

VISUAL RESEARCH: MEANS OF PRODUCING SHARED MEANINGS

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“Designers interpret people’s ideas and wishes and illustrate them as concrete objects. They do this interpretation both inside product development team and for the various end user purposes.” Designers’ descriptions from their practical work in Finnish Design Year 2005 seminars.

Introduction

Design is involved with the creation of our visual environment, but, because of the digital technology boom where the technology of interaction became the most important issue, the visual has been undervalued in recent years in favour of user-centred design focusing on usability and interaction. Since user-centred design grew from usability research and not from visual art research, this was a natural development. All the same, designers do work in fields where visual impact is important and visual research methods necessary. They should be developed alongside other research techniques to make more suitable products for user experience. Also, there has been a growth in interest in research methods which open up the whole design process and question basic assumptions about the product (Laurel, 2003). One of these assumptions is that the product is finished before it goes to the consumer, but mass customisation and personalisation are increasingly important. So methods which allow some play and interaction between the product development team and the users are useful.

Business needs in the visual direction encouraged the arrival of product semantics in brand development. Besides product semantics, the meanings of brand visualisations are studied by other means such as using metaphors for forming and expressing our thoughts and experiences, profound meanings and understandings. Arguments about the substance of style empower visual research as an important research tool. Visual images and style are not only about aesthetics: people read deep meanings into the visual aspects of objects, and connect them with the values that they hold important. In the era of design as a tool for experiences, exploring this ‘human substance’ of style becomes a more and more central question in design and in business life.

So there are strong arguments for the development of visual experience studies and analysis. This area of design research should combine the two former traditions of visual research: supporting the designer in creation and analysis to produce meanings, and also providing the means to anticipate and test how the user will interpret and experience the visual messages in products and other materials. We must develop both the means to help designers in creating and analysing their own production, and the means to help the design team in mapping and testing users’ visual experiences.

Crilley, Moultrie, and Clarkson (2004) distinguish three aspects of consumer response to visual form. Aesthetic response, concerned with the attractiveness (or not) of the product; semantic, concerned with evaluating qualities like function and mode-of-use; and symbolic: what the product says about the owner/user. Desmet (2002) investigated the emotional response of users to products. Kälviäinen (2000) distinguishes the objective framework, the making of meanings, and the network of influences as aspects of discrimination in the human-product relationship. Both Jordan (2002) with his framework of physio-, socio-, psych-, and ideo-pleasures, and Norman (2004) with visceral, behavioural, and reflective responses, point out the importance of visual factors in pleasurable and emotional responses to products.

It would be possible to reconcile aspects of these models, for instance Kälviäinen's 'making of meanings' roughly corresponds with Crilly et al's (2004) 'semantic' and 'network of influences' with their 'symbolic', while Norman's (2004) 'reflective design' has aspects of both these categories. However, this paper is more concerned with methodological issues than these conceptual distinctions. These models are useful frameworks for asking design questions, but we will discuss how visual research methods might be used to investigate various conceptual areas, using the framework: choice of stimuli, organisation of stimuli, task, and level of analysis. This framework not only categorises specific means of research, but also raises general methodological possibilities for design and product development practice.

Stimuli

A wide range of materials can be used in visual research. A categorisation might be:

- general/generic – colours, abstract forms, historical styles
- visualizations from different walks of life (film stars, animals, scenery, human activities)
- specific design aspects – product forms, textures, visual and technical details
- quite concrete - existing or proposed products

General visual stimuli might be appropriate for projective research, and are commonly used by designers in the 'playing around' research which forms a normal part even of a non user-centred design process. Visual materials from other areas can be useful in exploring the making of meanings and the network of influences ('meaning-centred' research), as in Zaltman's (2003) approach with mental images and metaphors, where participants are asked to supply 15 pictures that they feel connect to the marketing area in question. Pictures can be used as probes to prompt respondents to add details or tell about their lives. If general materials are used for research with consumers, the results will need careful interpretation before application to specific design decisions. The more specific the stimuli, the easier it is to make the links between research results and design decisions, but the more limited (and even prejudged) the possibilities.

If specific products are used as stimuli, brand aspects must be carefully considered. Some characteristics that are seen in products come from the brand, rather than the object itself. Materials which are 'brand-free' (which is not the same as 'unbranded'), like craft objects, might be useful for exploring 'pure' aspects of visual design. Specific examples are suited to exploring aesthetic and 'objective framework' responses, as well as psycho-pleasures or visceral responses, in 'object-centred' research.

A sub-decision is to work with the 'existing' or the 'proposed': 'existing' examples such as familiar kinds of products (even if not actually currently existing), which make sense to users because they can make links between them and their current possessions and current lifestyle, or 'proposed' examples, which might be more difficult for people to understand and categorise, but are concerned with the intentions of designers to 'move beyond' existing products. If your research is based on common existing products, people can easily choose something similar to what they own, and the research may not provide a basis for designing anything new. The problem with this is that users may find it difficult to think about the future when presented with something really new. This weakness is well illustrated by the case of the Sony Walkman: before personal stereo products existed, people had little idea of why they might want them, or where they might fit into their lives (duGay, Hall, Janes, McKay and Negus, 1996). Although users might be able to grasp the functional details of totally new products, they don't have a scaffolding

to evaluate the identity and social meanings of the product – which are just the dimensions which are closely concerned with appropriate visual design.

So, users might be more comfortable with specific and existing examples, while designers are likely to find research that uses general and proposed examples more exciting and stimulating, though designers often welcome information about users' responses to the designers' *own* specific examples.

Choice and organisation of stimuli

The first step is to decide what kind of visual research is necessary. Designer researchers can use the visual stimuli material even without the user just to inspire and analyse their own work. If the user is involved, however, the second step is to decide who chooses the stimuli: the researcher or the respondent user?

Research can use pre-organised examples – mood boards (as in McDonagh and Denton, 2005) or lifestyle clusters – or people can make their own arrangements from a number of undifferentiated examples. By pre-organising the examples, researchers are setting the dimensions of the 'question' and limiting the possible 'answers': this is useful if design constraints are already known, and makes it easy for the researchers to understand and apply the results. But it can be dangerous if the researchers have mistaken assumptions about the product and the clusters/categories it belongs to in the eyes of the user, or are insensitive to cultural differences (including the sometimes considerable gap between the 'designer culture' and the 'normal person culture'). Researchers may also be too ready to identify materials for specific 'consumer groups': if allowed, people may demonstrate more flexibility and individuality than simplistic lifestyle analyses predict.

If users provide their own organisation of an undifferentiated collection of examples, part of the work of analysis is in understanding that organisation – which may (valuably) reveal combinations which the professionals did not expect, but which may also be difficult to interpret or apply.

The difference is rather like that between a questionnaire, which gives quick, easy, quantitative answers to clear questions (possibly the wrong questions), and in-depth interviews, which give qualitative richness and some guarantee of relevance for the interviewee, but may make little sense, or be off the point, to the interviewer. Approaches which allow some predefinition of the categories and organisation, but retain freedom for respondents to modify or elaborate those structures, might combine the best of both methods. If the researcher has made the choice of stimuli it is, for example, vital to be interested in what is missing from the stimuli material.

Task

The study can also vary according to the different conceptual areas of visual understanding explained earlier: people can be asked use questions (what is suitable for a certain purpose?), aesthetic questions (which do you like?), identity questions (which would fit best with your idea of yourself/your lifestyle?) or social/demographic questions (what kind of people would have this?) – or asked to make vaguer, general distinctions (group examples from a design point of view, or from a social point of view). It's possible to move outside the 'immediate acceptance' framework to ask about what people really *don't* like, what they used to like, or what they can imagine themselves liking in the future. It is not necessary to start from the product or example:

the focus could be on the respondents' life, and *then* how the product might fit into it, rather than the other way round.

People can be asked to organise or to describe. 'Organising' varies from completely free sorting to assigning examples to preset categories in specified proportions. 'Describing' could be open-ended, conversational descriptions, or rating or ranking according to pre-set descriptions or scales (for instance van Rompay, Hekkert, and Muller, 2005). The distinctions here between 'respondent-based' and 'researcher-based' approaches are rather similar, with similar advantages and disadvantages, to those differences discussed above in 'choice and organisation'.

Unstructured sorting tasks give respondents the opportunity to show the richness of their responses, and how they can structure the visual world in a variety of ways. For example, in our craft product grouping task, some participants put a group of quite different functional products together and named and experienced them as 'the Lappish products'. So a sorting exercise may not only give simple product category information but also information about brand families, product use families and product experience families.

The level of analysis of the outcomes

Criteria for deciding on an appropriate style and level of analysis are obviously the kind of data and the research questions to be answered, but also who is to use the analysis (and who they might then communicate the results to). Different groups of people within the product development process are likely to have different preferences for what makes up understandable and convincing information.

With visual research there doesn't need to be any formal analysis at all: it is possible to look through the raw data and get an intuitive picture. This also applies when a mathematical analysis is used to produce a 'map' which can then be intuitively used (Miller and Kälviäinen, 2001, Desmet, 2002). An outcome that can be intuitively grasped can be useful at all levels of the design process, but might be most useful at the conceptual stage. Insight and empathetic understanding (style, atmosphere, themes, visual meanings) are extremely important for designers. They can use the visual information directly without needing analysis in words or figures.

Formal quantitative analysis of data will give percentages, graphs, diagrams, profiles, maps: managers and marketers may like this more than designers, though designers may also find that this kind of analysis is useful in communicating with these groups. For instance, some specification of the visual taste of the intended segment market is important because it saves time at the beginning of the design process, when all the product development people have their own subjective opinions of the appropriate visual style, and none of them might be right. Quantitative end user style results provide definite directions and speed the process.

A formal qualitative analysis will produce results like content analysis or theme clusters: Since these are often richer (and more susceptible to individual interpretation) than quantitative results, designers and marketers might like this more than managers, but such results can't be plugged into a spreadsheet to help refine a business plan.

There is sometimes benefit in being vague and non-quantitative. Data is only as good as the process that produces it, and quantitative data can have spurious authority. Just because data can

be used to make precise numerical predictions doesn't mean that it is appropriate to use it to make those predictions. Qualitative analysis may also be more encouraging of further development and innovation than quantitative. Crudely, quantitative analysis can be seen as reducing detail and answering questions, while qualitative accounts might raise new questions and preserve details that spark off new ideas, such as the Sony solutions for mobile, individual music connected to visual meanings in lifestyle changes.

It may be possible to provide a 'deeper', more interpretive qualitative analysis: what do these patterns mean? what is being revealed here? what's the deep semantics? what novel scenarios are suggested? Psychologists and anthropologists may like doing this, and there are probably people at all levels of the design company who like this and find it meaningful/useful – and also people at all levels who think it pretentious rubbish. This kind of analysis doesn't *have* to be done by consultants: Zaltman (2003) gives examples of respondents interpreting their own metaphors, quite convincingly, in the 'penetrating the mind by metaphor' approach he describes.

In both qualitative and quantitative research, there is a choice between being holistic or making a more specific detail analysis. Scientifically inclined researchers may find the latter attractive, but designers (and anthropologists) are aware that there are problems with being simplistically analytic, because meaning and effect depends so much on context. Examples from our interviews: stone can be interpreted very positively in the sense of a building material with eternal quality and strength, but also very negatively because of association with graveyards and coldness. Wooden materials are considered as positive, ecological, warm and high quality, but in practice many wooden products are relegated to bookshelf display because of fragility and limited functionality. Also, non-designers may group products using holistic categories (like the 'Lappish' products mentioned above, or chairs for the 'old, boring and poor' rather than 'young, stylish and affluent') so too analytic an analysis may miss the point. As with the choice of materials, the more specific and reductionist the analysis, the more suited it is to dealing with 'object-focused' research, while more holistic approaches suit 'meaning-orientated' questions better.

Discussion

Recent development of visual research tools, increasingly based on internet possibilities, shows that people are recognising the need for these resources. Various existing examples represent tools for designers to create and analyse their own solutions. For example, colour and style analysis resources on the Internet, morphological form analysis tools, and semantic analysis models (Muller, 2001, Kawama, 1987). There are also tools that are made for a specific product area and allow the designer to play with different visual design possibilities and their implications in a digital map form (Stappers and Passman, 1999).

Many of the new tools concentrate on user information and interaction questions. Our experience is with a User Image Tool that allows the researcher to build a unique visual questionnaire for specific design and product development tasks from many different questions and task types (Antikainen, Kälviäinen and Miller, 2003). Other sorts of tools have been developed which seek more general information about the connection of people's values or emotions to their visual preferences (Desmet, 2002), or classify different visual style types with various means connected to lifestyle preferences and activities. An important direction is user interaction, where the user is given the possibility of developing their own preference maps, or of changing the products visually and functionally in the direction they prefer, or of selecting from automatically generated variants. These tools are close to marketing tools and mass customisation.

Visual research and analysis offers the possibility of exchanging ideas about how different people “see” things and ideas differently. It can especially claim an important position in the product development practice as a tool for inspiration. In our experience design professionals see an advantage in using visual research because it leads to a more organised and wider search for visual material. Visual research offers a means of practice to produce understanding between the design team and the user. It can be important in establishing consensus within the multiprofessional design development team, who might have mental images which are very distant from each other. The mere use of visual research material in the team’s discussion helps in the formation of a consensus of what the team is about to do. For the designer it also clarifies what the company is seeking with their design brief. It might also clarify things for managers, who may describe product development goals as a verbal brief without a clear notion of what it means visually.

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