

An implicit acceptability test in comparison to sensory profiling

Lise Wolf Frandsen¹, Garnt B. Dijksterhuis¹, Per Brockhoff², Jacob Holm Nielsen³

¹Sensory Science, Centre for Advanced Food Studies/Dept. of Dairy and Food Science, Royal Veterinary and Agricultural University (KVL). Rolighedsvej 30, DK-1958 C, Denmark

²Dept. of Mathematics and Physics, Mathematics section. KVL, Denmark

³Danish Inst. Agric.Sci. Dept. Animal Product Quality. Research Centre Foulum, Denmark

Introduction

In sensory profiling methods used for investigating the sensory quality of food products, e.g. milk (see e.g. 1;2), a panel of judges rate the intensity of pre-defined sensory descriptors. These descriptors will have to be known in advance and therefore should be present in the food in a sufficient amount, so that the assessors can effect an intensity scoring. When investigating products with only small differences, even a trained and focused sensory panel can miss these differences (3). Therefore, investigating alternative sensory methods which are perhaps more sensitive is warranted.

The taste of beer, as an implicitly learned reference, was studied by Mojet & Köster (4). They showed that daily beer consumers were not able to identify their own beer brand from among a set of similar beers. By changing the instruction to have the consumers enter a more emotional mode, they increased their ability to discriminate different brands of beer. The results showed that manipulating people's motivations, while they are unaware of the purpose of the evaluation increased their ability to discriminate among different brands of beer.

Objectives

The objective is to investigate if assessors invoke another type of judgemental mechanism compared to traditional sensory discrimination and sensory scoring, if they, without being aware of the purpose of the test, compare a sample with an implicitly learned reference. The reference is learned without the assessors' consciousness, therefore the test is referred to as an *implicit acceptability test*.

Procedures of Sensory Tests

Milking cows, fed diets with three different fatty acid compositions in a full cross over design, resulted in three different milk types. The milk was stored 1 and 4 days before analysis. The six milk samples, that were expected to only differ slightly, were tested by a traditional sensory profiling method, and by an *implicit acceptability test*.

Milk was analysed by descriptive sensory profiling using a trained panel (N = 15) in duplicates.

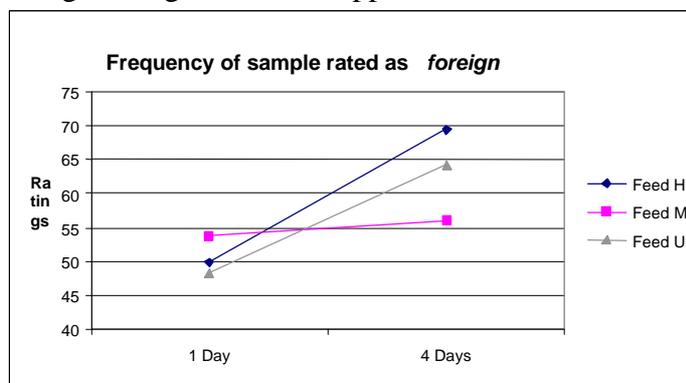
The *implicit acceptability test* was performed with 48 consumers and each sample was evaluated four times. The consumers that were selected, are drinking 1-5 glasses of 1.5 % fat milk every day, and it is therefore assumed that they have an expectation as to what constitutes the "typical" taste of this type of product. These expectations are encoded without the subjects' awareness and hence are regarded as being "implicit". By not revealing the purpose of the *implicit acceptability test*, the assessors are led to use their implicitly learned reference to evaluate if the sample is different from what they expect. The assessors were unconsciously comparing the sample they tasted to what they think milk should taste like. In our study the consumers were told a cover story about foreign and Danish milk. The story

was assumed to be upsetting to the generally nationalistic Danish milk drinkers. They were then asked to identify foreign and Danish milk samples from among a set of milk samples. Note that the art of this type of tests lies in the composition of the cover story. This requires thorough background knowledge, psychological insight and experimental experience by the investigators.

Results

Anova and GPA were applied to the data of the sensory profiling. Only five out of fifteen descriptors showed significant differences, ascribed to the storage time mainly. The GPA revealed that the panel did not show consensus in the use of descriptors. Also there was no clear differentiation between feed types or storage time. This can be an effect of a too homogeneous set of products, and the differences being too small to allow clear rating on the set of sensory descriptors.

Logistic regression was applied to the data of the *implicit acceptability test*. The results show



a clear picture, of the effect of storage. Figure 1 shows the frequency of the response "Foreign" to the six milk types. The milks are not very different when evaluated after one day of storage, however the milks evaluated after four days of storage are evaluated as "foreign" with different frequencies. Product H and U are different from M. That is confirmed when comparing the effect of storage within each feed.

Figure 1: Frequency of "Foreign" responses to the six types of milk

Discussion

The formation of mental schemata for the reference taste is assumed to have occurred without the assessor consciously intending to encode this information, and will, also without the assessor being aware of it, be used as an implicitly learned reference. The implicitness of how a product should taste is met by telling the consumers a cover story.

Conclusions

By using the implicit acceptance test it was possible to discriminate the products according to storage. The implicit acceptance test showed that the effect of storage was different for the three feed types. Type M was least affected. This was not observed from the traditional descriptive analysis, indicating the discrimination ability being better in the absence of conscious recollection of previous experience.

References

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