

Abstract

The effect of varied Likert-type options on response characteristics was investigated on a sample of 357 participants. Two different types of scale options were compared: (1) True/False vs. Agree/Disagree, and (2) a scale midpoint of 'Neither agree nor disagree' vs. 'Undecided.' The results indicated that participants chose the 'Agree' statement significantly more often than 'True,' and 'Neither agree nor disagree' significantly more often than 'undecided.'

Introduction

Since Rensis Likert (1932) first proposed his summative approach via the 'Likert Scale,' Likert and Likert-type scales have been used abundantly in research. As Likert scales have taken a variety of different forms since their inception, a fair amount of research has examined the potential impact different types of scales can have on response characteristics, including, for example, examining the optimal number of scale response options (e.g., 5, 7, or 9) and comparing scales with and without a neutral or midpoint option (see Krosnick, 1999, for a review). Two areas that have received relatively little attention include (1) comparing 'Undecided' versus 'Neither agree nor disagree' midpoint options and (2) comparing True/False versus Agree/Disagree response options. This is important, since scales exist that employ each of these types of response options. Therefore, the current study examined both the impact of varied midpoint options on a 5-point Likert scale (i.e., '3 = Neither agree nor disagree' vs. '3 = Undecided') and True/False versus Agree/Disagree options on response characteristics.

In the study, the following research questions were investigated:

- 1) Is there a difference in the rate at which participants choose True versus Agree?
- 2) Is there a difference in the rate at which participants choose the middle option of 'Undecided' versus 'Neither agree nor disagree'?

Procedure

In the current study, both the Marlowe-Crowne Social Desirability Scale (SDS; Marlowe & Crowne, 1960) and the Yockey Procrastination Scale (YPS; Yockey, 2016) were administered to 357 students (78.2% female) at a university in the western United States. The sample was ethnically diverse,

The Impact of True/False vs. Agree/Disagree Items and Neither Agree nor Disagree vs. Neutral Midpoints on Likert Scale Response Characteristics

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Table 1. Percentage of participants choosing 'Agree' versus 'True' on the SDS.

Item – SDS	% Answer Agree	% Answer True	% Increase
1. Before voting, I thoroughly investigate the qualifications of all the candidates.	78%	69%	13%*
4. I have never intensely disliked anyone.	47%	32%	47%**
6. I sometimes feel resentful when I don't get my way.	53%	41%	29%*
22. At times I have really insisted on having things my way.	46%	34%	35%*
26. I have never irked when people expressed ideas different from my own.	69%	55%	25%**

Note: ** $p < .01$; * $p < .05$. Percentage increase = $(\% \text{ Answer Agree} - \% \text{ Answer True}) / (\% \text{ Answer True})$.

Table 3. The conditions investigated for the SDS and YPS.

Scale	Traditional Scale	Modified Scale
SDS	True / False	Agree / Disagree
YPS	3 = Neither Agree nor Disagree	3 = Undecided

with 52.1% of the respondents reporting as Hispanic, 18.7% Asian American, 16.5% Caucasian, 5.6% African American, and 5.6% responding as "other."

Of the 357 participants, 182 completed both scales which included the scales in their traditionally published format, while 175 completed both of the scales in the modified format. With the exception of the modification in the response options, both surveys were otherwise identical. The two surveys (of which a participant could select only one) were presented in a random order to participants as they logged on to the online study portal. The surveys were completed online using the Qualtrics® survey system.

To investigate the potential impact of the two conditions on response characteristics, a series of chi-square tests of independence were conducted, with a separate test conducted for each scale item. Composite scores for each scale were also computed, with tests of means and variances conducted where relevant on total scale scores.

True/False vs. Agree/Disagree

As is shown in Table 1, the results of chi-square tests indicated that participants chose 'Agree' significantly more often than 'True' on several of the items of the SDS. Regarding the SDS total score, participants chose 'Agree' ($M = 24.06$, $SD = 2.83$) significantly more often than

Table 2. Percentage of participants choosing the '3 = Neither Agree nor Disagree' option versus '3 = Undecided' on the YPS.

Item – YPS	% Answer '3 = Neither Agree nor Disagree'	% Answer '3 = Undecided'	% Increase
1. I have a hard time getting started on my assignments.	24%	15%	60%*
5. My assignments often don't reflect my best work.	34%	17%	100%**

Note: ** $p < .01$; * $p < .05$. Percentage increase = $(\% \text{ Answer '3 = Neither Agree nor Disagree'} - \% \text{ Answer '3 = Undecided'}) / (\% \text{ Answer '3 = Undecided'})$.

'True' ($M = 23.35$, $SD = 2.39$), $t(340) = 2.51$, $p = .013$.

Neither Agree nor Disagree vs. Undecided

As is shown in Table 2, the results of the chi-square tests indicated that participants chose the middle option of '3 = Undecided' significantly less often than '3 = Neither agree nor disagree' on items 1 and 5 of the YPS. Regarding the YPS total score, the 'Undecided' (i.e., 'modified' scale) group ($SD = 4.45$) was significantly more variable than the 'Neither agree nor disagree' (i.e., 'traditional' scale) group ($SD = 5.04$), $F(1, 349) = 4.71$, $p = .030$.

Discussion

Interestingly, the results indicated that participants were more likely to endorse an item if they could 'agree' with it, rather than if they had to indicate that it was 'true' of them. It may be that using the descriptor 'true' leads participants to evaluate the statement in a more absolute sense, leading them to select 'False' if the statement is not absolutely true of them, as opposed to agree, which may be perceived as simply soliciting their 'opinion,' possibly making the item easier to endorse.

The results also indicated that participants selected the '3 = Undecided' response option significantly less often than '3 = Neither agree nor disagree.' Since participants chose 'Undecided' significantly less often, it is possible that this option is confusing or unclear to some participants (resulting in their 'avoiding' it). For example, a participant could interpret this option as meaning that they have not yet formed an opinion on the matter at hand, that they don't know, or, alternatively, that they are truly neutral or in the 'middle' on the statement. In any event, because participants tended to avoid this option, it suggests that the meaning of the option may not be entirely clear to them. Based on these results, using the 'Undecided' option when developing a scale is not recommended.

References

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