SCALE WARS: AN EXPLORATION OF 'INTERVAL-VALUED SCALE' ATTRIBUTES IN MARKETING RESEARCH

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Description: An exploratory comparison between scale attributes and consumer preferences for the Interval-Valued Scale versus the Semantic Differential scale.

EXTENDED ABSTRACT

Research Question

Crisp single-point capturing scales such as Semantic Differential, Likert and Stapel are commonly used in marketing research. Even though crisp single-point capturing scales offer

valuable information regarding the respondents' perceptions on a specific topic, more recently-developed scales allow responses to be recorded by specifying an interval from the provided scale. Wagner et al., (2015) introduce interval-valued scales in surveys not only providing respondents with the ability of recording their answer accurately but also allowing the representation of uncertainty that may be included in respondents' answers. Miller et al., (2014) note that interval-valued survey data, modelled through the Interval Agreement Approach (IAA), offer richer information compared to traditional single-point capturing scales.

The aim of this paper is to explore Interval-Valued Scales (IVS) in a marketing research context and provide comparative results of an initial study between IVS and Semantic Differential Scales (SDS). This initial comparative exploration of IVS vs SDS is based on scale attributes as advocated by Preston & Colman (2000) namely: 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.

Method and Data

The study is based on a convenience sample of 122 UK adults encompassing a variety of ages and familiarity with surveys, as well as educational background and ethnic origin. Data collection was completed through personal survey interviews using a quasi-experimental, between-subjects, questionnaire-based design. A questionnaire was formulated which focused on eighteen questions which were designed to measure the sensitivity of respondents in capturing private information. 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 identical in both versions and measured: familiarity with surveys and survey scales, respondent perceptions of scale attributes and demographics. Respondent perceptions of scale

attributes were measured using the same question structure approach as Preston & Colman (2000).

In order to compare IVS and SDS scale attributes, the study contrasts two equal samples (N=61 per sample) utilizing a series of t-tests. Demographic consistency and respondent survey familiarity between samples was tested and found to hold.

Summary of Findings

Results show that there is consistency across gender, ethnicity, and familiarity with surveys between the samples allowing for comparison of respondent perceptions of scale attributes. Independent sample t-tests show that overall perceptions of satisfaction ease of use, certainty, precision and expression with IVS equals that of SDS. Interestingly, '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 7, 5 or 3 response categories as opposed to 10 in the present case) (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). All t-tests included the relevant effect size and power calculations for all comparisons to strengthen the reporting of the results especially because of the moderate sample size of this exploratory study (DiCiccio & Efron, 1996).

Key Contributions

The main contribution of the present paper is the exploration of IVS for capturing respondent data in a marketing context. The direct comparison of scale attributes between two fundamentally different scales sets the ground for exploring the complementarity, respectively interchangeability of these scales in marketing research. This potential provides researchers with

new pathways to measuring responses leading to a wider range of analytical capabilities compared to the ones traditionally offered. Through the modeling of uncertainty, that IVS captures, researchers can extend the range of findings and draw more consistent conclusions regarding behaviors, preferences and perceptions around a particular topic.

As enduring questions regarding optimized length and structure of rating scales are still most prominent, the present paper adds to the discussion of scale development and optimal rating scales that may lessen ambiguity for survey respondents and users of research (Rossiter, 2002).

The paper also contributes to the discussion of using intervals for measuring estimates of imperfectly known quantities (Teigen & Jorgensen, 2005); however previous studies attempting to employ intervals to estimate the magnitude of knowledge of a particular quantity, employed intervals attached to a fixed level of (un)certainty (Soll & Klayman, 2004). IVS makes away with pre-assigning a fixed level of (un)certainty and directly estimates uncertainty through the utilization of an interval (in this case arising from a respondent-drawn ellipse).

References are available upon request.