

On a plate:

making food packaging easier to use



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inclusive design~
providing tools for
the design community
to address the needs of
the whole population

i~design case studies

This is one of a series of inclusive design case studies published as part of the i~design research programme. These case studies document inclusive design collaborations between the Helen Hamlyn Centre (HHC) and industry and voluntary sector partners, under the Helen Hamlyn Research Associates programme. They also document the results of the DBA 'Inclusive Design Challenge', a design competition co-ordinated by the Helen Hamlyn Centre and the Design Business Association (DBA).

i~design is a multi-centre collaborative research programme funded by the Engineering and Physical Sciences Research Council (EPSRC). The purpose is to foster the adoption of inclusive design by business decision makers and professional designers, in particular by presenting the business case, developing tools and techniques, and building a network of researchers around the projects.

i~design partners

- **The Royal College of Art Helen Hamlyn Centre**, is a centre for inclusive design, with extensive contacts in industry and the design professions.
- **The Engineering Design Centre** at the University of Cambridge has a strong reputation in the improvement of design process and development of design methodologies to address specific issues.
- **Applied Computing** at the University of Dundee develops information technology systems to support older and disabled people.
- **The HCI Group** at the University of York has a long history of inter-disciplinary research in the area of user centred design arising from collaboration between the departments of Psychology and Computer Science.
- **The Design Council** inspires and enables the basic use of design by business, education and government to improve prosperity and well-being.

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Abstract

This paper describes a one-year research project to investigate how the visual communication of food packaging can enhance the ability of consumers to access the contents. The study is set in the context of mounting frustration with packs that are difficult to open and growing recognition that packaging designs need to be more inclusive in use.

The project was carried out by Helen Hamlyn Research Centre at the Royal College with Faraday Packaging Partnership and Marks & Spencer, which provided the main food packaging case study. Video ethnographic techniques were used to track how four UK households interact with food packaging. The results of this observational research informed the development of a design tool for use by packaging designers to evaluate how successfully the visual communication of the pack is working to aid ease of use throughout its lifecycle.

Keywords: Packaging, food, visual communication, video ethnography, design tool, consumer, inclusive design

Project period: October 2003 – October 2004

Related projects: Bryn Griffiths, Sensory Devices; Frank Philipin, Small Print; Edward Goodwin and Richard Hartshorn, Opening Up; Katherine Gough, Home Comforts

Overview

Convenience food packaging is an accepted part of our lives, but there is growing frustration among consumers that packs are difficult to open. This paper marks a recognition among pack producers that new designs should be more intuitively usable in form. Previous research for Unilever, by Gough, hypothesized that if the consumer does not have an intuitive understanding or curiosity of a pack, then a product will be overlooked. This project set out to explore ways in which the visual communication of the pack could improve the user's relationship with the product.

Related work

Previous Helen Hamlyn Research Associates' research work in packaging design conducted by Frank Philipin (HHRC 1999) for the PSAG investigated the relationship between mandatory and marketing information on packs. Goodwin Hartshorn's work for Waitrose (HHRC 2002) focused on the inclusive design for openings of food packaging.

This project builds on the work Gough conducted with Unilever (see Home comfort 2002) to examine



physical, visual and cognitive impairments associated with opening and using packaging, by exploring the pack holistically, and conducting research in the context of the pack's display, purchase and use.

During the DBA challenge 2000, Factory Design designed a new approach to milk carton opening and use. A simple elegant design suitable for all, their research had incorporated focus groups with expert users with arthritis. The inclusion of this key user group in the research and its impact on the final design informed this project's choice of user research groups.

The brief

This project sought to explore how the visual communication of food packaging can enhance the ability of the user to access its contents, by exploring the spectrum of visual communication, through form, aesthetics, labelling, branding and semiotics across the spectrum of ability and access issues in the context of the home and store.

The use of video ethnographic research techniques brought new methods of illustrating user behaviour to designers, managers and marketers. The project outcomes produced video ethnographic research, with a design tool devised to provide packaging designers and marketers with a framework for user testing and evaluation. Additionally, design exemplars were produced from the research to illustrate the use of the tool.

Methods

During the 'explore' phase, an audit of existing packaging examples was made to illustrate the brief. (How can the visual communication of food packaging enhance the consumers ability to access its contents.)

Visual communication encompasses: form, aesthetic, labelling and graphics, instructions, branding and semiotics. Ability refers to physical strength, visual clarity, cognitive recognition and intuitive understanding. Access describes Opening and closing, resealing, display and removal from supermarket shelf, placement, storage and use in the home.

A meeting with Cognitive Psychologist, Dr Alma Erlich, informs the format for the user engagements to cover the lifecycle of the pack, from Supermarket shelf to home and storage and use in the kitchen, without provoking bias.

A professional audit of Marks & Spencer products followed by a focus group with six 'critical users' (users who have visual, physical and cognitive impairments), highlighted issues associated with the use of packaging and helped to direct the four household user engagements at the heart of the project.

During the 'focus' phase of the project, video ethnographic research was used to shadow four key users from different households as they shopped in store, unpacked at home and prepared a meal. Users were identified based on Marks & Spencer key food customer segmentation groups, but with a social and cultural twist.

Key users established for the project, using the Helen Hamlyn Research Centre database of users. Users represent M&S food customer segmentation groups, with social and cultural twist.



Figure 1. Young professional – a woman in her early twenties living in shared house



Figure 3. Empty Nesters – family with grown up children recently left home, adjusting to new eating habits



Figure 2. Family with teenage children – a family with two children, the father walks with sticks.



Figure 4. Retired woman living alone – a single older person living independently.

Each user was given £25 gift vouchers for Marks & Spencer, with the instructions to buy components for a meal (or meals) that they would normally eat. Users were shadowed around the supermarket as they browse and shop for food. Then observed at home unpacking the shopping, and preparing a meal (not necessarily what they purchased) with observations captured on video camera. Users were also interviewed on camera. Observations and interviews combined to provide a picture of the user's relationship with packaging, capturing both conscious attitudes, and unconscious actions.

Results and design outcomes

Outcomes from meetings held during the 'explore' phase were crucial in establishing the research method. Discussions with Marks & Spencer's trend analysts and cognitive psychologist informed the four key user profiles for research.

User research in the 'focus' phase provided a 'snapshot' of the performance of packaging in the context of the lives of the users. Video clips and stills from this research formed part of the outcomes of the project (included with the full report).

Analysis of ethnographic video work taken during the shadowing aims to inform on two levels: firstly, identifying the visual clues contained in existing packaging that informs use, and, secondly, identifying potential areas of need which can inform design – briefs for new packaging. It is these briefs that form the basis for design exemplars [see pages xxx for packaging exemplar studies] to support inclusive design guidelines. The research was captured in many hours of video footage. Analysis of the research provided evidence of aspects of visual communication throughout the lifecycle of a pack. [see Figure 6]

The design tool

The insights from the video ethnographic research formed the basis for a design tool. This tool, based around a spider diagram, could be used as an evaluation tool for packaging designers or marketers. [Fig X.]

There is a cycle of interactions between the consumer and packaging:

- shopping and selecting products in the store
- opening and accessing products at home
- storing and decanting products in the home
- preparing and consuming food at home
- disposing and recycling packs at home.

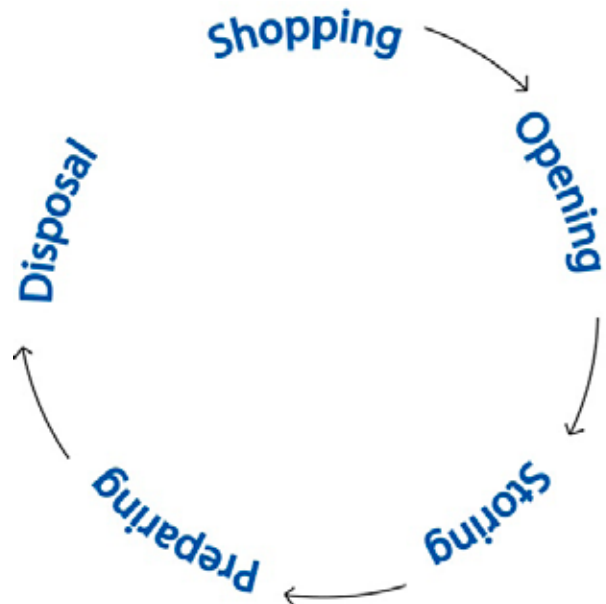


Figure 5. The lifecycle of a pack

The cycle of consumer interactions is represented in the design tool in 24 segments, from shopping to disposal. Each segment represents design consideration focused on the consumer.

Individual packs can be assessed and 'scored' for the ability to meet the consumer's needs at each stage of the cycle through the visual communication of the pack.

This scoring can be used as a benchmark for the level of inclusive design of existing packaging, and as a guide for user research and new design development. A pack is evaluated according to each segment title and the area shaded from the centre of the cycle. The greater area covered, the better the pack has performed in terms of inclusive design.

Design tool use in industry

User-centred research not only identifies areas in which packaging does not work effectively, but also areas in which packs succeed in their design intention. The research enhances the design brief and pack specification and guides a creative design process. The design tool provides insight into the

consumer perception of packaging. It provides criteria for evaluation based on user-centred research. By scoring each element of the visual communication of the pack from the centre of the tool, the pack registers an area representing inclusive design. The greater the area covered in the spider diagram, the more successfully the pack has met the criteria. It is

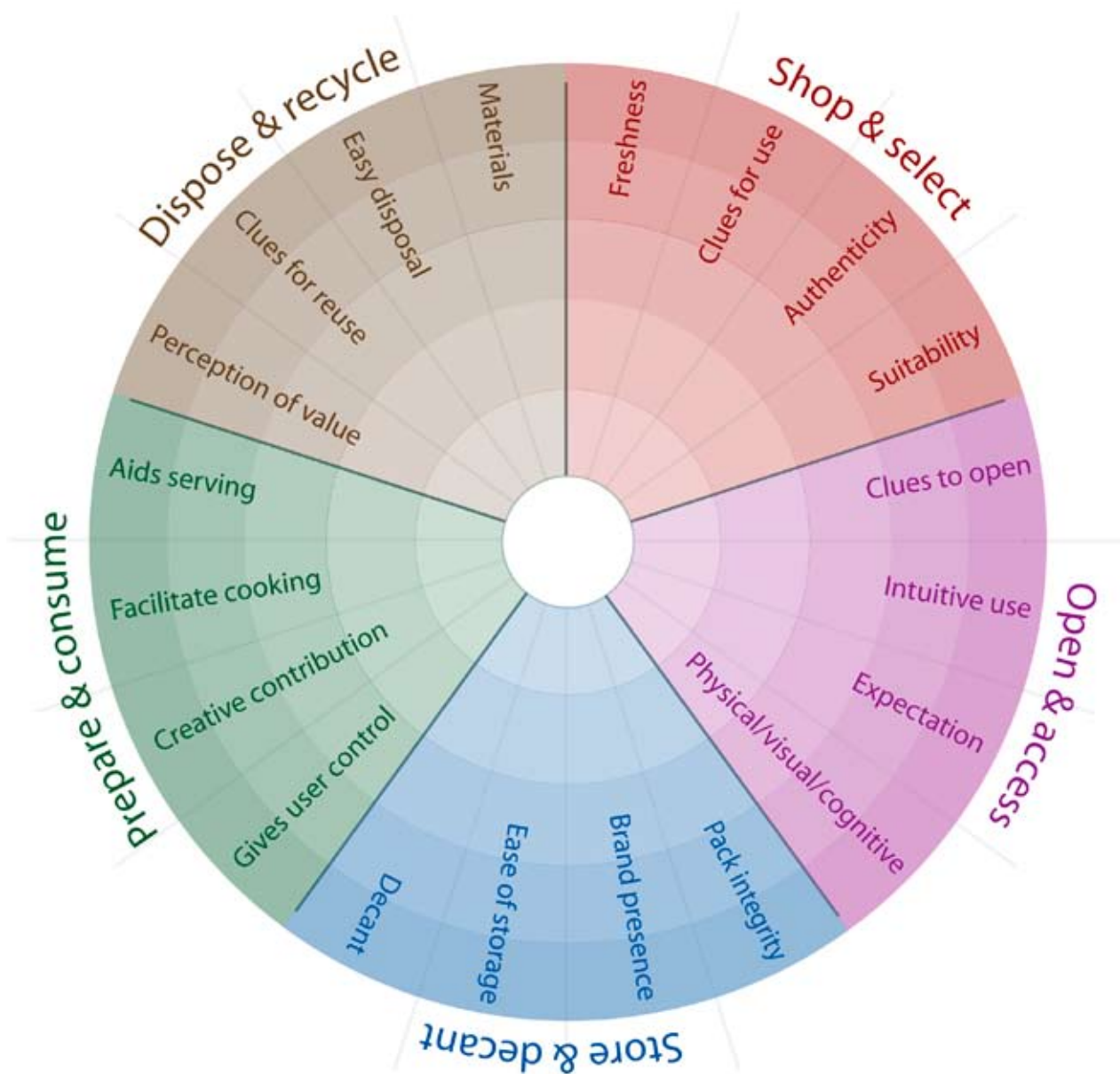


Figure 6. The design tool developed for use by designers and marketers. It poses a series of questions related to five different packaging roles – from in-store selection to disposal – and a scoring system enables a spidergram to be generated for each pack being assessed.

also important to note how a gain in one area of pack performance might result in a loss in another. This is demonstrated by the salad bag design (see page 7).

Individual companies or designers can customise the framework to their own packaging design agenda. The tool can be used to:

- benchmark existing packaging or competitor packaging
- foster user research techniques within a company

- focus user research around a food pack area
- evaluate packaging design concepts and prototypes
- iterate packaging designs in conjunction with user research.

A further aim for the design tool is to facilitate research as part of a seamless design process, and to support collaboration between different design and marketing groups in that process.

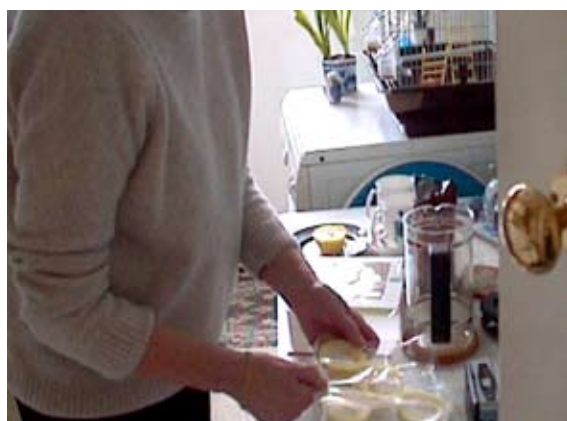


Figure 7. Consumer interactions with food packaging captured using video ethnography

Courgette pack - Packaging design exemplar

Video ethnographic research



Design tool evaluation of current pack



Current courgette pack features:

The area, in **yellow**, gives an indication of which areas of the pack lifecycle should lead the design brief.

The courgette pack scores low in **Open & access** overall. The use of knives to open packaging is discouraged and statistics for injuries high. The ethnographic research shows that the use of a knife can be useful and necessary.

New Courgette pack concept



Design tool evaluation of new pack



New Courgette pack features:

- A groove around the outside wall of the pack provides guide for a knife. **Physical/visual/cognitive**
- The film can also be broken by a finger or thumb into the corner pocket. **Physical/visual/cognitive**
- A greater surface area to the tray edges with space at one corner aids the user's grip on the tray. **Intuitive use**
- A raised set of 'bulls-eye' ridges give a visual clue for the user's way in. **Clues for use**
- New pack shape, courgettes lie at an angle. The label placement gives a visual clue for creative involvement by slicing the courgettes at an angle. **Creative contribution**

Salad bag - Packaging design exemplar

Video ethnographic research



Design tool evaluation of current pack



Current salad bags features:

The area, in **green**, gives an indication of which areas of the pack lifecycle should lead the design brief.

The bag scores well in **Freshness** in Shop & select. **Clues to open** conflict with **Intuitive use**, as the first instinct is to open the bag by pulling it apart.

The force used to open the bag can sometimes rip the bag, and it ceases to be useful for storing the salad, **Pack integrity**.

New Salad pack concept



Design tool evaluation of new pack



New Salad pack features:

Current pack shown in green, new concept shown in white.
- Semi-rigid plastic sealed at both ends. Perpendicular seals give torsional rigidity to the pack. **Freshness and Suitability**.

- To open the pack, cut at one end. To access the salad, squeeze opening top and bottom. The form provides different visual clues for use that direct the consumer to follow instructions on the pack. **Intuitive use & Clues to open**.

- Formed plastic of the pack will return to its original shape to close the box. Providing a measure of re-sealability. **Pack integrity & Ease of storage**.

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Articles

As part of the project, an extensive database of articles about work and age has been compiled. Search and access these at: www.hhrc.rca.ac.uk

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About the research partners

The Faraday Packaging Partnership is a powerful R&D network. Through access to the UK's best academic and commercial experts, it generates new thinking, tools, techniques and processes for the design, manufacture and supply of packaging for fast-moving consumer goods. The Partnership provides insight, vision and R&D effort focused on increasing consumer value and realising novel pack concepts.

www.faradaypackaging.com



Marks & Spencer is one of the UK's leading retailers of clothing, food, home products and financial services. Some 10 million people shop with Marks & Spencer each week in over 375 stores. Since first establishing ready meals in the UK over 30 years ago, Marks & Spencer has built a speciality food business, known for its quality, value, freshness and innovation.

www.marksandspencer.com

**MARKS &
SPENCER**

The Helen Hamlyn Centre was set up at the Royal College of Art in January 1999 to alert design and business to the far-reaching implications of a rapidly changing society. It works to advance a socially inclusive approach to design through practical research and projects with industry. Its Research Associates Programme teams new RCA graduates with industry partners.

www.hhc.rca.ac.uk



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