Market testing new food products with illiterate and semi-literate consumers

Helene Coetzee of Queenswood in South Africa has carried out research into new methods of sensory evaluation of new food products with illiterate and semi-literate consumers in South Africa. These groups of consumers cannot interpret and fill in the score sheets and preferences tables in the conventional tests. Several traditional methods of sensory evaluation were modified and tested. The research indicated that traditional sensory evaluation methods cannot be used for this group of consumers without some form of modification, but there are several acceptable alternatives that are discussed in this article.

Abstract

The success of any new food product on the market depends on the ability of this product to meet the needs, tastes and requirements of the target consumer. In South Africa a large proportion of the population is illiterate or semi-literate as is the case in many other countries where language barriers are also a problem. As this group becomes more westernised and earns larger incomes, they become consumers making choices about what food to buy.

Conventional methods of sensory evaluation are not appropriate for illiterate and semi-literate consumers since they are unable to interpret and respond to the various questions. Several of these tests can be suitably modified to make them appropriate for use with this group of consumers.

Keywords

Sensory evaluation, product development, illiterate consumer, market research

Introduction

Food industries the world over have the challenge of supplying food products to a diverse group of people – from the most affluent to the poorest consumer. This particular market sector is a rapidly changing and dynamic one, shifting as levels of income increase and urban populations adopt more westernised eating habits. More money is spent on food and more food is eaten outside the home, such as buying from street vendors or take-aways. Lifestyles are constantly changing and increasing urbanisation and westernisation of consumers have varied and far-reaching implications for the food industry (Keane and Willets, 1994).

To ensure the success of products and profits on products, the food industry must ensure that new products meet consumer demands. A variety of methods can be used as indicators to gauge the success of a product, such as sales figures and questionnaires. However, the potential acceptability of a new product can be assessed before it is produced at full-scale, by carrying out a range of sensory evaluation methods with a trained panel or with ordinary consumers.

Illiterate and semi-literate consumers make up a large and important sector of the product-buying population. However, they are unable to participate effectively in standard sensory analysis tests used to test new products. The ability to market-test a new product is equally important for the small-scale processor as the large food industries. Its acceptability to the intended target audience is the key to success of any new product, no matter what the scale of production.

There is practically no information that describes how to market-test a new product with illiterate and semi-literate consumers.

Consumer sensory evaluation

Consumer sensory evaluation can be defined as 'the use of consumers themselves to establish food preferences' (McIlveen and Armstrong, 1996; Shepherd *et al*, 1988). Involving the end users in product testing will be more useful to the processor and give a better measure of consumer product acceptance. Many new products are introduced in to the market each year and fail. To minimise the rate of failure it is essential to carry out a market survey to determine who the potential customer is, his perception of the product and the price he is willing to pay. Testing new products on illiterate consumers is complicated by further difficulties related to an understanding of the actual tests.

Research into adapted methods

Using a range of three maize-based porridge meals, a series of preference trials was carried out with literate and illiterate consumers. These were designed to determine how to modify traditional sensory evaluation tests so that they could be understood by the illiterate group.

During the initial testing phases, several problems were noted. These included the following:

- consumers were unable to interpret three-digit numbers on the score sheet
- the pencil provided for scoring was taken away
- the participants needed lengthy explanations about the different methods, which lead to restlessness and loss of interest
- participants were unwilling to spit out the porridge used for testing and did not use the water for rinsing
- participants did not trust the individually packed presentation of samples and the evaluation in cubicles
- participants were unable to evaluate more than two samples at the same time.

Based on the early trials, adaptations were made to three of the sensory analysis methods – paired preference, rating and hedonic methods.

Major adaptations were made to the score sheets as follows:

- an outline and a solid symbol of the same shape were used to indicate a pair of samples
- pictorial or symbols were used as anchors for rating scales
- simple and easy-to-interpret facial scales for hedonic methods
- pencils were eliminated and stickers used on serving dishes instead of score sheets.

More tests were carried out using the adapted methods.

Paired preference test

This is a widely used test to determine preference and acceptance (Manual, 1968). The consumer is presented with two samples and is required to make a choice based on some specified criteria or characteristic.

In the adapted test, consumers were given a blank button and stickers to indicate preference for one of the samples (see figure 1).

Figure 1: Paired Preference Test

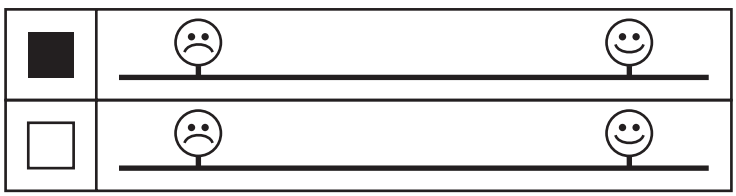
Which of these samples do you like the most? Use the stickers.

Thank you!!!!

Figure 2: Rating Test

Indicate how much you like each sample on the scale below. Use the stickers provided.

Thank you !!!!



Rating

The objective of rating is to classify a product on an ordered scale according to the sensory attributes of the product. The graphic rating scale provides the consumer with a line-scale that is anchored at the extremes. The consumer has to assign each product a scale of magnitude that reflects the amount of the specified characteristic or attribute (Manual, 1968).

In the adapted test the consumer is given a score

Figure 3: Hedonic Test

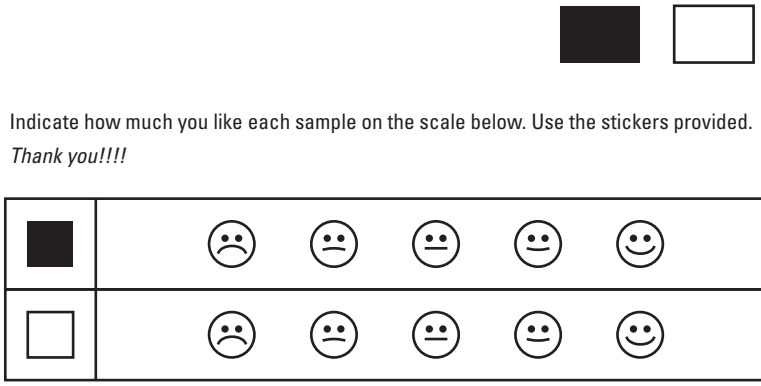


Table 1: Differences between traditional and adapted methods of sensory evaluation for illiterate consumers

Traditional	Illiterate and other cultures
● Samples served individually	● Samples not served individually
● Panellists seated in booths, served and evaluated	● Panellists stand in queues, served and evaluated (seated or not)
● Group instruction as to procedures prior to evaluation	● Demonstration and evaluation by researcher prior to evaluation
● Group attention	● Individual attention
● Use 3 digit numbering to mark samples	● Outline and solid shape symbols to mark samples
● Pencils provided	● Sticker provided on score sheets and serving containers
● Pre-prepared individual samples	● Direct serving of individual samples
● Water for rinsing	● Unwilling to rinse – regulate time interval between samples
● Verbally anchored scales	● Pictorial or symbols used as anchors
● Various numbers of samples with various evaluations used	● No more than two samples per test

sheet with a line scale and stickers that correspond to the products. They are asked to stick the sticker somewhere on the line that represents how much they like or dislike the particular product (see figure 2).

Hedonic test

The objective of this method is to measure the level of liking for a product using a hedonic scale. Consumers are asked to evaluate each sample and mark the scale on the test sheet according to how much they like or dislike the sample. A nine-point scale ranging from like extremely to dislike extremely can be used.

In the adapted test the verbal scale was removed and replaced by a five-point scale that used facial stickers. These correspond to how much the product is liked or disliked. Stickers were used that corresponded to the sticker on the product (see figure 3).

Conclusions

Several problems were encountered with the traditional methods of sensory evaluation. These are summarised in table 1. However, after several adaptations, methods were arrived at that were suitable for use by illiterate consumers.

References

Keane A and Willets A (1994). Factors that affect food choice. Nutrition and Food Science, 94(4), 15–17.

Manual on sensory testing methods, STP434 (1968). Philadelphia: American Society for Testing and Materials.

McIlveen H and Armstrong G (1996). Sensory analysis and the food industry: can computers improve credibility? Nutrition and Food Science, 96(1), 36–40.

Shepherd R, Griffiths N M and Smith K (1988). The relationship between consumer preference and trained panel response. Journal of Sensory Studies, 3, 19–35.

For further information contact H Koetzee, PO Box 12339, Queenswood, 0121, South Africa.