Innovative consumer studies at the Restaurant of the Future

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Abstract

Consumer research on eating & drinking behaviour suffers from several drawbacks, such as its reliance on verbal methods (questionnaires, focus groups, interviews), unnatural test environments and professed rather than actual preferences and likings. Attitudes are commonly thought of as personal state variables, even when it has been widely recognized that the correlation of intentions / attitudes with behaviour is poor (see Köster, 2003). Alternative approaches rely on direct non-invasive observation of actual behaviour, and measurements of behavioural variables such as walking, food choices, eating, and talking) in natural environments over longer periods of time.

Assessing spontaneous behaviour

The Restaurant of the Future in Wageningen, The Netherlands, houses, apart from standard sensory and physiological laboratories also a restaurant for daily lunches for employees of Wageningen University & Research Centre. In this facility, eating & drinking behaviour, as well as the selection process of the daily lunch is studied, using a variety of sensors. Lunch guests are only asked for demographic data when they register as customer of the Restaurant and where they agree that their data may be used for scientific purposes. During the years to come, the lunch users will not be addressed by the research team anymore, as their *spontaneous* behaviour is to be investigated, and it has become clear that attention is an all too powerful factor influencing food behaviour. Wansink & Sobal (2007) documented how various situational factors, such as odours, lighting, and seating arrangements influence food behaviour sub-consciously. We will further investigate the causal pathways behind these phenomena, as well as their time scales of change. Ultimately, we wish to integrate the findings into a system dynamics style model that explains and predicts longer term behavioural change as a function of the foods offered, situational factors, such as the physical and social context and the person's psychological and physiological states.

In order to monitor the purchase behaviour of the consumers in the lunch restaurant, we keep records of all cash registers data in Point of Sales (POS) database. Even when several products such as various types of soup are priced identically, we keep unique articles codes for them, in order to distinguish vegetarian, thick or clear, spicy or creamy soups etc. Although standard practice in a retail environment, this is not the case in a food service context. However, food service POS data can potentially lead to much deeper consumer insights in food preferences, as the customers who buys the food is typically also the person who consumes the food in a well-defined environment. This is in contrast to retail purchasing records, which reflect household needs for several days.

Although technically not innovative, we will be able to follow consumers' reactions to various situational and product-offering manipulations at a daily basis, yielding a rich data set to link all other measurement records to.

Next to the POS data, the Restaurant of the Future is equipped with 26 dome camera's in the ceilings that registers visible behaviours related to entering, searching for and picking all food items, selecting a table and finally eating lunch. Also disposals of uneaten foods and packaging can be obtained, assessed and monitored. Video recordings are coded for specific behaviours using Noldus Observer. Correlating overall and partial residence times as well as group dynamics (eating alone or in a group) with POS data can reveal how time pressures, social context co-vary with purchase behaviour. These outcomes are collected over longer periods of time and can be correlated with season, weather patterns etc. Clearly, such conclusions yield valid insights in behaviour, that would not be obtained by asking people "what would you eat when you are not in a group during winter?".

Semi-invasive measurements

The RoF can add monitoring physiological measures of selected consumers, using heart rate, skin conductance, weight, blood pressure registrations etc. If these measurements interferes with the spontaneous behaviour of other customers, these half-invasive studies will be performed either at other times or at other locations in the Restaurant. In such situations more close measurements on physiology can be conducted on persons prior or after selected and having eaten certain products, in order to study e.g. satiation and satiety.

Similarly various devices can be used to measure important variable such as attentional focus, such as using eye tracker software and hardware, in order to see what consumers are looking at, which signs they might notice or read, which meal presentations are seductive etc etc. In addition, facial expressions, head directions can be interpreted from video recordings, using Facereader software. Ideally, one would uncover stronger correlations with such body language and food behaviour, relative to possible patterns one could try to establish comparing food related behaviour to verbal language answers and opinions.

Finally, integration of long term purchase patterns, food perception, expectations and memory under various circumstances, as well as assessment of eating speed and bite size (as assessed through coding video recordings) will be vital to support new product development and product introduction in the out of home markets.

References

1. Koster, E.P. (2003) The psychology of food choice: some often encountered fallacies. *Food Quality and Preference*, **14**, 359–373.
2. Wansink, B & J. Sobal 2007: Mindless eating: The 200 daily Food decisions we overlook: *Environment and Behavior*, **39**, 106-123.