Designing for society

Openability and design for the ageing population are two key 'MEGA' trends that will be discussed at the AIP National Technical Forum running alongside AUSPACK in June. International keynote speaker, **Dr Bradley Fain**, senior research scientist and branch head, Human Systems Engineering Branch, Georgia Tech Research Institute USA and **Judith Nguyen**, director and consumer representative, Arthritis Australia, talk exclusively to *PKN* about these critical issues.

1. PKN: What is the extent of the 'openability' problem, both globally and in Australia?

Bradley Fain: Openability, or ease of use in packaging, is a global issue impacting consumers of all ages and abilities, although it does not affect population segments equally. What might be a minor annoyance to some is a loss of independence for others.

Openability impacts consumers in at least two different ways. Firstly, it can present an unnecessary barrier to consumers who have functional ability limitations that restrict their ability to open packaging. Secondly, openability issues may limit the usefulness of the product to the consumer. If packaging becomes destroyed while opening the packaging, consumers may not be able to reuse the packaging to ensure the freshness of a product. Also, users may find that packaging is too difficult to open in the context that the product is designed to be used.

Judith Nguyen: Arthritis Australia has seen a huge increase in enquiries from consumers looking to identify user-friendly products and packaging, leading the association to step up its campaigning on this issue and to work with the packaging industry to identify commercially viable solutions to the problem.

According to the Australian Bureau of Statistics, by 2011 one in three Australians or 7.3 million people will be over the age of 50. By 2050 it's predicted that at least 44 per cent of the population, or over 14 million people, will be aged 50-plus.

With ageing comes an increase in disabling illnesses and conditions. Currently one in five Australians suffers from arthritis – the main types being osteoarthritis and rheumatoid arthritis. Contrary to popular belief, arthritis is not just a disease of the elderly, and of the more than 3.85 million arthritis sufferers across Australia, 60 per cent are of working age. As the population ages, projections show that by 2050, the number of Australians with arthritis will skyrocket to a staggering seven million people. Access Economics predicts that nearly one in two people will have arthritis by the age of 55.

2. PKN: Are there markets that are addressing the issue more effectively than ours?

Bradley Fain: While openability is not just an issue for older adults, the markets that are addressing the openability issue are markets that serve a relatively pronounced ageing population. Efforts of Arthritis Australia, the Arthritis Foundation in the US, and the Arthritis Society of Canada have served to focus attention on the openability issue. In Japan the packaging of the product is often seen by consumers as almost important as the product itself. Substantial innovations in universal design in packaging have originated in packaging solutions developed in Japan.

There is a growing trend within those markets to address openability even if the product under consideration is not targeted at older adults. For products that are seen as commodities, openability is sometimes seen as a key product discriminator. The idea is that companies can capture market share from competitors by introducing products that have openability features into markets that are dominated by companies with packaging solutions that are particularly difficult to open. This approach is particularly effective when coupled with an overall attempt to design packaging around the way consumers actually use the products.

Dr Bradley Fain

Judith Nguyen

Judith Nguyen: The USA, Europe and the UK are doing a lot more to address the issue of openability than Australia, which has fallen behind. This includes every sector from government to universities, industry and consumer groups.

Consumer frustration and demand has led the Arthritis Foundation of USA to create a cause-related marketing program to recognise manufacturers who design user-friendly products and packaging. Manufacturers submit their product(s) for testing by an independent laboratory experienced in the design and evaluation of products that are accessible to people with arthritis. Products and packaging which receive a favourable review carry the Arthritis Foundation Ease-of-Use logo. The program now has over 80 products and includes companies Procter & Gamble, Duracell, Whirlpool, and Roche. The program has been such a success for manufacturers and

Australian Institute of Packaging National Technical Forums

The Australian Institute of Packaging (AIP) will once again be holding its biennial National Technical Forums alongside AUSPACK this year on 17 and 18 June. With the theme 'Packaging MEGA Trends' and international speakers coming to present, the AIP Forums are expected to be a must-attend on the 2009 calendar.

To find out more about the event call the AIP on 07 3278 4490 or email info@aipack.com.au

Designing for user friendliness and ease of openability: examples from the US market. Fisher Price Toy packaging before (FAR LEFT) and after (LEFT).

consumers that the Arthritis Society of Canada has replicated it.

In Australia, Arthritis Australia is working with Australian Institute of Packaging (AIP) and the Packaging Council of Australia (PCA) to raise awareness of the issue within the packaging industry.

3. Why do you think brand owners/ packaging designers have been so slow to address this issue?

Bradley Fain: The main reason is because the general population is accustomed to poor packaging. If you want the product, getting through the packaging is seen as a necessary burden. There have been very few innovations that have made substantial improvements in openability, so consumers really have not had much of a choice. They have simply come to expect poor packaging design and brand managers perceive the lack of customer complaints as evidence that openability is not an issue rather than evidence for a learned helplessness on the customer's part. But, when given a choice, consumers will choose the packaging solution that is more convenient to them. For many, this means packaging solutions that feature greater openability. If the openability problem is severe, consumers may even switch brands in preference to the brand that offers the easy to open packaging.

Judith Nguyen: Packaging designers have to fulfil many different and often conflicting functions – safety and security versus openability – so that design is normally a compromise. The accidents and problems that consumers experience often arise from design flaws within the packaging because of this compromise. Design considerations including cost, environment, tamper-proofing and child-resistance have grown in importance, often at the expense of openability.

One of the main arguments is cost – that it would cost millions of dollars to change a package for ease of opening because production lines would have to be reconfigured. However, research suggests that minor changes to the way products and/or packaging is designed will lead to significant increases in accessibility – and therefore increase the size of targeted markets.

Another argument is that most consumers do not care about hard to open packaging, or are resigned to battling with hard to open packaging. This does not apply to Baby Boomers, who are very different from their parents and grandparents. They will not 'put up' with things.

4. Is the problem primarily overpackaging, or is it more a functional design issue across the board?

Bradley Fain: Overpackaging is the symptom rather than the cause of openability issues. Consider the role of packaging designers in the development of packaging. Packaging designers have a number of competing goals that they must consider when developing a packaging solution. The packaging must be appealing to the consumer and communicate the brand messages effectively. The packaging must protect the product and prevent damage or spoilage. The packaging, to some extent, must also deter pilfering and tampering. Each of these requirements can easily impact openability. For example, designers may determine that easy to understand and prominent opening instructions take away from the appearance of the packaging. Obscured opening instructions can make a difference in openability, particularly when the packaging solution is novel in some way. Also, the steps taken to prevent spoilage and theft can directly impact openability since those packaging features are designed to either prevent inadvertent exposure of the product or prevent the product from being altered are removed prior to the purchase. Given the current state of knowledge about the effectiveness of anti-pilfering features, the impact of poor openability on the brand, and human abilities related to packaging, overpackaging is a natural response to these competing goals.

Designers do not realise that they are trading off openability for brand message when they minimise the readability of opening instructions. Furthermore, they don't understand the impact that poor openability will have on the brand message. How many companies would consciously decide to have the very first experience with a product be negative due to the frustration experienced while trying to open poorly designed packaging?

Functional design is the primary issue, as well as the fact that openability is not a top priority for many manufacturers. Designers must be aware of the importance of ergonomic factors in the functional design of packaging, as inadequate attention to user capabilities can lead to dissatisfaction and accidents. The onus has to rest with designers to

Mouse in clamshell (ABOVE) and in easy-to-open packaging (RIGHT)

take the personal characteristics of consumers into account when designing their packaging, and to consider how people might actually go about opening packaging in a real world rather than an ideal one.

5. Can you suggest ways for brand owners to re-design hard-to-open packaging that won't have extreme cost implications, and that won't compromise pack integrity or security?

Bradley Fain: In my experience changing a packaging solution that is already on the market is both expensive and difficult to do. In some cases, minor tweaks such as changing the type of glue used on a packaging flap or reducing the number of plastic retaining rings on a bottle seal can be somewhat effective, but the problem is that openability was simply not a requirement when the packaging solution was developed.

Adding openability requirements as an afterthought either results in a compromise of one of the other packaging objectives or it results in costly re-engineering and re-tooling of production facilities.

I have seen a great deal of success in developing packaging solutions with openability in mind that did not compromise any of the other packaging objectives when openability requirements are address early enough in the design of the packaging solution. It often does not cost any more to 'get it right' as it does to 'get it wrong' with respect to openability.

Judith Nguyen: The best way to avoid extreme cost implications is to integrate accessibility requirements into the design process to begin with. However, Arthritis Australia has developed some practical suggestions for designers to improve design without incurring major costs.

- Cans with pull tabs can be improved by deepening the pre-cut around the edge to make it easier to pull the lid up.
- Packages using a tear notch should indicate clearly and accurately where the notch actually is.
- Jars with rounded plastic lids and no serration should flatten the lids to a sharp edge and incorporate serration for grip.
- Foil lids should incorporate an opening tab that is big enough to grip.
- Screw-tops need to balance vacuum suction with how easy it is to open the product.

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- Child safety and anti-tampering is of paramount importance but can be maintained by using intelligent opening systems such as lining up dots or arrows instead of squeeze in, push down and twist.
- Reading instructions are imperative for safety reasons or efficacy, and designers can improve design by following these simple guidelines:
- Legibility is not solely dependent on type size but it is a major factor; the ideal print size is 16 – 18 point with a recommended minimum of 10 point.
- Simple sans serif typefaces such as Arial or Helvetica are recommended for maximum readability.
- Good contrast contributes to legibility; the text should be printed with the highest possible contrast.
- Lower case text is easier to read, and using text consisting entirely of capital letters should be avoided.

7. What factors need to be taken into account by designers, packaging technologists and marketers when it comes to ensuring the final pack accommodates as many consumers as possible?

Bradley Fain: When designing a packaging solution, designers and brand managers should consider the total cost of the packaging solution. Designers often focus on the non-reoccurring costs associated with research and development of a particular packaging solution or the reoccurring manufacturing costs while ignoring other costs associated with missed opportunities, lost sales, product support, and customer liability. The costs associated with inadvertently excluding large segments of the population because of openability issues may greatly outweigh the cost associated with research and development of a packaging solution that is easy to open.

Once the decision is made to produce a packaging solution that is easy to use, they need access to tools and resources that will enable them to be successful.

Packaging designers need models of human functional abilities so they can predict the impact that a specific design feature will have on the general population. A model would allow designers to make the appropriate trade-offs during the design process. For example, if a packaging designer knew that he or she needed at least 12 pound inches of application torque to ensure packaging integrity, the model could be used to either 1) predict what percentage of the population would find the closure difficult to open or 2) identify the characteristics of the closure that would maximise ease of use for the targeted demographic.

Judith Nguyen: User-friendly packaging should be easy to open not just by the mythical 'average' consumer or your primary target market, but also by the elderly and those living with a disability. Another group that is often overlooked are people who are left handed. The Applied Centre for Gerontology developed a maxim which can be used by all designers: "Design for the young and you exclude the old; design for the old and you include the young".

The ideal to shoot for is 'universal design' – a design approach which aims to create greater inclusion and accessibility for consumers. Its objective is to have manufacturers consider the needs of consumers who are elderly or have a disability and/or arthritis at the design stage of products and/or packaging. Manufacturers can increase the sales of products by incorporating universal design concepts. Universal design means universal access; it's inclusive and usable by everyone. It's the way of the future and will keep consumers buying your products and packaging.