

The end of the age of bitter pills

The pharmaceutical industry discovers the benefits of sensory product optimization

Medicine does not have to taste good to work! Doctors and pharmacists have long held on to this belief. Unfortunately, the idea that "as long as the patient trusts the doctor, he or she can swallow even the bitterest pill" is often a misconception.

A large percentage of the medicine that doctors prescribe is never taken – and this is not just because of the medicine's unwanted side effects. Patients have been refusing to take essential medicines because they tasted bad, were hard to swallow, or packaging was hard to open.

As long as the doctors continued to prescribe the drugs, this was a problem that did not effect the producers of prescription medicines. It could often be some time before the doctor might notice the drug's lack of effect on the patient and begin to doubt the usefulness of the medicament. After all, the patient seldom admits to not having taken the medicine as prescribed. With over-the-counter medicine, it is a different situation altogether.

Just as with supermarket food-stuffs, a consumer will not repeatedly buy cough lozenges or water-soluble calcium-carbonate tablets that taste bad. In this case the pharmacist's most sincere recommendations will often be ignored. In the case of over the counter vitamin preparations and food supplements sold in the supermarket, where consumer choice is no longer influenced by the advise of an authority in the field, the product with the most acceptable sensory properties will usually win out.

At a time when a more mature, more health-conscious population's interest in health-promoting products is rising as quickly as the corresponding newly available products, the manufacturer or supplier can no longer rely solely on the promised effectiveness and usefulness of a product. „A health or therapeutic benefit will not necessarily compensate for an unacceptable sensory experience“ states Anne Goldman of the private Canadian consumer research company ACCE in Mississauga, Ontario, a member of the European Sensory Network ESN. “When you have a headache, you are not going to choke on a big thick capsule if there is a sweet little pea of a pill that melts on your tongue, or a good-tasting fruity carbonated water-soluble tablet on the market that works just as well.”

It is not surprising that the pharmaceutical industry has finally woken up to the situation. Such aspects as the sensory qualities of a product are being given more attention. Anne Goldman states, "More and more often,

pharmaceutical companies ask for our support in the development of new products or the re-launching of existing products." Doctors are no longer the only ones to worry whether the patients are taking their medicine as recommended. This question is also becoming a high priority for manufacturers of over the counter pharmaceuticals and health promoting food supplements if they want their customers to remain faithful to these products.

Example 1

The manufacturer of an over-the-counter pain-killer for children sold in the USA and Canada saw the problem and acted accordingly. To make sure that this medical product was preferred over competitors' products, the company had ACCE do research on how to optimize their product pertaining to the sensory preferences of children. Professional sensory panels were used to systematically analyze the qualities and characteristics of the products, concurrently the opinions of the relevant consumers were investigated. With the help of various research methods especially designed for testing children (e.g. one-on-one interviews by professional observers), and the use of scales adjusted for children (see illustration), the researchers would ask such questions as 'Which colors, tastes and forms do the children prefer?', and then offer concrete suggestions for the development of a new product line. Now the preparation is available in the form of a melt-in-your-mouth "candy" with appealing names and tastes such as "Grape Punch", "Wacky Watermelon", and "Bubblegum Burst", packaged in eye-catching bright cherry-red. The results: increased sales.

In comparison to foodstuffs studies with food products, there are a number of noticeable differences that are a requirement of pharmacological sensory studies. Anne Goldman explains that, "In every case we need to get an informed consent statement from the participants and their guardians, and are required to fulfil a high level of safety conditions. The amounts of medicaments used in the tests must be very small so that any risk of side-effects can be ruled out (so that the risk of side-effects can be brought to an absolute minimum)."

In the case mentioned in example one, the attempt to find a good-tasting medicine in easily ingested and appealing form was successful. Yet this often presents big challenges to the sensory specialists. Anne Goldman laments that, "There is still very little basic research concerning the use of masking agents and bitterness blockers in the area of taste. We also know very little about the influence of particular diseases and illnesses on sensory perception"

Example 2

But is the taste of a product really so important for it to be successful in the marketplace? How much influence does it have in determining purchasing choice in comparison to the brand name and the price? This was the question the German member of the European Sensory Network ASAP wished to answer in the case of water-soluble calcium fizzy tablets.

They proceeded by using conjoint tests. In such a setting consumers do not indicate how much they like a certain product (as they do in acceptance

tests), but answer questions such as "Would you buy X brand calcium fizzy tablets if they cost XX dollars in the supermarket?". In other words, they are asked for their preferences for hypothetical product concepts, which are described in terms of specific attributes and levels. When asked directly for their buying decisions, consumers stated that taste was most important to them. However, the conjoint analyses revealed that this was not quite the truth. Instead, all three factors – price, brand, and taste – seem to have had approximately the same influence on buying decisions, whereas the place of the purchase was clearly less important. This leads ASAP researcher Sven Henneberg to the conclusion that all three components are important: "It does not pay to spend a lot of money to build up a brand name and then not take care of the sensory qualities of the product. Their importance is shown through the long-term success of the product. Only products with pleasurable sensory attributes have a chance of having a high rate of return and long-term customers."

This is not only true in the area of foodstuffs and pharmaceuticals, as the following example from Sweden indicates:

Example 3

The Swedish Rheumatism Association took the initiative and contacted sensory experts in order to find a solution to a bothersome problem. In cooperation with the pharmacy association and various other organizations involved with the handicapped and disabled, a questionnaire was distributed. The results of the questionnaire showed that handicapped people with limited hand function had extreme difficulty opening typical product packaging. Medicament packaging was a particular problem, often being virtually impossible for them to open. In so-called "blister" packaging, pushing a tablet through the cover foil requires finger-tip sensitivity, round plastic bottles are often so big that there is not enough strength and dexterity in the fingers to hold onto the jar with one hand and twist the cap off with the other. It is completely out of the question when you no longer have free movement in your finger joints to grip a thin plastic band and obtain enough traction to open a screw-top cap seal, or to press and turn at the same time, as is often required with safety caps.

The handicapped have similar problems with many other goods that are in daily use. Lena Örsvik of the Swedish Rheumatism Association stated that, "Our objective was to work with experts in the field to develop a standardized method of testing the accessibility of packaging for people with limited hand function. The aim was then to use the test results to develop sample packaging which the target group would find easy to handle "

With these development goals in mind, they turned to, among others, the Skandinavien ESN member, the Swedish Institute for Food and Biotechnology (SIK), whose experts specialize in the translation of consumer needs into specific product specifications. SIK project leader Annika Aström says, "We use a variety of qualitative and quantitative tests to tune into what we call 'the voice of the consumer'." Both consumers and a panel of sensory experts work closely together to define and measure the sensory properties of a product, and learn which sensory profile leads to

success among consumers.

The results of these efforts were the development of a series of receptacles with twist-off caps in a variety of forms. One in particular proved to be especially effective: a six-sided bottle that fit comfortably in one hand. The cap is also six-sided, and has indentations between the edges. In this way, the fingers can hold on tightly without slipping. It takes very little energy (20 N) to open the special cap, whereas a healthy hand can easily sum up the energy of well over 300 N. It is just as safe and easy to close the container. It is also easy to see that it is closed.

The Rheumatism Association was so pleased with the results of the product development that they placed an 'easy-to-open' label on the packaging. Per Alexandersson of the manufacturing firm Vaxjoplast Emballator reported that, "The early response has been extremely positive. Several pharmaceutical companies are currently testing to see whether a change to this new packaging would benefit their clientele." This is a consideration that also definitely makes business sense, since it clearly adds value to the product. The Swedish Rheumatism League plans to expand 'easy-to-open container' initiative to other product lines in the realm of foodstuffs and consumer goods. In the pharmaceutical sector, the sensory optimization of products is on the march. The advantages for both manufacturer and customer can no longer be ignored.

Source: ESN seminar: Sensory evaluation – More than just food, Madrid, Spain, May 25-26, 2005

Figure 1:
Non-verbal hedonic scale for children



Figure 2:
Personal interview with child subject



Figure 3 + 4:
Accessible packaging (Vaxjoplast Emballator)



Letter box 1:

Why should the pharmaceutical industry invest in sensory issues / optimization of their products?

- Area of Growth: Increased consumer involvement with health maintenance as population ages.
- Pharmaceuticals: Recognition of sensory issues in early stages of clinical development helps to improve product compliance.
- Nutraceuticals: Health benefits will not be enough to ensure market success. Optimization of sensory properties can raise consumer acceptance.

Letter box 2:

About the European Sensory Network

The **European Sensory Network** (ESN) brings together 18 member organisations in 15 European countries and three non-European countries. All ESN members have a high standard of competence in sensory analysis and represent the best research institutions involved in sensory and consumer sciences in their respective countries. Within the European Sensory Network these organisations work closely together; they also co-operate in international research projects. The ESN continually works on the development of practical and accessible methods for the industry and organises seminars for sensory practitioners.

More information: www.esn-network.com