

# Factors in food choice

In the winning undergraduate entry for our student writer competition, **Gaby Pfeifer** examines the relationship between sensory stimulation and *savoir-vivre*

**Consumption of food is a universal and necessary act, and a variety of factors influence its selective choice. We are commonly tempted to think the reason we choose a particular food is that it is healthy and tastes good. Upon closer examination of our senses, we might better be able to understand why we show a preference for some tastes but not others.**

**What causes children's reluctance to try new foods and how might sensory education help overcome such 'food neophobia'? How do culture-specific products or flavours exert an influence on our food choice – and how stable are these influences? This article addresses these questions.**

questions

To what extent do culture and society influence our food choice behaviour?

What might motivate children to try new dishes?

resources

For an interdisciplinary overview of the role of food, see: Pond, W.G., Nichols, B.L., Brown, L.D. (Eds.) (2009). *Adequate food for all: Culture, science and technology of food in the 21st century*. Boca Raton, FL: CRC Press.

references

Conner, M. & Armitage, C. (2002). *Applying social psychology: The social psychology of food*. Buckingham: Open University Press  
 Logue, A.W. (2004). *The psychology of eating and drinking* (3rd edn). New York: Brunner-Routledge  
 Pigott, J.R. (1988). *Sensory analysis of foods* (2nd edn). New York: Elsevier Science.  
 Pliner P. & Saly, S-J. (2006). Food

neophobia in humans. In R. Shepherd & M. Raats (Eds.) *The psychology of food choice* (pp.75–92). Wallingford, Oxfordshire: CABI Publishing.  
 Reverdy, C., Chesnel, F., Schlich, P. et al. (2008). Effect of sensory education on willingness to taste novel food in children. *Appetite*, 51(1), 156–165  
 Rozin P. (2006). The integration of biological, social, cultural and

psychological influence on food choice. In R. Shepherd & M. Raats (Eds.) *The psychology of food choice* (pp.19–39). Wallingford, Oxfordshire: CABI Publishing.  
 Rozin, P. & Fallon, A.E. (1987). A perspective on disgust. *Psychological Review*, 94, 23–41.  
 Schiffman, H.R. (1996). *Sensation and perception. An integrated approach* (4th edn). New York: Wiley.

Stallberg-White, C. & Pliner, P. (1999). The effect of flavor principles on willingness to taste novel foods. *Appetite*, 33, 209–221  
 Teff, K. & Engelman, K. (1996). Palatability and dietary restraint: Effect on cephalic phase insulin release in women. *Journal of Physiology & Behavior*, 60(2), 567–573.

Food has long assumed a role in our society beyond filling empty stomachs – it permeates many facets of our life. A healthy nutrition intake is a welcome excuse for our passion about such sensory enjoyments. Would you choose the traditional English roast dinner, a lighter vegetarian selection or oysters on ice? *De gustibus non est disputandum* – there is no disputing about taste... or is there?

A review of the literature demonstrates that sensations for taste differ in individuals and hence influence their selection. These differences are in part rooted in our evolutionary and genetic heritage that can be ascribed to our physiological necessity to consume food. Moreover though, our food choice is shaped by our socio-cultural context as well as through our own cognitive appraisals. Conversely, in consuming food that suits our gusto we reach beyond its primary nutritional function and portray much about our own culture and style within the societal context.

### A sign of refined taste or universal preference?

Culinary treats provoke stimulation to a variety of senses in our sensory systems. It is an interplay of our visual, gustatory and olfactory senses that aids us in our food choices. From an evolutionary perspective these sophisticated information systems were shaped over time to react to changes in the environment and to assist us in separating nutrition high in quality from spoiled

food or toxic substances (Schiffman, 1996). For instance, our visual senses are involved in measuring the appearance of food, especially through its colour (Pigott, 1988). Empirical studies show that the colour of food has great influence on our decision whether we ingest or reject it. Fresh meat that owes its bright red colour to the pigment oxymyoglobin will adopt an unattractive greyish-brown colour upon exposure to oxygen and a mere 20 per cent level of the brown pigment metmyoglobin is sufficient for a consumer to reject it (MacDougall, 1982; Hood & Riordan, 1973, cited in Pigott, 1988). In practice, the effects to excite our appetite are frequently exploited by craftsmen of haute cuisine in their skilful colour combination of culinary delights.

The true flavour experience, however, comprises a much larger variety of factors, such as a substance's 'concentration, aroma, texture, temperature, colour, and even the sound it makes when it is chewed on or bitten' (Schiffman, 1996). Our olfactory and gustatory senses work closely together and serve as a further aid to the visual senses in experiencing flavour.

The four classical primary taste senses in humans were found to be sour, bitter, salty and sweet, although we are not limited to those. Could there be a physiological, nutritional basis underlying these primaries that direct our food choice behaviour and our food preferences? Sour tastes are often associated with 'foul water, corrosion, or bacterial decomposition' and bitterness can indicate toxic substances, which might help us to avoid their consumption (Schiffman, 1996). Salty dishes are rich in minerals and have an important function in regulating our body fluid, whereas sweet tastes indicate ripeness and stand for food high in carbohydrates. Evidence to support the notion for our preference for sweet tastes comes from observing infants' facial expressions that signal contentment and satisfaction after sucking on a sweetened dummy (Maone et al., 1990, cited in Logue, 2004).

Although these primary tastes seem

equally innate to all humans, genetic differences have been found in our sensitivity to bitter tastes, i.e. in the taste of phenylthiocarbamide, also known as PTC (Logue, 2004). People who perceive PTC as very bitter appear to be equally sensitive to 'saccharine, caffeine, beer, grapefruit juice, and dark green vegetables including Brussels sprouts' (Bartoshuk, 1979, cited in Logue, 2004). Since this is genetically inherent, at least it looks as if those who do sense such strong bitter tastes in certain food now have an objective and indisputable explanation for its rejection.

Generally however, our eating habits and preferences are modifiable and often seem to be the result of learned experiences. In this view, our cultural background is a strong determinant for our adopted diet, for it is our cultural environment that teaches us about the types of food that can be eaten, and how they are supposed to taste. While some people might turn up their noses at succulent caterpillars or other insects, such components make up an integral food source in several Asian, African and Latin American countries. And, apart from learning what substances are deemed 'appropriate' to serve as food, we also develop our own habitual taste towards certain characteristic flavours that pervade a given cuisine. Chinese dishes are principally associated with flavourings such as 'soy sauce, ginger root and rice wine', whereas 'chilli pepper, tomato and lime' are attributed to the Mexican cuisine (Rozin, 2006). Such distinct 'flavour principles' within a given culture represent familiarity and safety and are therefore more readily accepted. Hence, it might be of little surprise when people become more tolerant in trying unknown food if it is seasoned with familiar flavourings. This even seems to hold true for those individuals who generally have a more adventuresome attitude towards ingesting exotic food (Stallberg-White & Pliner, 1999).

Our attitudes towards food can even serve as a mediator of physiological mechanisms. Findings of a study by Teff and Engelman (1996) yielded a significant correlation between people's cognitive attitudes towards food and their cephalic phase insulin release (CPIR). The cephalic phase is part of our digestion process that occurs prior to the actual food ingestion.

It is initiated by the sight, smell or even just the thought of food and modulates the levels of insulin release. In the case of Teff and Engelman's (1996) study, individuals released higher concentrations of insulin after tasting and expectorating food when they had a somewhat restrained attitude towards food compared to eaters that were more open in their approach. It seems then, that palatability is not just an experience of taste but can be mediated by our cognitions (which may therefore play an important role in directing our food choice).

Concerns frequently arise when children appear too reluctant in trying new food and adopt a one-sided unhealthy diet. Such behaviour is known as food

neophobia, and generally involves 'rejection of a novel food or foods in a particular situation' (Pliner & Salvy, 2006). Its underlying psychological causes have been explained on the basis of Rozin and

Fallon's (1987)

categorisation of food rejection and include dislike, danger and disgust. Dislike of food refers to substances that generally are considered as edible but the individual does not find them palatable. Anticipated danger can be regarded as a precaution to prevent the consumer from eating harmful substances (e.g. fear of poison mushrooms), and disgust is usually experienced when the new food is considered as inappropriate within a person's cultural environment and often includes animals or animal products.

Since such adverse beliefs about unknown foods are sensory-affective or cause fear about possible dangerous consequences, they are likely to inhibit us in our selection (Rozin & Fallon, 1987).

### Educating the senses

In a recent project carried out in France (see Reverdy et al., 2008) a sensory education programme was implemented in a primary school to find out whether this might help to increase children's openness towards new food. They received lessons in which they were made familiar with new products by, for example, explaining the origin of certain fruits

or dishes. Although an expected long-term effect (beyond 10 months) could not be found, the liking for novel food had increased by the end of the four-month programme.

This is encouraging, in that it shows that education of our senses can lead to higher acceptance of new dishes and thus to a more well-balanced diet. But at the same time the results underpin the influence of the range of other factors in developing a permanent liking for some dishes but not others.

### You are what you eat

A German proverb states 'Man is what he eats', which implies societal expectations on the quantity of food we consume and the type of food we choose. Researchers even found differing eating norms imposed on men and women as to what type of food is perceived as 'feminine' (e.g. a salad) or 'masculine' (e.g. a meatball sandwich). Women who eat a 'small feminine meal' earn higher social approval than when they eat a larger portion of a 'masculine' meal (Basow & Kobryniewicz, 1993, cited in Conner & Armitage, 2002).

Research from psychology and other social sciences has equally emphasised the strong relationship between the foods we choose and the culture and lifestyle we show through its consumption. Judgements and evaluations about our person on the basis of our food choice or brand selection are readily made, even just by inspecting the items stated on our shopping lists (Haire, 1950, cited in Conner & Armitage, 2002). In developed countries, where the range of food on offer is plentiful, our tastes in food have long become a reference for our taste in general and may well play a crucial role in our food selection.

In conclusion, then, some might dispute the idea of taste as invariant and genetic. Others argue from a more profound evolutionary aspect, purely referring to the physiological necessity that directs our behaviour. However, it remains beyond dispute that our environmental context – culture and society – work with our own cognitive attitudes to exert a powerful influence on our food choice behaviour.



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