A quick and easy way to gain consumer understanding

To develop new foods or to improve existing products, it is necessary to understand how consumers perceive innovative foods, what their expectations are, which packaging they find most attractive as well as what information positively affects the purchasing decision and the acceptability of present or potential consumers.

Sensory characteristics alone are not enough to meet consumer requirements in today’s highly competitive and fast-moving markets. There are also several non-sensory factors, such as packaging, brand and price, which play a very important role in determining consumer purchase decisions. Packaging especially is a source of product recognition, as it serves as an extrinsic quality cue and provides consumers’ information about brand image and lifestyle.

For this research, 203 Spanish consumers completed an online survey, which included a word association task and a completion task (i.e. finish a sentence) regarding cheese packages. Online data collection provides numerous advantages for the researchers, such as quick collection of responses and data recording and reduced cost when compared to other types of surveys. However, the use of this methodology limits the representativeness of the sample.

The results obtained from both methodologies suggest that handiness to open, resealability, packaging size and packaging material transparency are among the features most appreciated by consumers.

The authors conclude that the two methodologies used in this study proved to be appropriate to gain an insight into consumer perceptions of cheese packaging and its influence on purchase decisions. Additionally, as the tasks were delivered to the participants via Internet, these methodologies may be used with a large amount of people and data can be collected very rapidly.


Who to test? The problem of convenience sampling

For food companies or university researchers undertaking consumer testing, it is often easiest to recruit participants for the studies from the workplace. This is called convenience sampling. However, sensory evaluation textbooks state ‘participants in consumer acceptance tests should be users of the product category and usually people who also actually like the product.’ This is a guiding principle of consumer testing and Cardinal et al conducted a study to investigate if any differences occur between a sample of consumers and a convenience sample.

The products used for the study were reconstituted powdered juices with the following flavours: apple, cherry, grape, grapefruit, orange and pear. Children (n=150) and women (n=200) were considered the target consumers, while food science students and staff (n=200) who were non-rejecters, were the convenience sample. The study was run at four sites in three countries (Spain, Argentina and the USA).

To briefly summarise the results, there were differences between consumers and the convenience sample, leading the authors to conclude that development projects based on acceptability results from convenience consumer samples comprised of “people with specialised knowledge”, could lead to erroneous development directions.


Unhealthy snacking habits in adolescence

The steep rise in the prevalence of overweight and obesity among children and adolescents is concerning, with many adolescents engaging in unhealthy snacking behaviour. It is
suggested that 25-35 per cent of the total daily energy intake of adolescents results from snacking.

Habits are formed when people repeatedly engage in the same behaviour in the same context. For example, when someone regularly eats chocolate while watching a movie, this behaviour can become a habit. Dietary behaviour strongly depends on habits as meals and snacks are often consumed at the same place and time every day. In adults, it has been shown that habit strength is strongly associated with unhealthy snacking and once habits are made these are difficult to break. It is important to know whether these unhealthy snacking habits have already been formed in adolescence and what strategy may overrule these habits.

A total of 11,392 adolescents aged 10-17 years, from nine European countries, completed a cross-sectional survey about healthy eating intention, snacking habit strength (i.e. frequency and automaticity), eating self-regulation strategies (temptation control, avoidance of temptations, distraction, suppression, goal setting and goal deliberation) and daily intake of unhealthy snacks. These adolescents consumed on average almost two unhealthy snacks per day. Like in adults, there was a strong relationship between habit strength and unhealthy snack intake. Habit strength increases with age.

Despite good intentions for healthy eating, habits led to the unwanted performance of behaviour, just like in adults. Adolescents that regularly used self-regulation strategies to deal with the food environment directly, such as not buying chocolate in large quantities before watching a movie, consumed less snacks. However, strategies that address the goal to eat healthily did not affect snack consumption.

Habits are hard to change, so it is worrisome that snacking has become habitual at such a young age. Perhaps self-regulation strategies are easier taught than unwanted habits are broken. Snacking patterns that are formed during childhood continue into adulthood, therefore, it is important to establish healthy eating patterns early in life.


Fruity, floral and fermented by fungi

In order to create a non-alcoholic, cereal-based beverage with increased nutritional value and sensory properties, scientists are looking at the benefits of fermentation by basidiomycetes (fungi), which are also associated with traditional medicine and disease-preventing qualities.
Researchers in Germany have analysed the aroma and safety of a cereal-based beverage fermented using Trametes versicolor. The beverage was noted to have an overall fruity, floral and fresh aroma.

To identify the individual chemical components contributing to the overall aroma, analysis of the liquid-liquid extraction (LLE) and headspace solid phase microextraction (HS-SPME) volatiles of the beverage was performed, using Aroma Extract Dilution Analysis (AEDA) with a gas chromatography system with a tandem mass spectrometer and olfactory detection port (GC-MS/MS-O). LLE Analysis revealed 17 odour active regions, while HS-SPME showed 24, including seven odour active regions that were identified by both methods.

Of these combined 34 odour active regions, 27 compounds were identified. Those identified in the most dilute samples included methional (boiled potato), 2-methylbutanoic acid (cheese, stinky), ß-damascenone (fruity, like pear), 2-phenylethanol (rose) and 2-phenylacetic acid (toasted, pungent, sweet).

Odour Activity Values (OAVs) were also calculated, where the concentration found in the sample is divided by the lowest concentration of that compound perceivable to the human nose. This analysis found 2-phenylacetaldehyde (floral), ethyl 2-methylpropanoate (fruity), 2,3-butanedione (buttery) and methional (boiled potato) had the highest values, contributing to the overall ‘floral, fruity’ description given to the beverage.

Toxicological studies were also performed on the beverage, and indicated no cytotoxicity and mutagenicity activity.


Front of pack labelling

The days that the majority of foods came in brown paper bags that were bought at the local grocer, whom you knew and trusted, are long gone. Our perception of the quality of food is now guided by the information that can be found on pack.

In order to assist consumers to make healthier choices, a variety of healthy choice logos are placed front of pack. The functionality of these systems has always been questioned. Well-known initiatives such as the traffic light labelling in the UK (i.e. Green is healthy food, Red is sometimes food), the Percentage Daily Amount and the Australian Health Star Rating (HSR) system may actually be more misleading for consumers than helpful in making healthier choices. In a recent article on the Conversation, Professor Mark Lawrence of Deakin University argues, in a recent article on the Conversation, that the HSR system relates to the balance between individual nutrients, rather than foods (Lawrence & Pollard 2015). The voluntary Health Star Rating system allows the food industry to either use or not use it on their processed foods, which makes it a great marketing tool for reformulated discretionary foods. This can lead to strange situations in which reformulated fries (less salt, less fat) receive a 4 star rating, whereas fresh potatoes do not carry any star. Is this telling the consumer that it is healthier to eat fries than fresh potatoes?

The issues with ‘health’ ratings that are placed front of pack on processed foods have also been highlighted in the August 2015 issue of the journal Public Health Nutrition (Hamlin et al 2015). In this experimental study 250 New Zealand students were provided with two types of front of pack labelling (i.e. Traffic Light and the Percentage Daily Intake) on healthy and less healthy products. Participants simply had to indicate which products they would like to buy.

The study showed that products with either the Traffic Light label or the Percentage Daily Intake were more likely to be bought, rather than the same products without these labels. However, the nutrient composition and the health messages communicated by these labels did not influence participants’ purchase decisions. In other words, the participants decided to buy products simply because it carried either the traffic light symbol or the Percentage Daily Intake, without understanding what these labels actually meant.

The study suggests that the tested health labels do not meet their aim of helping consumers make a healthier choice and viable alternatives are needed. Lawrence (Lawrence & Pollard, 2015) suggests that a health rating based on foods and food groups, would be much more useful for consumers. Industry involvement might be needed in the development of these labels, but public health professionals should never forget the main aim of their existence, which is “to help consumers make a healthy choice”.


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