

Sensory Analysis — an Industry/ Education Partnership with the Meat & Livestock Commission

Jenny Jupe

A sensory analysis course was recently piloted by the MLC; Jenny Jupe explains how and why such courses are of value to many technology teachers

Early in the New Year I was invited to Winterhill House, the Meat & Livestock Commission's headquarters in Milton Keynes. The purpose of my invitation was to share with teachers, advisers and educational writers a one-day pilot course in sensory analysis. On arrival I could see immediately why the course had been located at the MLC headquarters: the sensory analysis laboratory, together with the suite of analysis booths, recipe development kitchens, meat storage and preparation areas, gave precisely the facilities and ambience needed for the professional development and training that was to be the focus of the day.

The National Curriculum has undoubtedly resulted in a considerable need for professional development and training and nowhere is this more acute than in the area of technology. More recently, work in food technology has taken on an increasingly industrial focus, causing many teachers to express a need for relevant and appropriate training. As a teacher who has spent the last five years working as an INSET provider, I genuinely believe that such training is best delivered in partnership with industry, a concept which the MLC sensory analysis pilot effectively demonstrated.

Food technology has recently been given an educational definition. Ridgewell *et al* (1993) suggest that it concerns:

... using food correctly as a material for designing and making good quality food products. They must fit the intended purpose or specification and consider needs, values, economic constraints and environmental issues.

It is the aspect of developing and achieving an accurate product specification that depends considerably on sensory analysis. In the food industry this is a rigorous process, undertaken by trained sensory analysts. In the classroom we can simulate sensory analysis activities, but it is paramount that the same rigour and knowledge are applied, otherwise the activity is open to flippancy by pupils and dismissed by colleagues as being trite.

So who better to lead a course on sensory analysis than Dr Sue Marie, sensory analyst with the MLC? Sue's doctorate was in the area of psychology, a discipline which she has subsequently applied to her various posts as sensory analyst in France with the *Appellation de Controle*, in Scotland with the whisky industry and now, with the MLC.

The day was planned to cover the major aspects of sensory analysis:

- An understanding of sensory analysis and application in a major industry
- The senses and sensory perception
- Sensory techniques and methods
- Data analysis
- Classroom applications.

Throughout the day I was well supplied with support materials, able to participate in analysis activities and view the other facilities offered by MLC's headquarters. Dr Marie provided the focus for the course with the first session, outlining sensory analysis. Sensory analysis — or sensory evaluation as it is sometimes called — was defined by the Institute of Food Technology in 1975 as 'the scientific discipline used to evoke, measure, analyse and interpret those reactions to characteristics of food as perceived through the senses of sight, smell, taste, touch and hearing'. In the food industry, sensory analysis is used for:

- quality control
- shelf life studies
- new product development
- product improvement.

Trained sensory analysts act as the first filter or screening of a product prior to full-scale consumer testing. This is a more logical and cost-effective way of meeting the product specification. Dr Marie explained the difference between sensory analysis and

Sensory Analysis Booths



consumer testing: the former uses trained specialists working under controlled conditions, while the latter may well be uncontrolled (a random sample of people testing a meat recipe at home, for example).

The training thus moved into a session underpinning knowledge about the five senses and how these can be sharpened in preparation for work as a trained analyst. Chris Warkup (Meat Animal Science Manager) reminded us that perceived sensations can only be subjective responses to information received from sensory receptors. This information has subsequently been categorised into sensory descriptors as follows:

- texture/mouthfeel
- taste/flavour
- appearance
- smell/odour/aroma.

The first category immediately put me in mind of the Level 6 assessment criteria for Task 3 of the current design and technology optional tasks. To meet this criterion, pupils are required to develop specified textural characteristics

(mechanical, geometric, fat and moisture) for a topping or filling. Having digressed into showing Dr Marie the assessment criteria, she was able to come up with some reference work, that of Alina Szczesniak, which provided more scientific knowledge about textural characteristics.

In the development of my own senses I used the sensory laboratory to undertake a series of screening tests. In essence, these tests heightened awareness of how well developed were my own sensory receptors. The tests were simple in concept and could easily be replicated in the classroom. It was a challenging session — detecting odours, rating textures and identifying tastes, but all very necessary if specifications are to be accurately realised.

At the MLC, further rigour in the analysis process is achieved by ensuring that all the test samples are prepared under controlled conditions. Terms such as independent and dependent variables as applied to the blueprint for British beef and pork were studied. Precise scientific measurement, Dr Marie explained,

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Sensory Analysis Laboratory

allows the industry to be confident about the cause and effect relationships between the means of production and sensory characteristics. As products are developed, irrelevant variables or 'nuisance factors' come into being and can be systematically controlled. Hence to achieve a certain specification, samples would need to be prepared using identical procedures, be of identical weight or size and be presented in identical conditions when tested. Similarities were apparent with the way in which pupils are expected to undertake investigations for National Curriculum science. Within the sensory laboratory, a bank of 12 identical built-in ovens, all fitted with computer-controlled heat sensors, ensure that product preparation is accurately measured and controlled.

If the screening tests and sensory methods that I explored were not sufficient, then product analysis in the tasting booths was an amazing experience. The room contains 12 small booths identically equipped with heat tray, recording, tasting and hygiene equipment; even the infra-red lighting ensures that little or no visual differences can be detected between the products. Tasting the prototypes resulted in a set of data which could easily be entered into a

spreadsheet and analysed by pupils. Certainly the overall process of product development indicated the potential for a combined mathematics, science and technology project suited to the demands of GCSE.

Shirley Ascough, the Consumer Information and Education Manager, concluded the day by providing sample activities and leading discussions concerning the type and variety of activities that could be developed as part of sensory analysis. I have already made reference to the potential of many of the activities, but can in no way do justice to the insight and motivation that a visit to MLC's headquarters will provide. The course has inspired me to develop new and exciting classroom activities in the sure knowledge that my teaching encapsulates current industrial practice. All in all, I came away from Milton Keynes feeling well satiated!

References

Ridgewell, J., Rutland, M., and Thompson, C., *Food Technology and the National Curriculum*, a paper sponsored by Unilever Educational Press, October 1993

Szczesniak, A.S., 'Classification of Textural Characteristics' in *Journal of Food Science*, Vol. 28, 1963, pp.385-9

The Meat and Livestock Commission is holding a series of one-day courses in sensory analysis. You can contact them at Winterhill House, Snowdon Drive, Milton Keynes MK6 1AX, tel. 0908 677577.