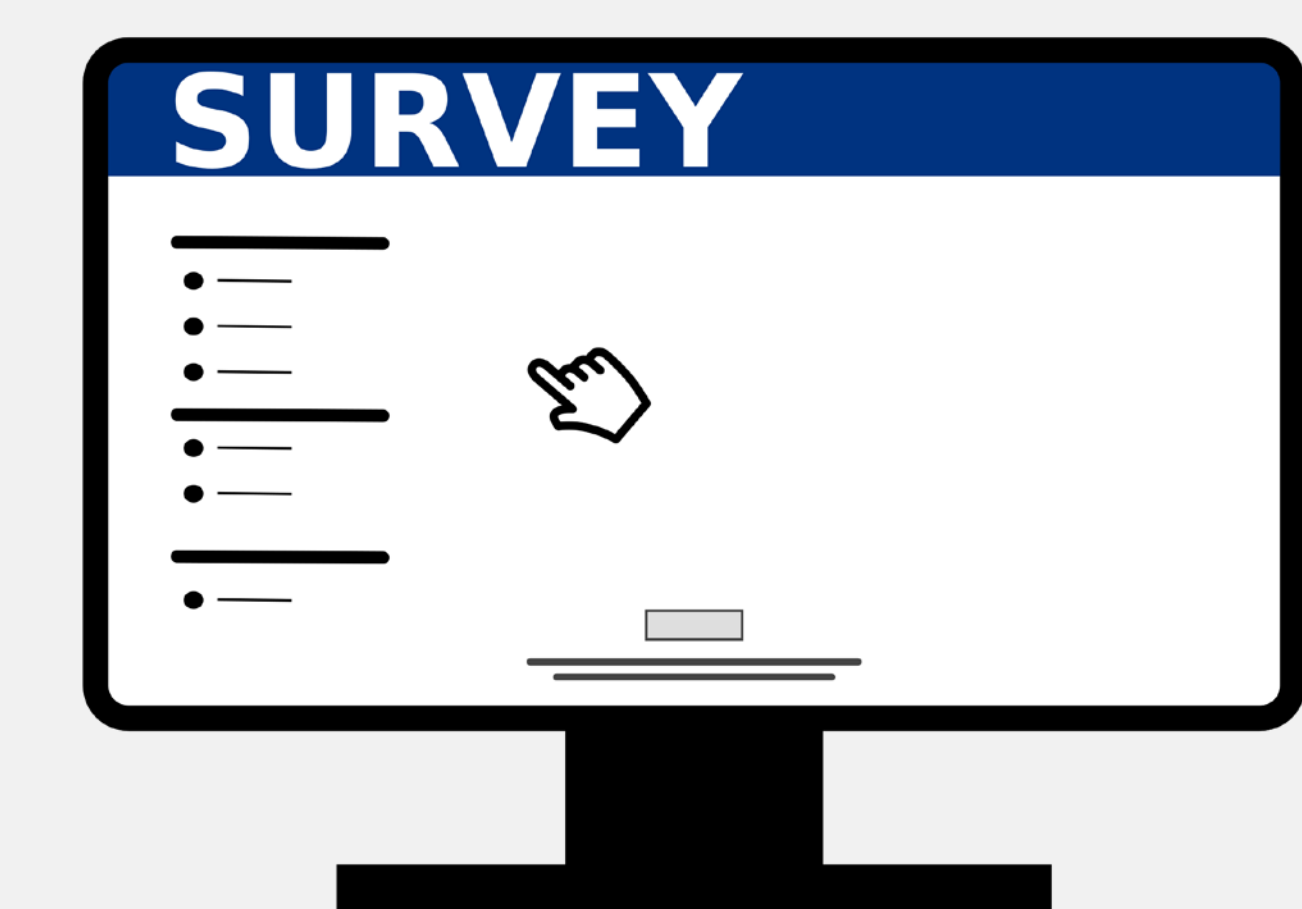
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree



### 4. Administer two types of the survey: One with all ascending-ordered scales and the other with all descending-ordered scales, and use mean scores (Nicolls, Orr, Okubo, & Loftus, 2006)



### 5. Use clear, unambiguous statements and short surveys to maintain respondent attention and motivation (Weng & Cheng, 2000)



### 6. Be aware that even seemingly trivial survey design features can have an effect on responses (Liu & Keusch, 2017)