A retail simulation study for investigating product choice and choice satisfaction: A case study involving kombucha

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Study

Kombucha is a fermented tea that is rapidly growing in popularity in the United States. As part of a larger consumer study conducted in Portland, Oregon, kombucha consumers (n=1303, 68% female, aged 18-86, USA) participated in an online retail simulation test. They evaluated 9 commercial products (bottle images) and made choice selections in a retail simulation. They were then prompted with questions related to food choice motivations, product expectations, and choice satisfaction. Additional questions probed other aspects (psychographics, product usage, etc.).

We used exploratory multivariate data analyses and cluster analysis methods to explore connections between food choice motivation and product choice, between expectation and satisfaction, and between food choice motivations and product benefit expectations. Results help to better understand consumer expectations and drivers of purchase and repurchase within category-specific consumer segments.

Methods

Kombucha consumers in the Oregon State University Food Innovation Center database were invited to participate in the online study. The study was run in January 2019 using Compusense Cloud. Consumers indicated their expected liking of 9 kombucha products based on the packaging, and also indicated whether they had previously tasted it. Then Kombucha products were presented in a retail simulation (Fig. 1). Consumers could click on products to obtain additional information such as ingredients and price. Consumers selected one product for purchase before completing other questions. Consumers who completed the questionnaire were enrolled in a drawing for a cash prize.

Fig. 1. Virtual shelf with nine kombucha beverages.

Results

Consumers tended to expect to like a Kombucha more if they had previously tasted it (Fig. 2). Note that consumers who were more involved with the product category tended to have tried more kombucha products, and also tended to like the kombucha products more.

Most consumers (70%) cited a **sensory reason** (e.g. using either hedonic or descriptive words) amongst their reasons for their kombucha choice (Fig. 3).

We explored links between kombucha choices and food choice motivations (Onwezen et al., 2018) via principal component analysis (Fig. 4). Brew Dr. and GT's products were tried by more consumers than other brands and were associated with food choice motivations for familiarity. The less familiar Health-Ade brands were less familiar and associated with food choice motivations such as naturalness, health, mood, and ethics.
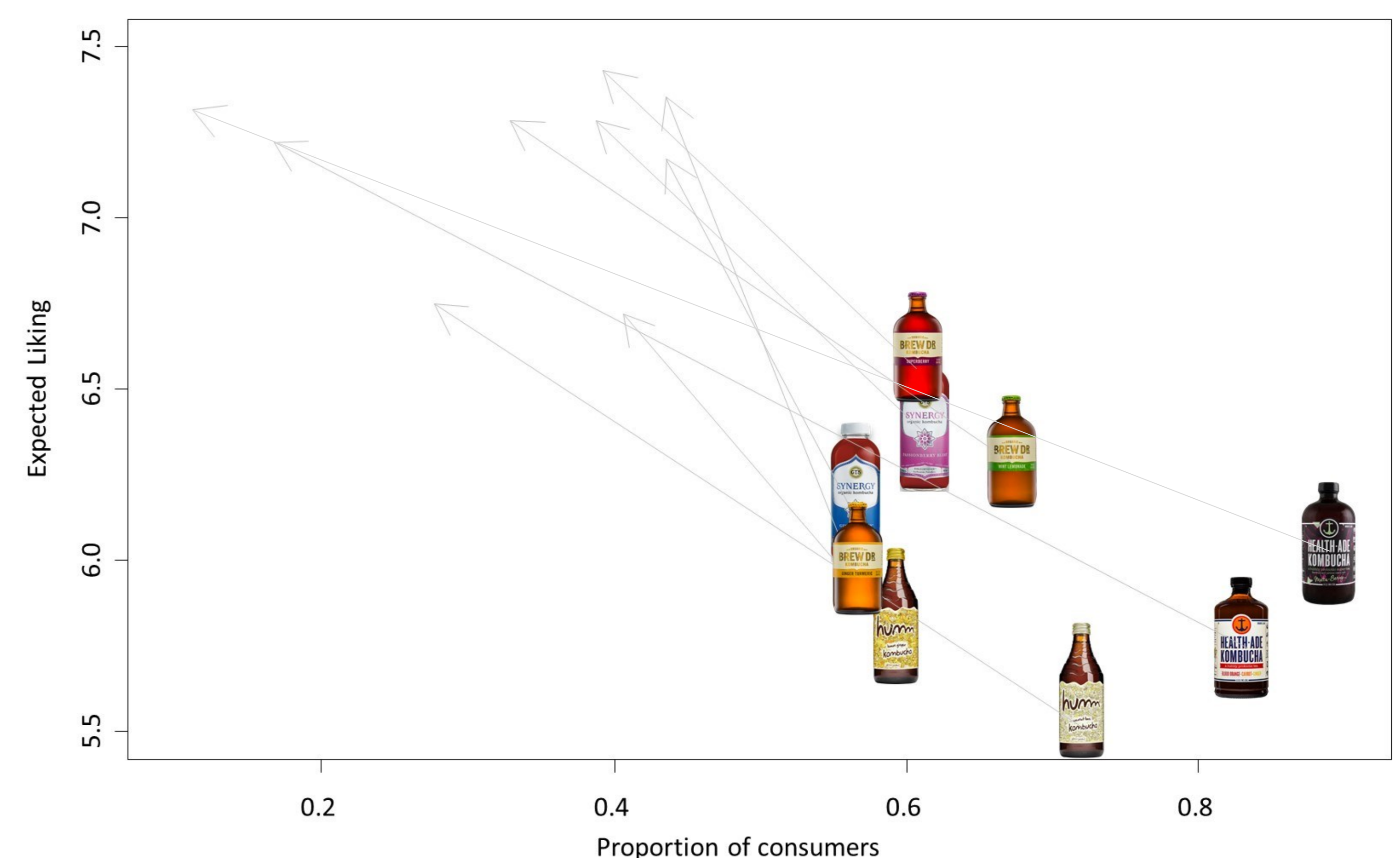

Fig. 2. Location of kombucha packages indicate the proportion of consumers who reported having not previously tried a kombucha and their expected liking. Arrows point to the proportion of consumers who reported having tried the Kombucha previously and their expected liking, which is informed by prior product experience.
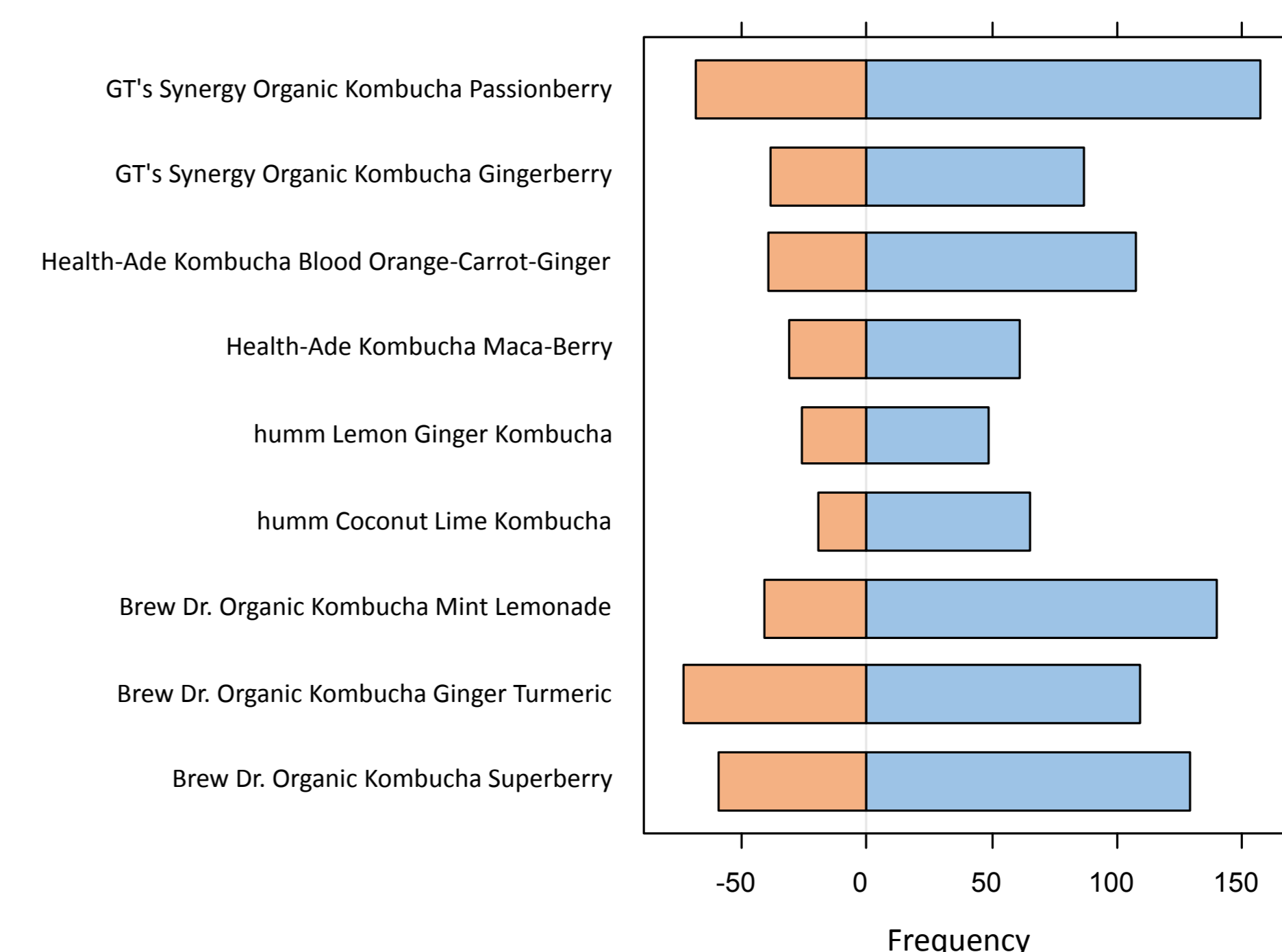

Fig. 3. Consumers were prompted to give an open-ended comment stating at least one reason for selecting the kombucha chosen. 70% of comments included a sensory reason for the selection (*blue*); 30% of comments not include a sensory reason (*orange*).
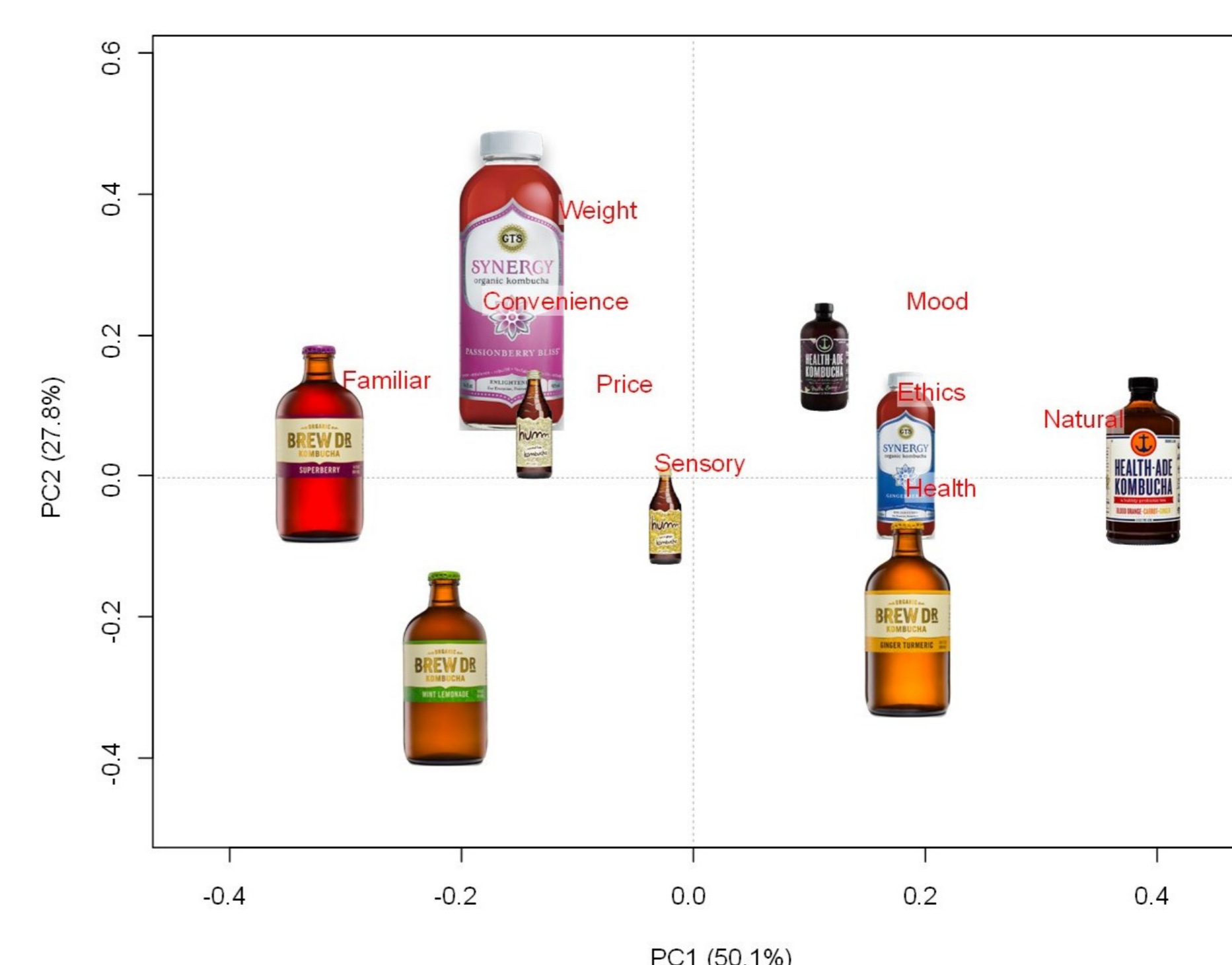

Fig. 4. Consumers' food choice motivations were related to the kombucha selections.

Most consumers (72%) selected the kombucha that they expected to like the most. We were interested in whether it was possible to use non-product-related data, psychographic inventories, and model-based clustering results to predict product choice, whether that choice was previously tried, and expected satisfaction. Machine learning and learning ensembles (multiclass boosting) were applied. The particular kombucha chosen was predicted above the chance rate (11%) but with low (e.g. 20%) accuracy.
Whether the kombucha chosen was previously tasted was associated with the number of products previously tasted; consumers with lower category involvement tasted fewer products previously and thus chose products not tasted previously.
A top-2 box expected satisfaction was predicted with higher (>70%) accuracy, but this was only slightly above the marginal rate for a top-2 box expected satisfaction response (67%).
Results indicate that at this time we cannot expect to predict product selection using non-product-related data.
Results from this study were used to inform the design of a follow-up central location test with kombucha consumers.