"Visual Design, Order Effects, and Respondent Characteristics in a Self-Administered Survey" - Don A. Dillman, Jolene D. Smyth, Michael J. Stern

Michael Stern, Don A. Dillman, and Jolene D. Smyth. "Visual Design, Order Effects, and Respondent Characteristics in a Self-Administered Survey." *Survey Research Methods 1.3* (2007): 121–138. Web.

The goal of this study was to look at the effects of "experimental alternations" in the format of survey questions, as well as the visual design of the survey itself in respect to the demographic of respondents and their participation.

The research is based upon what they call "theoretical background:"

Visual Design Theory

There are approximately four cognitive steps outlined here that respondents move through during their survey completion: comprehending the guestion, recalling relevant information, making a judgment, and providing a response. This idea was expanded into self-administered surveys by adding the step of perception by which the participant takes in the visual cues from the physical survey. They state how the way in which participants interact with a survey is based upon previously established conversational norms including that, "the information be clearly expressed and understandable to the intended audience, contributions to the conversation be relevant, contributions to the conversation be informative, and contributions be truthful." That means that the survey should conform to these norms to be optimize participation. There are also additional visual characteristics that inform the participant of the survey including numeric language, graphical language, and symbolic language. The authors also explained how psychological grouping principles described as the Law of Similarity (objects of the same size, brightness, color, or shape are more easily seen together), the Law of Proximity (objects that are close to each other are grouped together), and the Law of Pragnanz (figures with simplicity, regularity, and symmetry are easy to follow). They defined the term "satisficing," as the failure of the respondent to expend the proper amount of energy answering the questions and therefore fail to provide accurate or desired information. One way that the researchers can decrease this affect is by using proper visual design in the survey format.

Respondent Characteristics

This section addresses how question formats may affect people differently based upon their individual demographics and characteristics. The most common reason for expected changes, as presented in the article, is the level of education a participant has acquired. That is these participants would be expected not to express the needed cognitive processing skills to adequately respond to the survey; however, the authors' own research found that there was no "reliable evidence" for the differences in individuals with a lower education. Another characteristic that may be assumed to cause difference in response is age. Their research found that other experts in the field were suggesting, using cognitive psychology as their basis, that with increases in age being linked to diminished ability to comprehend the presented questions as well as difficulty recalling memories, may attribute to differences in answering ability. The authors conclude that age is a better predictor of discrepancies than education. The study also examines how the sex of the participant may cause differences in responses. They state that there is little research on the topic but there is still some information to be examined. As an example, the authors refer to the "I don't know" response on surveys and how women are more likely to make that selection than men. Rappaport is guoted here, "this effect could be the enduring result of differential socialization in that the effect is still persistent after controlling for issues such as question subject knowledge. That is, women are socialized to have lower levels of opinionation than men." Visual design must address this discrepancy in order to make the survey inviting for all sexes to ensure the responses are comprehensive. The purpose of the experiments in this study was to explore "effects of visual design in a self-administered mail survey and analyzing whether those effects vary by respondent education, age, and sex." The Experiments

<u>#1: Use of Number Box Versus Polar Point Scale</u>

The hypothesis of this experiment was that the two formats would produce different results for the same questions and that there would be more negative responses from the number box format. The authors also predicted that there would be more "don't know" responses when the number box format was presented. One other expectation of this experiment was the affect of formating for different age and education groups; they believed that individuals being 60 years+ or those who had lower than college degree status would be most affected.

This experiment found that responses that are more negative are correlated more with number box formats across demographic groups.

#2: Manipulating the Size of the Answer Space in Open-Ended Questions Here the authors wanted to test the connection between the amount of space given for answering the questions and the affects across demographics. A larger space given suggests to the participant that the surveyor is expecting more information, according to previous studies. In the experiment, the researchers used two different sized boxes for information in which the respondents were to use to elaborate their "yes" answers. The hypothesis here is as follows, "that each demographic group will provide more words when a bigger space provided than they provide when a smaller space is provided." They found that all demographics wrote more with more space given but that 60 years+, lower education levels, and women were more likely to answer with more words than their counterparts.

<u>#3: Forced Choice versus Check-All-That-Apply Formats</u>

The authors offered a continuation of prior research that suggests participants will provide more concrete answers to a forced choice format. This research also suggests that participants take more time to think about their answers in response to a forced choice format. The authors hypothesized that all demographics would be affected in the same or similar manner.

They found that all participants across different demographics, responded more affirmatively to the forced choice format survey. It was also said that people spent more time answering the forced choice questions which suggests more cognitive processing of their answers.

#4 & 5: Response Order Manipulations in Scalar Questions

In this experiment, the authors formatted two different questions on a scale, one set had the low numbers at the beginning and the other had high numbers at the beginning. They were testing to determine whether primacy would occur when the visual representation of the scale was manipulated for differing demographic groups. The hypothesis was that individuals 60+ or lower level education would be more affected by the reversal of scales. Sex was not expected to have a strong affect on the results. The authors found that there was satisficing occuring where the respondents were finding the first answer they could reasonably justify and making that selection. This occurred across demographic groups suggesting that education and age didn't play a large role in the outcomes. The main finding is that the selection that appears first in a sequence will be more likely to be selected first.

#6: Response Category Effects in the Presence of a Don't Know Response Option This experiment examines the response order of a scalar question format for opinion-based questions but that include a "don't know" option. The authors expected the "don't know" response to be used less because the prior research shows people look to respond more positively. They hypothesize that the "don't know" option be used more frequently when the negative options are presented first on the scale. Older adults or those with a lower level education were thought to give more neutral answers.

The authors found that when the most positive/beneficial answers were listed last, the participants were more likely to select a "don't know" response. The layout of the survey seemed to have similar affects across all demographics being tested.

#7: Response Order Manipulations in a Ranking Question

In the final experiment, the authors expected to see evidence of satisficing when they presented the participants with the number 1 being the highest and number 10 meaning

the lowest in the ranking. They hypothesized that 60+ and lower level education individuals would have a harder time with the reversal of response order. They found that those with lower than a college level education were most affected by this survey format; however, the central finding here was that the affect of the question design was more important than a difference in demographics.