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Motivations for Product Consumption

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Background: There are numerous techniques used to assess consumers' motivations for product consumption[1-5]. It is quite common to obtain data from rated degrees of agreement with statements about possible motivators. The responses are then analyzed using statistical tools such as the analysis of variance and factor analysis.

In this report we discuss a novel and complementary approach to these traditional statistical analyses. The concept underlying the method is that consumer motivations for using a product and consumer interpretation of statements of possible motivators co-exist in a joint space. As consumers answer questions about degrees of agreement with statements, they report degrees of similarity between their motivations for product use and their interpretation of the statements. Neither the statements themselves nor the consumers' inferred motivations are treated as discrete points. They are represented by multivariate normal distributions to account for the fact that consumers are not equally certain about their motivations and do not agree perfectly on the meaning of the statements they evaluate. This probabilistic approach is consistent with techniques that we have previously described for a broad range of perceptual measurement methods (see our technical reports at www.ifpress.com.)

Scenario: Your company manufactures fruit-based beverages and one of your products may be perceived to possess medicinal properties. As part of the information that you need to design an appropriate marketing strategy for your product, you would like to assess the motivators for product use among a representative sample of consumers. Six hundred heavy users of your product respond to eight statements dealing with possible motivators. The results of this study will be used to assess the importance of the motivators and the extent to which the market is segmented with respect to them.

Similarity: A multidimensional model for displaying the similarity of objects has been developed[6]. In this model, all of the objects are treated probabilistically by assuming that the percepts are multivariate normally distributed. An application of this model is to map same-different judgments of pairs of objects. Application of the model to study motivators for product consumption involves the idea that a judgment about a motivator is a measure of the similarity between the perception of the motivator and a consumer's individual reason for product consumption. For instance, the possible motivator "Thirst quenching" may be quite similar to one consumer's reason for consumption and very dissimilar to another's. By finding groups of consumers who have similar motivators, the market may be segmented. The analysis involves two steps – first to identify the location of individuals and motivators in a common space and then to create groups from the location of individual motivator positions.

The Statements: Eight statements concerning taste, hedonics and possible medicinal effects were designed. Each consumer was asked to rate degree of agreement (do not agree at all to agree completely) with the following statements on seven-point scales:

I drink this product because:

- I like the flavor
- It reduces back pain
- It is thirst quenching
- It is good for urinary health
- I like it
- It is healthy for me
- It tastes good
- I like the tangy taste

Step 1. Location of Consumers and Motivators: The similarity model relates the similarity of two objects (in this case the motivator and the individual reason for consumption) to positions and variances of the objects in a multidimensional space. Each statement rating was transformed by dividing by 7, the number of scale categories, to produce a rating scaled from 0 to 1. The similarity model was then used to produce Figure 1. This figure shows the individual reasons for product consumption (the dots) superimposed on a contour plot of the densities of individual reasons for product use. The contours display a measure of the number of individuals per unit area on the maps. The more dense the number of individuals in a given area, the lighter the colored area between the two contours. The pure white regions do not contain data. Figure 2 shows the position of the eight questions superimposed on the same contour plot. Similar motivators in this map are located close to one another. For instance, "Good for urinary health" and "Reduces back pain" are close to each other on this map and they are both placed in one of the densest regions of the space.

Figure 1. Contour and scatterplot of individual reasons for product consumption.

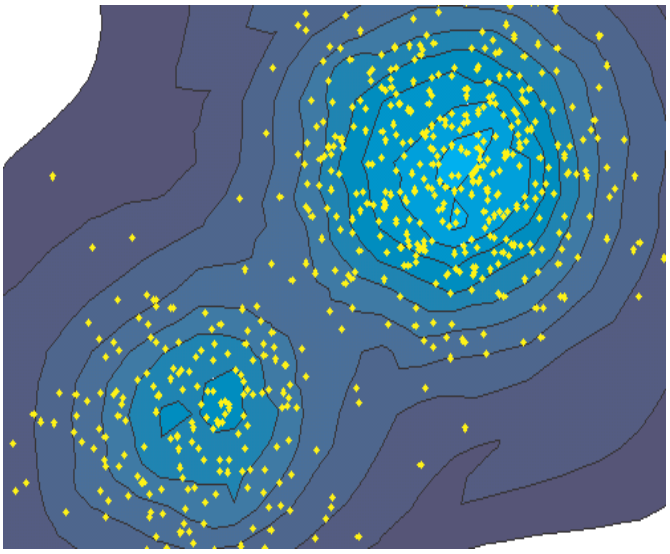


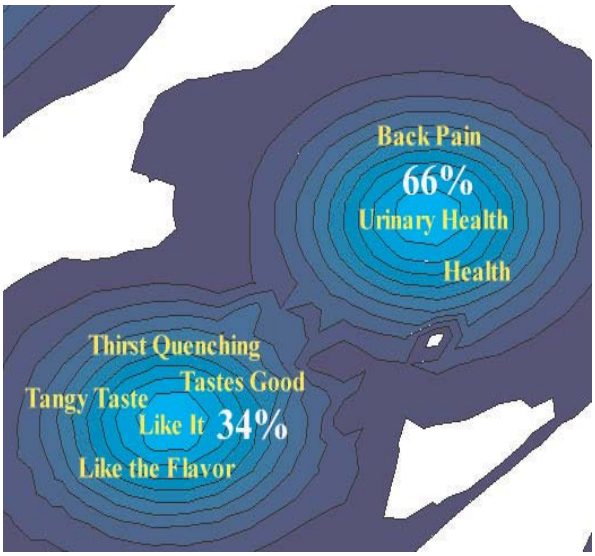
Figure 2. Contour plot of individual reasons for product use and scatterplot of motivators.

Step 2. Identifying Groups: Once the individual consumer locations have been identified, the contour plots of Figures 1 and 2 can be used to visually locate segments. However, a more analytic approach to this part of the analysis is to use a finite mixture model to determine the number, location and size of groups of individuals. In this analysis, it is assumed that the individual consumer locations (the mean of each individual's distribution) correspond to some number of multivariate normal distributions of consumers. Fitting this model to the individuals shows the location of segments and provides an estimate of the number of individuals in each segment. This analysis is displayed in Figure 3. There are two groups in Figure 3. An estimate of the number of individuals in the two segments is 66% and 34% as shown in the figure. It can be seen that consumers segmented in a roughly 2:1 ratio in which the larger group consumes the product for medicinal purposes. It can also be seen that many of those who use the product for medicinal purposes were not motivated by liking and taste as evidenced by the clear separation of the groups. Most of those who drink it for taste or pleasure, do not consider its medicinal qualities when consuming it.

Conclusion: Degree of agreement with statements about possible motivators for product consumption can be treated as similarity measures between a consumer's reason for product consumption or purchase and the motivators. The data can be modeled using a probabilistic similarity model that provides insight into how consumers cluster according to reasons for product consumption.

Inter-relationships among motivators can be identified and understood. Identification of groups of motivators can enable a researcher to quantifiably generalize specific motivations and focus on the underlying principles that make them influential. Recognition of these unifying principles allows for an organized approach to a specific, targetable segment of the population. The members of this segment will tend to be motivated similarly and to find the same product attributes desirable. Probabilistic similarity models can be used to identify motivating influences for virtually any product consumption or behavior. They allow for inconsistencies and variations both in the subjects' perceptions of their own experiences and sensations and also their perceptions of descriptions of potential motivators. Insights of this nature gives an invaluable advantage in producing products for any market.

Figure 3. Finite mixture model of individual reasons for product use and scatterplots of motivators. One group contains 66% of consumers, the other group contains 34%.



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