

## **Experimental Research Perceptions of Visual Product Appearances**

**Azhari Md Hashim**

Faculty of Art and Design  
Universiti Teknologi MARA

P.O. Box 187, 08400 Merbok, Kedah, Malaysia.

### **Abstract**

*The designer plays a main role in exploring an effective data collection technique in market research perceptions of visual product appearances. The understanding of how objects are perceived by users in the design process is important for company in producing an enjoyable and successful object. The way to achieve this is through the implementation of an efficient market research method conducted as part of new product development. Mostly market research conducted may result in abstract outcomes, whether verbally or numerically based, rather than visual outcomes. Thus, the need for an effective method of researching and describing the social and emotional impact of designed objects on consumer's life will increase the sales of the company. As marketing competition increases, competing companies explore their design development and the effectiveness of marketing research methods impact on consumer choices. Regarding this aspect, the role of designers is crucial, and important in determining an alternative method to discover the way users perceive and evaluate their products. This paper explores an analysis of existing methods in related disciplines and provides guidelines in formulating and extending the technique. Finally, suggestions are made as a way forward in developing an efficient market research data collection technique in research perceptions of visual product appearances.*

**Keywords:** Visual method, research perception, visual researcher, product appearance, market research

### ***1. Introduction***

This study focuses upon the role of designers in exploring an effective market research data collection technique in research perceptions of product appearances. The success of a product's appearance in the market is determined by its aesthetics appeal, the pleasure it creates, and the satisfaction it brings to the customer (Khalid, 2006; Spillers, 2004). The designer's responsibility in determining these factors involves conducting research, by collecting feedback from users to provide information. The information is used to identify and define the problems, to generate, refine, and improve the understanding of marketing products (Churchill & Brown, 2007). Understanding of the market requirements and providing solutions will meet both the market needs and fulfil the users' needs. In determining these solutions, designers need to identify a reliable market research data collection technique, which can be practiced throughout the process.

According to O'Grady and O'Grady (2008), designers take inspiration from numerous surrounding sources, such as popular culture, nature and art in designing user products. In order to understand the end user requirement, they need to learn more about how the user receives and decodes the information, which is highly important. To provide this information, designers need to play a significant role in exploring and producing innovative and creative ideas to present to end users (O'Grady & O'Grady, 2008).

This is supported by the study of Antikainen, Kälviäinen and Miller (2003), which showed the need for designers to provide information in an exploratory way that can be easily visually manipulated. This can be achieved by conducting research that corresponds with the way designers prefer to work, which is with visual information. Based on feedback from designers, this study found that using purely pictorial representations of physical objects was an acceptable approach, as designers' work often involves visual sketches at early stages of project development. As the result, the outcome can be used as a practical support for designers and management to increase understanding of the users (Antikainen, et al., 2003).

As suggested by Hannington (2003), the fundamental work of designers is involved with creative and visual activity. Therefore research methods for designers should provide corresponding opportunities and utilise innovative and creative techniques in collecting user information via visual study (Hannington, 2003).

Additionally user response is more positive and favourable, when they are involved in creative and innovative activities, rather than traditional survey methods, such as interviews and questionnaires (Md Hashim, 2012).

Generally, most of the market research conducted using traditional, adapted, or innovative methods may result in abstract outcomes, whether verbally or numerically based, rather than visual outcomes. However, these interpretations and analysis outcomes fail to act as useful data for designers, who prefer creative activity and providing results in a creative ways.

As indicated, the role of designers is crucial, and important in determining an alternative method to discover the solutions. This paper explores an analysis of existing visual methods in related disciplines and provides guidelines in formulating and extending this technique, based on visual research methods. To conclude, suggestions are made as a way forward in developing an efficient market research data collection technique.

## **2. Designers as Researchers**

A significant role of designers is actively imagining and anticipating future trends. It includes identifying customer needs or a market opportunity, or it can start from new scientific or technological knowledge and an analysis of the opportunities such knowledge might be capable of creating (Dumas, 2000). Designers' work typically involves collaborating in a design team that includes expertise and practitioners from other fields such as human research, marketing and management. These may result in debate over decisions on critical aesthetic values within the team. However, designers cannot claim they are at the same level of expertise as other professional researchers from other disciplines, such as marketing, social sciences, psychology, and humanities. Specifically, designers only provide design knowledge for the interpretation of research information, so that direct engagement with users and the research process will create a sense of empathy between designer and user. These aspects differentiate the role of designers from the expertise of other disciplines.

Based on the current market place, the emergence of the designer as author, business person, consultant, and thought leader has significantly augmented traditional aesthetic skills. However, according to O'Grady and O'Grady (2008), designers roots still remain in visual aspects of their expertise (O'Grady & O'Grady, 2008).

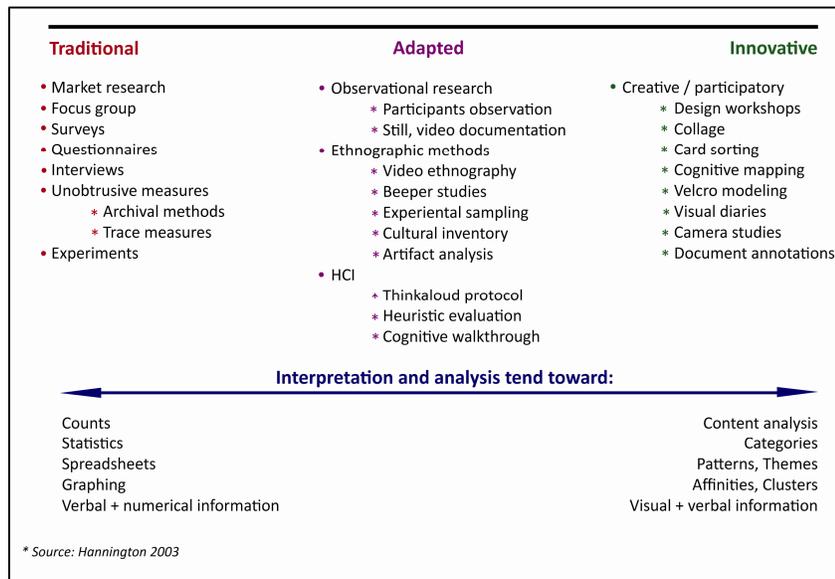
As indicated, designers act as researchers in providing the information gained from the users. Denzin and Lincoln (2003) identified that the term 'researcher' itself is defined as a *bricoleur* (a kind of professional do-it-yourself person) who produces *bricolage* (a piece-together set of representations that are fitted to the specifics of a complex situation). It acts in learning how to borrow and adapt from many different disciplines to fulfil the research goal (Denzin & Lincoln, 2003).

Moisander and Valtonen (2006) claim that if new methods and techniques have to be invented (or pieced together), this requires the researcher to conduct this process (Moisander & Valtonen, 2006, p. 97). As a result, designers will act as researchers in defining and invented these techniques.

*Creative people, however - playwrights, artists, actors, novelists, a puppeteer - have proven to be perfect for this work ... They manage to see the forest, the trees and everything in between* (Underhill, 2009, p. 6).

Lawson (2006) defined the three roles of designers in achieving their task in society: 1) conservative, dominant, and remains unconnected with either clients or makers; 2) revolutionary and opposite to conservative, associates directly with user groups; and 3) remains a professional specialist, but tries to involve users in the design process (Lawson, 2006).

As Hannington (2003) suggested the need for adapted and innovative methods, the third role of designers may the best approach to be considered. This approach is more likely to involve participatory action, which may include a whole range of relatively new techniques, from user inquiry involving games, visual methods and simulation in fun and attractive ways, through to the use of modern technology such as computer aided design. These techniques show designer's attempts to identify the crucial aspects of the problem, make them explicit, and suggest an alternative solution based on the result (Lawson, 2006).



**Table 1.0 Traditional, adapted and innovative research methods, reproduced from Hannington (2003)**

Hannington (2003) discussed the trends in design research and described a shift from traditional quantitative methods of research, towards adapted and innovative methods in providing more qualitative and visual outputs. Innovative approaches tend to provide more creative techniques and involve participatory action between designers and users. This relies on the designer’s innovation to discover the opportunities and generate ideas for new products, based on the information gathered from these methods.

Cross (2001) defined design methodology as including the study of how designers work and think, the establishment of appropriate structures for the design process, the development and application of new design methods, techniques and procedures. It also define the reflection on the nature and extent of design knowledge and its application to design problems (Cross, 2001). In regards, visual research methods are suggested as an important approach that needs to be developed and applied under the design methodology for designers.

**2.1 Visual Research Methods**

Visual methods, as an approach to qualitative technique, are well established, and the data generated provides insight and knowledge of the human condition and leads to an understanding of social, cultural, and contextual factors (Keller, Fleury, Perez, Ainsworth, & Vaughan, 2008; Pink, 2001; Rich, Lamola, Gordon, & Chalfen, 2000). The aims, and benefits arise either for participants or from the research findings (Harrison, 2002). As indicated, designers may rely on this method in order to gain understanding about user perceptions.

Visual research methods can be divided into three broad activities: 1) making visual representations (studying society by producing images); 2) examining pre-existing visual representations (studying images for information about society); and 3) collaborating with social actors in the production of visual representations (Pink, 2001).

*In some projects the visual may become more important than the spoken or written word, in others it will not (Pink, 2001 p. 4)*

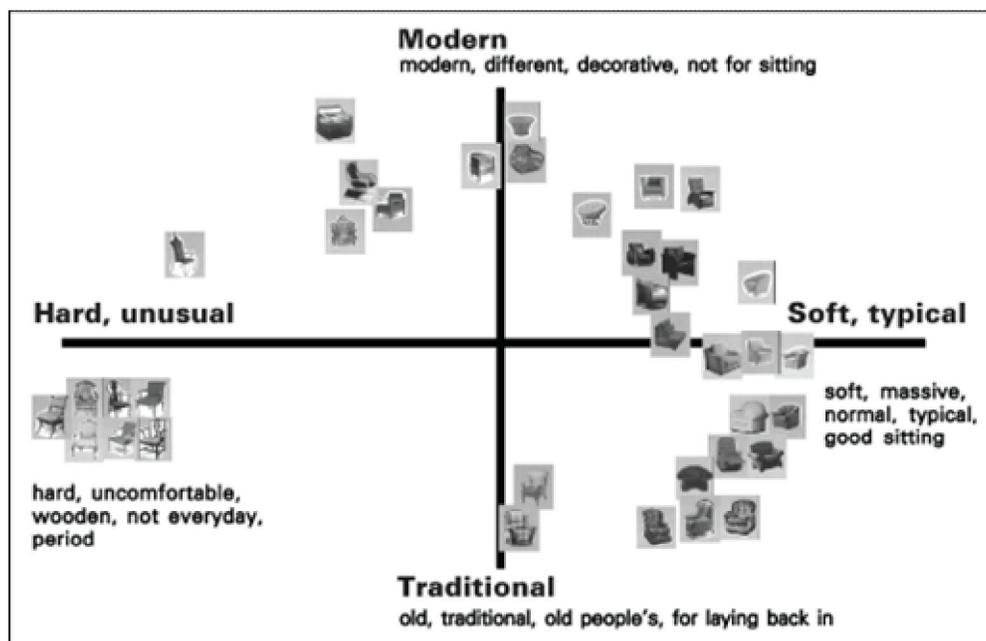
Knowles and Sweetman (2004) argue that photos can achieve something worthwhile, rather than methods that only rely on speech and writing. Moisander and Valtonen (2006) describe the visual methods and materials, often used in combination with other methods, which provide significant results and reliable information (Moisander & Valtonen, 2006, p. 97).

*Hence photos are used by these social scientists because they can carry or evoke three things – information, affect and reflection – particularly well (Rose, 2007 p. 238)*

In general understanding, the visual is an important mode in communications. For instance; if foreigners arrive at a country’s airport, which does not emphasize English as their main language, problems will occur, as all signage information is written in the country’s mother language. Therefore, visual is the only mode of communication which is useful to help foreigners in finding their direction. This shows the importance of visual as a universal language which act as a bridge in communicating people with different cultural backgrounds.

In relation to product design, visuals have been commonly used by researchers/designers to be evaluated by users in eliciting their perception and responses (McDonagh, Bruseberg, & Haslam, 2002). The results together with the visuals were later referred to by designers in order to get fresh ideas for their design (Nakakoji, Yamamoto, & Ohira, 1999). In addition, numerous researchers in design have used visual product evaluation techniques in understanding user perception towards products. For instance, Desmet (2000) used a visual based instrument called PrEmo, to assess emotions elicited by product appearance, focusing on car designs. A number of visual images were used by Wen-Chih and Tyan-Yu (2007), in order to investigate types and characteristics of household products that elicit pleasurable responses among young, college-age consumers. Meanwhile, Creusen and Schoormans (2005) used visual images to identify the different ways in which the appearance of a product plays a role in consumer product evaluation and choice, to help product development managers in optimizing the appearance of products.

In the process of idea development, designers normally uses emphatic sketches to express and explore their creative thought, and the incorporation of the visual in this process is believed to evoke feelings, emotions, and moods of designers to produce appropriate ideas for targeted users. In stimulating designers' creative thinking, Antikainen, et al. (2003), used visual based two dimensional plot semantic differential, evaluated by small design companies in Finland, who were asked if they could see ways of using this technique in their design process.



**Figure 2.0 – Two dimensional plot Semantic Differential by Antikainen (2003).**

*\*Source:(Antikainen, et al., 2003)*

The use of visuals, incorporated in semantic differential technique, was found to be effective in understanding of how objects are perceived by users. Designers, who often work with visual sketches in the early stages of idea development, found it an acceptable approach (Antikainen, et al., 2003; Md Hashim, Effendi, Allan, & Jackson, 2009).

Looking at recent technology in brain imaging, a technique was discovered, which can not only read the consumer's subconscious mind, but can also reproduce images of what people are seeing or even remembering in static and moving scenes (Gourlay, 2009). This verifies the importance of the visual in research. For designers this breakthrough could expedite new directions in visual research and the design process, which could be a useful guide for them to design affective and meaningful products.

### **3. Conclusion and further research / recommendation**

The purpose of this paper was to assess the feasibility of using visual methods by designers to gain insights into the research of visual product appearance. Effectively, is it a meaningful method for designers to develop research techniques relying on visual materials? Furthermore, is the method effective in researching and describing the social and emotional impact of designed objects on consumer's lives?

The presence of such related literature focusing on the use of visual methods has proven their effectiveness in providing an efficient market research data collection technique. Furthermore, this method will enhance the role of designers in researching perceptions of product appearance. The next stage is to develop a research method, which incorporates the visual as an important aspect of the process. A combination of research techniques is considered as the major aspect to be included in this method. The output therefore will consist of visual representations, with a possible combination of statistical analyses, which will enable more specific questions to be answered.

## References

- Antikainen, A., Kälviäinen, M., & Miller, H. (2003). *User information for designers: a visual research package*. Paper presented at the Proceedings of the 2003 International Conference on Designing Pleasurable Products and Interfaces, Pittsburgh, PA, USA.
- Churchill, G. A., & Brown, T. J. (2007). *Basic marketing research*. Ohio: Thomson Higher Education.
- Creusen, M. E. H., & Schoormans, J. P. L. (2005). The different roles of product appearance in consumer choice *Journal of Product Innovation Management*, 22(1), 63-81.
- Cross, N. (2001). Designerly ways of knowing: design discipline versus design science. *Design Issues*, 17(3), 49-55.
- Denzin, N. K., & Lincoln, Y. S. (2003). *The landscape of qualitative research: theories and issues* (Second ed.). London: Sage Publications.
- Desmet, P. M. A., Hekkert, P., & Jacobs, J. (2000). When a car makes you smile: development and application of an instrument to measure product emotions. *Advances in Consumer Research*, 27(1), 111-117.
- Dumas, A. (2000). Theory and practice of industrial design. *Innoregio Project*, 1, 22.
- Gourlay, C. (2009). Psychic computer shows your thoughts on screen Retrieved 08.12., 2009, from <http://www.timesonline.co.uk/tol/news/science/living/article6898177.ece>
- Hannington, B. (2003). Methods in the making: a perspective on the state of human research in design. *Design Issues*, 19(4), 9-18.
- Harrison, B. (2002). Seeing health and illness worlds - using visual methodologies in a sociology of health and illness: a methodological review. *Sociology of health and illness*, 24(6), 856-872.
- Keller, C., Fleury, J., Perez, A., Ainsworth, B., & Vaughan, L. (2008). Using visual methods to uncover context. *Qualitative Health Research*, 18(3), 428-436.
- Khalid, H. M. (2006). Customer emotional needs in product design. [EJS E-Journals]. *Concurrent Engineering: Research and Applications*, 14(3), 197-206.
- Knowles, C., & Sweetman, P. (2004). *Picturing the social landscape: visual methods and the sociological imagination* London: Routledge
- Lawson, B. (2006). *How designers think* (4th ed.). Oxford: Architectural Press.
- McDonagh, D., Bruseberg, A., & Haslam, C. (2002). Visual product evaluation: exploring users' emotional relationships with products. *Applied Ergonomics*, 33(3), 231-240.
- Md Hashim, A. (2012). *The Application of Experimental Aesthetics to a Marketing Research Method in the Automotive Industry*. Paper presented at the Conferences on Arts, Social Sciences & Technology iCast, Penang, Malaysia.
- Md Hashim, A., Effendi, R. A. A., Allan, T. W. W., & Jackson, S. (2009). *Multi Dimensional Scaling: An Interactive Method for Establishing Perceptions of the Appearance of Product*. Paper presented at the Cumulus 38s, Melbourne, Australia.
- Moisander, J., & Valtonen, A. (2006). *Qualitative marketing research: a cultural approach*. London: Sage Publications.
- Nakakoji, K., Yamamoto, Y., & Ohira, M. (1999). *A framework that supports collective creativity in design using visual images*. Paper presented at the Conference on Creativity & Cognition, Loughborough.
- O'Grady, J. V., & O'Grady, K. V. (2008). *The information design handbook*. Switzerland: RotoVision.
- Pink, S. (2001). *Doing visual ethnography: images, media and representation in research*. London: Sage Publications.
- Rich, M., Lamola, S., Gordon, J., & Chalfen, R. (2000). Video intervention/prevention assessment: a patient-centered methodology for understanding the adolescent illness experience. *Journal of Adolescent Health*, 27(3), 155-165.
- Rose, G. (2007). *Visual methodologies: an introduction to the interpretation of visual materials* (Second ed.). London: Sage Publications.
- Spillers, F. (2004). *Emotion as a cognitive artifact and the design implications for products that are perceived as pleasurable*. Paper presented at the Design and Emotion Ankara, Turkey.
- Underhill, P. (2009). *Why we buy: the science of shopping*. New York: Simon & Schuster Paperbacks.
- Wen-Chih, C., & Tyan-Yu, W. (2007). Exploring types and characteristics of product forms. *International Journal of Design*, 1(1), 3-14.