

Proof of Concept: Using a "Virtual Velcro Whiteboard" to Capture Online Perceptual Responses

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Introduction

"Virtual Velcro Whiteboard" is a methodology for capturing perceptual responses in an online environment. This methodology turns multidimensional scaling (MDS) on its head in that respondents interactively create their own perceptual maps visually – mimicking the output of a traditional MDS analysis by physically moving product and attribute labels around in n-dimensional space.

This Virtual Velcro Whiteboard approach has been used for years in qualitative settings as a way to generate discussion. The goal of the current study is to investigate whether this approach may also be employed in online platforms to quantify perceptual data.

Objectives

- To provide "proof of concept" for collection of quantitative perceptual data via the Virtual Velcro Whiteboard in an online environment.
- To compare the Velcro Whiteboard to a traditional rating scale exercise in terms of:
 - Perceptual maps generated from each method.
 - Respondent preference (e.g., ease of use, accuracy, engagement and enjoyment).
 - Ability to predict unique variance in outcome variables of interest (product usage and satisfaction).

Methodology

A case study of physicians' perceptions of anti-depressant medications was conducted as proof of concept for the Velcro Whiteboard.

Psyna International and RONIN Corporation fielded a 10-minute online survey in April, 2009. 101 Primary Care Physicians (PCPs) participated: (n=49) from the US and (n=52) from the UK.

Physicians were asked to indicate how four anti-depressant medications perform on four attributes. Physician perceptions were captured in two ways (order of the exercises was counterbalanced):

- Traditional rating scale exercise (respondents rate each product on each attribute using a 1-7 Likert scale)
- Velcro Whiteboard exercise

Respondent Tasks

Velcro Whiteboard Exercise Instructions:

"In this exercise, please indicate the extent to which each of the adjectives describes the antidepressant medications by 'dragging and dropping' the adjectives and medications to an appropriate place on the grid. The more an adjective describes one of the medications, the closer together you should place them. The less an adjective describes one of the medications, the further apart you should place them."



- Effexor XL
- Cymbalta
- Lexapro
- Zoloft
- Reliable
- Successful
- Innovative
- Agreeable

To respondents, the Velcro Whiteboard appeared as undefined n-dimensional space. However, data were captured using underlying coordinates (ranging from 1-10 vertically and 1-10 horizontally across the grid).

Analysis

Velcro Whiteboard methodology provides distance data (i.e., data indicating how far each product is from each attribute). Distance data can be conceptualized as a way of collecting what is essentially rating scale data. The closer together respondents place a product and attribute in n-dimensional space, the higher the rating the product should receive on that attribute.

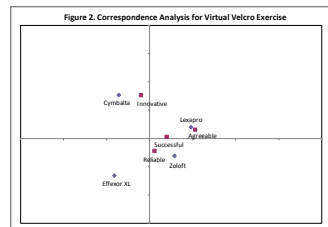
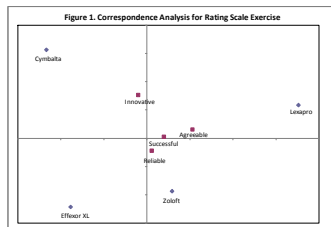
Distance data were transformed into ratings data as follows:

- Distances were inverted such that shorter distances represent higher ratings.
- Inversion was performed by subtracting the largest possible distance between any product and attribute on the grid: $\sqrt{((10-1)^2 + (10-1)^2)} = 12.73$.
- Values were rescaled into 0-6 (for use in Correspondence Analysis) by multiplying the inverted distance by 0.47 (transforming a max-distance of 12.73 into 6).
- Data from the rating scale exercise (1-7 scale) were also transformed into 0-6 data for use in Correspondence Analysis.

Results

Correspondence Analysis

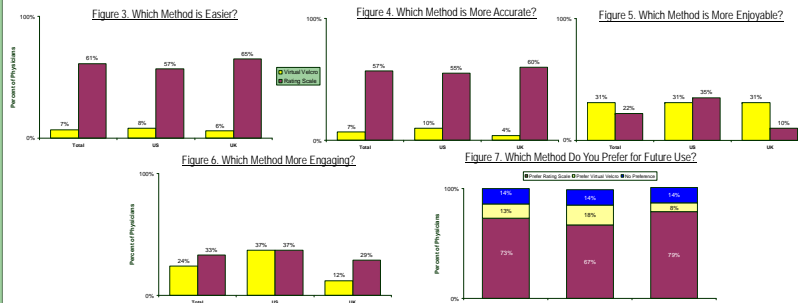
A Correspondence Analysis was performed on data from the rating scale exercise (Figure 1) and Virtual Velcro exercise (Figure 2). Closer coordinates are more closely related.



There is reduced variability in data collected via the Virtual Velcro exercise (Figure 2) compared to the rating scale exercise (Figure 1). There were fewer "extreme" scores on the Virtual Velcro exercise – with few respondents utilizing extreme diagonals on the grid, or placing products and attributes very close (or immediately on top of) one another.

Respondent Preferences

Respondents indicated which methodology they thought was easier, more accurate, more enjoyable, and more engaging (Figures 3 – 6). They also indicated which method they prefer for future surveys (Figure 7).



Results (Continued)

Predicting Product Usage and Satisfaction

Data from rating scale and Virtual Velcro exercises were used in a regression analysis to predict two outcome variables of interest: product usage and product satisfaction.

Table 1. Percent of Variance Accounted for by Rating Scale and Virtual Velcro Exercises in Product Usage and Satisfaction

Outcome Variables	Rating Scale	Virtual Velcro
Prod. Usage	R ² = 0.13	R ² = 0.04
Satisfaction	R ² = 0.50	R ² = 0.06

Conclusions

- Lack of variability in the Virtual Velcro data resulted in a Correspondence Analysis with less differentiation between products and attributes compared to rating scale data (see Figures 1 and 2).
- Respondents preferred the rating scale exercise over Virtual Velcro for ease of use and accuracy (although opinions were more varied regarding which method was more enjoyable and engaging – see Figures 3 - 6). Regardless, respondents expressed an overwhelming preference for the rating scale exercise in future surveys (Figure 7).

• Traditional rating scale data were superior at predicting variance in product usage and satisfaction (see Table 1). Reasons for this are likely three-fold:

- Virtual Velcro data were "noisier" than rating scale data – likely because respondents were unsure of how to use n-dimensional space.
- In transforming Virtual Velcro distance data, a fair amount of information may have been "lost in translation" (product-to-product and adjective-to-adjective relationships were ignored).
- Rating scale data were on a linear scale (as were prescribing and satisfaction data), thus giving rating scale data a potential advantage in predicting these outcomes over Virtual Velcro data.

Issues for Consideration

- How can we increase ease of use and accuracy for the Virtual Velcro Whiteboard?
- How can we capture the full spectrum of information provided by Virtual Velcro Whiteboard (product-to-adjective, product-to-product, and adjective-to-adjective)?
- If respondents prefer the rating scale exercise (and it does a good job of capturing perceptual responses), should we bother to pursue the Velcro Whiteboard as an alternate approach?