

EXPLORING INTERVAL-VALUED SCALES: A COMPARISON OF SCALE ATTRIBUTES BETWEEN INTERVAL VALUED AND SEMANTIC DIFFERENTIAL SCALES

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ABSTRACT

BACKGROUND

Even though crisp single-point capturing scales such as Likert and Semantic Differential offer valuable information regarding a respondent's perceptions on a specific topic, more recently-developed scales allow respondents to record their answers by choosing an interval rather than a single point. Wagner et al., (2015) introduce interval-valued scales (IVS) allowing respondents to record their responses and capture the uncertainty contained in the response. Figure 1 provides a visual representation of an IVS. The wider the interval the more uncertain the response is. IVS survey data may for example be analysed based on summary statistics or modelled via the Interval Agreement Approach. (see Wagner et al., 2015).

Q1. How many times do you go to a restaurant in an average week?

How invasive do you feel this question is?



Figure 1. Interval valued scale (IVS)

This paper explores Interval-Valued Scales (IVS) in a marketing research context and provides comparative results of an exploratory study between IVS and Semantic Differential Scales (SDS) comparing the scales using Preston and Colman's (2000) scale attributes: i) Ease of use, ii) Speed of use, iii) Ability to precisely record desired answers, iv) Adequate expression of exact thoughts and feelings, v) Certainty/Uncertainty with personal answers and vi) Overall satisfaction with each scale.

DATA, METHODS AND RESULTS

The study is based on a convenience sample of 122 UK adults (equally split between IVS and SDS samples). The data collection was completed through personal survey interviews using a quasi-experimental questionnaire-based approach. A questionnaire was formulated which focused on eighteen questions designed to measure the sensitivity of respondents in respect to the capture of private information by rating the questions' degree of invasiveness (see Fig. 1). Two versions of the questionnaire were constructed for this set of eighteen questions, one utilizing IVS and one SDS. The rest of the questionnaire was common and measured: familiarity with survey scales, respondent perceptions of scale attributes and demographics.

The study contrasts IVS and SDS scale attributes (N=61 per sample) utilizing a series of independent sample t-tests including effect size and power calculations. Demographic consistency and respondent survey familiarity between samples were tested and found to hold. Independent sample t-tests show that overall perceptions of satisfaction ease of use, certainty, precision and expression with IVS equals that of SDS. 'Speed of Use' results marginally in favor of IVS. This result may be explained either due to SDS respondents preferring single-point scales with fewer response categories (i.e. respondents preferring an SDS with less than 10 categories used presently) (Preston & Colman, 2000) or due to curiosity using a new scale leading to excitement and positive subjective perceptions thus overrating IVS (Kashdan et al., 2004).

DISCUSSION

The contribution of this paper is the exploration of IVS for capturing respondent data in a marketing context. The initial results presented suggest that IVS is not considered more difficult than SDS and is actually considered quicker to complete. IVS has the advantage of explicitly modelling response uncertainty through the utilization of an interval. The consistency of respondent perceptions between IVS and SDS indicates new pathways for measuring consumer responses (IVS) which entail a wider range of analytical capabilities especially so for modeling uncertainty. Future studies should expand sample size and compare the statistical capabilities of IVS vs other traditional scales used in marketing research.

Keywords: Interval Valued Scale, Semantic Differential Scale, Scale Attributes, Survey

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