

Abstract

The effect of varied Likert-type options on response characteristics was investigated on a sample of 656 participants. The following conditions were examined: (1) all response options fully-labeled vs. only the endpoints labeled, (2) comparing an endpoint label intensifier (e.g., ‘Strongly Agree’) with a non-intensifier (e.g., ‘Agree’), (3) comparing ‘True/False’ and ‘Agree/Disagree’ response options. The results indicated that participants endorsed the endpoints significantly more often when the scale was labeled only at these points than when the scale was fully labeled.

Introduction

Likert scales have become ubiquitous in research and practice across several domains in the social sciences. Given their popularity, a considerable effort has been made to ensure that Likert-scales possess favorable psychometric properties. Despite their frequent use, several areas of Likert scale research have received relatively little attention, including: (a) the effects of labeling all response categories vs. only labeling the endpoints, (b) the effects of a label intensifier (e.g., ‘strongly’) on the endpoints of a scale, and (c) the effects of labeling the response categories of a dichotomous scale ‘True/False’ vs. ‘Agree/Disagree.’ These considerations are of high practical importance, yet they have not been thoroughly examined in the existing literature. Thus, this study attempts to add to the existing literature by investigating novel conditions and factors that may affect the psychometric properties of Likert-scales. Specifically, the following research questions were investigated:

- 1) Is there a difference in the rate at which participants endorse an endpoint option when the scale is fully labeled as compared to when only the endpoints are labeled?
- 2) Does including an intensifier have an impact on the rate of endorsement of the endpoints of a scale?
- 3) Is there a difference in the rate at which participants choose ‘True/False’ vs. ‘Agree/Disagree’?

Procedure & Measures

The following study investigated a number of scales, including, for example, the Satisfaction with Life Scale (SWLS; Diener, 1985) and the Academic Time Management and Procrastination Measure (ATM; Won & Yu, 2018). The measures were administered to 656 students (74.8% female) at a university in the western United States. The sample was ethnically diverse, with 55.3% of the respondents reporting as Hispanic, 18.5% Asian American, 13.6% Caucasian, 4.1% African American, and 6.1% responding as “other.”

Of the 656 participants, 352 completed the scales in their traditionally published format, while 304 completed the scales in their modified format. With the exception of the modification in the response options, both surveys were otherwise identical. The two survey sets (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.

The Impact of Varied Likert-type Scale Options on Participant Response Characteristics

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Table 1. Percentage of participants endorsing the endpoints in the traditional condition (T) vs. the modified condition (M) for the Academic Time Management & Procrastination Measure (ATM) and Satisfaction with Life Scale (SWLS).

Item – ATM	% Endorse Endpoint (Traditional)	% Endorse Endpoint (Modified)	Percentage Increase
1. I set deadlines for myself when I set out to accomplish an assignment.	17.3%	28.3%	64%**
2. I set short-term goals for the studying I want to accomplish in a few days or weeks.	13%	23.7%	82%**
3. I have a system for managing the time I spend on my academic work.	17.1%	24.2%	42%*
5. I often set goals or make lists regarding what I need to get done each day.	22.6%	30%	33%*
6. I look at a planner, schedule or calendar every day to see what I need to get done.	27.3%	37%	36%**
7. I frequently use a planner, schedule or calendar to organize all my time commitments.	29.8%	38.7%	30%*
Item – SWLS	% Endorse Endpoint (Traditional)	% Endorse Endpoint (Modified)	Percentage Increase
1. In most ways my life is close to ideal.	6.9%	12.7%	84%*
4. So far I have gotten the important things I want in life.	12.5%	18.4%	47%*
5. If I could live my life over, I would change almost nothing.	16.5%	24.7%	50%**

Note: ***p* < .01; **p* < .05. Percentage increase = (% Endorse Endpoint (M) – % Endorse Endpoint (T)) / (% Endorse Endpoint (T)).

Table 2. The conditions investigated for the ATM and SWLS.

Scale	Traditional Scale	Modified Scale
ATM & SWLS	All scale points labeled	Endpoints only labeled



Psychology
Results

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.

Fully-Labeled vs. Endpoints-Only Labeled

As is shown in Table 1, the results of chi-square tests indicated that participants endorsed the endpoints on the modified condition significantly more often than in the traditional condition. For the ATM, a 14-item scale, 6 items (42%) were significant. For the SWLS, a 5-item scale, 3 items (60%) were significant (also in the same direction as the ATM results).

With regards to the ATM total score, the traditional condition resulted in a significantly higher mean score (*M* = 24.96, *SD* = 3.66) than the modified tradition (*M* = 24.22, *SD* = 3.81), *t*(633) = 2.48, *p* = .013, *d* = .20.

With regards to the SWLS total score, the traditional condition had a significantly higher mean score (*M* = 9.43, *SD* = 1.06) than the modified condition (*M* = 9.16, *SD* = 1.37), *t*(637) = 2.80, *p* = 0.005, *d* = .22.

There was no significance for the remaining conditions, with the exception of a single item of the MPS, where participants chose the intensifier (e.g., ‘Strongly Agree’) significantly more often than the non-intensifier condition.

Discussion

It is interesting to note that the results indicated that participants were significantly more likely to endorse the endpoints of a scale if these points were the only ones that were explicitly labeled. In other words, when all response categories were labeled, the endpoints were significantly less likely to be endorsed. These findings corroborate previous results by Menold et al. (2013), who found that respondents were significantly less likely to pay attention to a given response category when the scale was fully labeled and more time when only the endpoints were labeled. Interestingly, despite having higher proportions of endorsements, the modified condition for both scales was significantly lower than their fully-labeled counterparts. This suggests that, between the endpoint endorsements, there was a higher rate of endorsements on the left extreme (which corresponded to a value of 1 on the scale) as compared to the right extreme (which corresponded to a value of 7 on the scale). It may be that when a scale is end-labeled, respondents are more likely to endorse the first response category they see, irrespective of item content. Although further research is needed, the present results suggests a left-side scale preference, as this effect was present on both scales.