
Proceedings Paper:
Lee, G, Cheung, V orcid.org/0000-0002-9808-3670 and Tang, T orcid.org/0000-0002-5410-7271 (2021) The role of colour designers in the design process. In: Proceedings of the 14th International Colour Association (AIC) Congress. The 14th International Colour Association (AIC) Congress, 30 Aug - 03 Sep 2021, Milan, Italy. , pp. 861-866. ISBN 978-0-6484724-3-8

The role of colour designers in the design process

Gyeonghwa Lee*, Vien Cheung and Tang Tang

School of Design, University of Leeds, Leeds, United Kingdom
*ml13g3l@leeds.ac.uk

Abstract

The purpose of this study is to offer an understanding and knowledge about the role of colour designers in the design process (particularly paint industry), and to discuss the required attributes and skills of colour designers in each stage of the design process. In order to achieve the goals of the research, a qualitative autoethnography was conducted based on five years of experience gained by one of the authors as a colour designer in paint companies. The experience was described in line with five-stages for a colour design framework based on the idea of general tendencies in the problem-solving process. This research provides a deeper understanding and knowledge about the work of colour designers in the practical design environment, as well as providing a clear colour design framework based on the practical activities of colour designers. The research is expected also to increase awareness of the roles of colour designers in our society. Increased awareness may lead designers to enter the colour design area and engage in colour design research.

Keywords: *Colourist, CMF, Colour design process, Colour designer, Paint colour.*

INTRODUCTION

Design is an activity undertaken by designers who seek solutions to problems in order to make materials in our world useable. Designers are expected to engage in problem-solving activities regardless of their area of design. In the field of design, most studies into problem-solving activities, which explore how designers think and work at each stage of the design process, have tended to ignore colour design. Instead they focus on design traditions such as industrial/engineering design (Goldschmidt and Rodgers 2013), architecture (Casakin and Goldschmidt 1999), and instructional design (Ertmer et al. 2009). There are several reasons for this. Firstly, colour design is a relatively new area compared to other design traditions. In addition to this, in the design industry, there is an incorrect belief that any type of designer is capable of dealing with colour. Therefore, it is still common for an in-house designer to undertake responsibilities for colour regardless of their domain area. The low numbers of colour designers in the design industry may, in turn, explain the relative lack of research focusing particularly on colour designers.

There is little research in terms of the roles of colour designers in the colour design process, which can cause confusion especially for early career designers while creating colours. The aim of this study is to provide a deeper understanding of the roles of designers in the colour design industry, (especially in paint companies) in line with a five-step colour design framework which has been developed based on the problem-solving process. The aim is also to discuss the attributes and skills needed by designers at each stage of the colour design process.

RESEARCH METHODOLOGY

Qualitative Autoethnography

A qualitative autoethnography method was used in this research. Autoethnography allows researchers to use self-reflection to attain cultural understanding (Pelias 2003). Under this research technique, personal narratives are used to give personal accounts of the experience of the individual researcher (Spry 2001). For this reason, one of the researchers was used as a research instrument in

this research. Thus, the research was written based on five-years of experience as a colour designer gained by one of the authors, Lee, in the South Korean paint industry. This research, thus, reflects on the South Korean design culture where paint companies provide colours for external clients.

A Five-step Colour Design Framework

Problem-solving models or approaches vary. This has been explored within diverse areas of scholarship including design but also psychology, engineering, education, marketing and management, and mathematics, among others. Although several design scholars (Table 1) suggest a range of problem-solving models and processes, these can be generalised into five-stages of an iterative process: (1) problem identification, (2) data collection and analysis, (3) development of a project plan, (4) creation of models/prototypes, and (5) testing and evaluation.

In this paper, we suggest five steps for a problem-solving framework (Table 1) in colour design. This is based on the five generalised stages mentioned above, and Lee's professional experience as a colour designer within the colour design industry, specifically in paint companies. Although application and evaluation of colours is also an essential part of the colour design process, these are not included in this research. This is because in the colour design industry, clients of colour designers select and apply colours (provided by colour designers) into their mock-up products. These colours are likely to be evaluated by the clients themselves. If dients have further requirements for the revision of colours, they tend to contact colour designers or related departments subsequently. The colour design process is generally iterative and non-linear. However, our reason for suggesting the five steps of the colour design framework is to build up a systematic narrative structure based on them. Therefore, this allows us to explore the work of colour designers, in terms of what they do and how they work.

Table 1: Problem solving procedures put forward by various scholars, and the suggested five-step problem-solving framework for colour design proposed in the present research.

Nini (1995)	Zande (2006)	Sancar-Tokmak and Dogusoy (2020)	Five-steps of colour design framework
Identification of a problem	Define the problem	Define the problem	1. Consulting clients
Gathering and analysis of information	Investigate and research to gather data	Discuss possible reasons	2. Gathering information and visualisation of ideas
Development of a plan	Generate ideas	Select a reason and define alternative solutions	3. Development of colour design plan
Designing a solution	Select the criteria for success	Plan design, development and implementation	4. Creation of colours
Evaluating the solution	Determine the work plan	Plan evaluation	5. Presentation of colours
Producing and introducing the solution	Make the model prototype or drawing	Report possible results/restart the process	-
Evaluating responses to the solution	Test the solution	-	
-	Evaluation		

RESEARCH FINDINGS AND RESULTS

Consulting Clients (Consideration of Three Major Factors)

There are different groups of customers for colour designers. These are in-house product designers, engineers, salespeople, and so on. Different customers have different needs and expectations about colours in terms of applying colour into their products. Understanding the needs of customers is essential to provide successful colour design projects. There are three major factors that colour designers need to keep in mind while consulting their clients: the size of the companies (large or

small), types of products (automobiles, mobile phones, navigation products, bikes etc.), and characteristics of clients (designers or engineers, levels of work experience).

We offer some example scenarios here. Firstly, large companies have fewer financial restrictions on applying experimental colours provided by colour designers into their products to give inspiration to their own in-house designers. This kind of colour could be named Creative Inceptional Colours (CIC). In-house designers could be inspired by combinations of various objects with CIC which might lead to success for future design projects. However, the CIC are not likely to bring tangible business profits in general. Because of this, small companies may have financial restrictions on trying to apply the CIC into their mock-up products. Colour designers need to understand this situation in the design industry when consulting their clients. Secondly, different families of products require different levels of durability of colours for use in real-world products. Because of this, although colour designers work with engineer colourists and gain help from them while creating colours, they also need to have some knowledge of functional/technical aspects of colours to guide their clients. Lastly, designers as customer groups tend to emphasise aesthetic preference and values of colours compared to other groups of customers. In particular, this tendency is more pronounced in early career designer clients due to their lack of experience of using colours in products. For this reason, colour designers often need to convince them about why some colours cannot be used in their products.

In the consultation stage, colour designers need to consider the three factors discussed above to identify and meet the needs of clients and conduct successful colour design services for them. Thus, excellent communication skills and certain levels of knowledge about functional aspects of colours are required for colour designers in this stage of the colour design process.

Gathering Information and Visualisation of Ideas

Gathering Information is intended to provide a basis for decision-making in the process of colour design. Information can be gathered in many different ways. One approach to gathering information is to utilise existing academic resources (journal articles, dissertations, and theses).

Figure 1: Creation of manual mood boards: existing colours and various objects can be used together.

In addition to this, colour designers collect colour information by themselves by going to retailers where products are on sale. Collection of brochures, talking to salespersons/individual customers in person, or investigation of displayed products in the market can be valuable sources for the collection of colour information. This can be outsourced also to research and development (R&D) companies specialised in design trends. The ability to gather, manage, and analyse colour information is an important skill for colour designers. Based on information gathered from various sources mentioned above, designers often gain inspiration and ideas for colour design directions.

However, this may be somewhat vague in this stage. To visualise their ideas, designers often create mood boards (either manually or digitally) or storytelling techniques (Figure 1). This allows designers to offer directions for customised and more concrete colour design plans. Designers' creativity plays a significant role at this stage. High levels of skill in using design programmes are essential for the visualisation of their ideas. Colour designers are expected to have skills in adjusting balance between different design elements (e.g., texture, surface, gloss, size of the object) and colours at this stage.

Development of Colour Design Plan

On the basis of an understanding of the needs of clients, and ideas or inspiration gained through the previous stages of colour design, colour designers develop a colour design plan. The purpose of the colour design plan is to enhance the visual aesthetics of colour with combinations of texture, shape, gloss, and other elements, as well as providing a strong identity and positive impression from colours when the clients use colours in their products. The direction of colour design plans and selection of colours differs depending on whether colours are developed for unspecified or specified groups of clients or users. Figure 2 shows a proposed colour design plan called a 'Colour EQ' suggested for a Korean automobile company. It contains four sub-sections. This was planned based on the needs of the client and arose also from the data collection and idea visualisation stages.

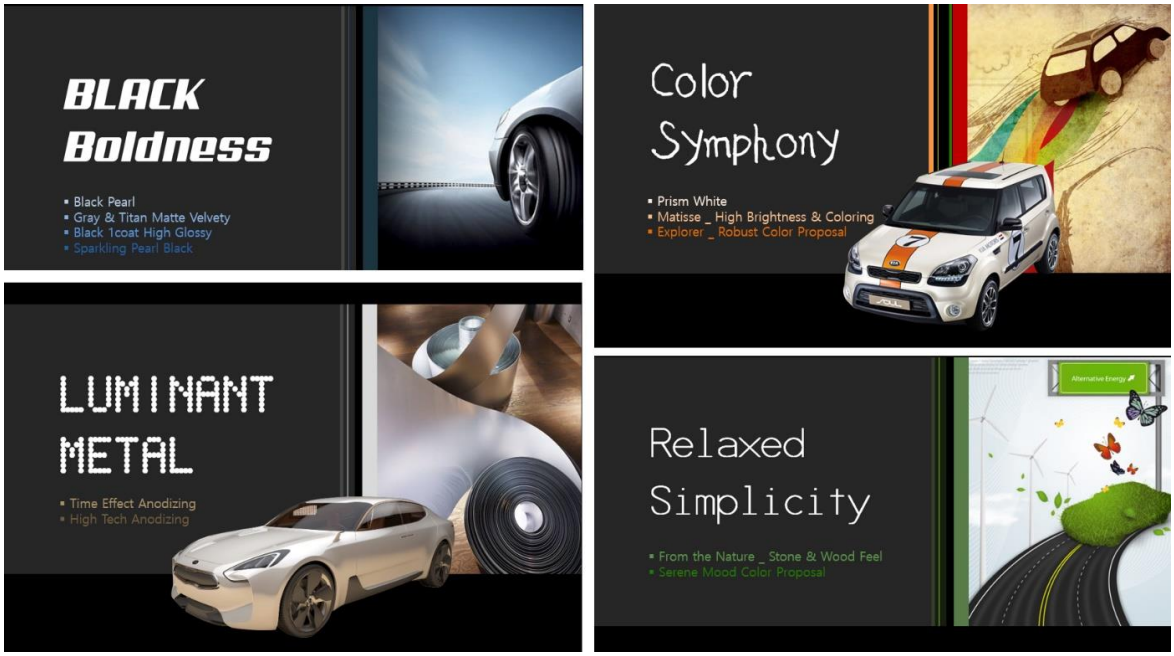

Figure 2: Colour design plan and its visualisation.

Creation of Colours

The creation of colours can be divided into two broad categories: creative inceptional (or advanced) colours (CIC) mentioned above, and functional colours (FC). The purpose of the CIC approach is to provide insights to designers from a wide range of design areas to inspire them by presenting new colours based on understanding design megatrends and the expected future needs of customers. The CIC approach tends to occur prior to the FC, which will be described in detail shortly. Technical and functional aspects such as durability, and the cost of design tend to be ignored in the CIC approach of colour creation. This is because such aspects prevent colour designers from using their imagination to create new colours. The CIC approach is characterised as highly emotive, evocative, creative, and associative. In this approach to colour design, designers also use their personal feelings, thought, stored memories, free association, and impression to make a conceptual plan for new colour

creation. Figure 3 illustrates examples of CIC samples made using paint spray. Although colour designers lead this approach in colour design (by providing concepts and plans for colour design), colour samples are realised by chemists/technicians by creating hand sprays in a colour lab. Thus, communication skills with different departments and understanding of technical terms and aspects of colour are demanded of colour designers.

In contrast to CIC, the main purpose of colour creation within the approach of Functional Colour (FC) development is to offer colours for mass-produced consumer goods in real-life such as auto mobiles, digital gadgets, furniture, and others. The FC approach tends to progress rapidly compared with the CIC development. These colours rely on deductive reasoning based on logical, analytical, and mathematical calculation during the colour development to allow machine-spraying in the factory. Colour designers need to communicate with salespeople and technicians to adjust aesthetic values of colour against other aspects of colours such as durability and cost. This is because all these aspects need to be balanced against each other.

(a) Hanji image (b) CIC samples: 4 coats (left) and 2 coats (right)

Figure 3: Creation of colour samples in CIC approach: (a) Hanji (traditional Korean paper) and (b) CIC samples created by hand spraying paint based on Hanji image.

Presentation of Colours

Designers need to present colours to their clients both visually and verbally. Since multisensory expression is useful in the presentation of colour design, it is very helpful to utilise visual or audial materials during the presentation of colours.

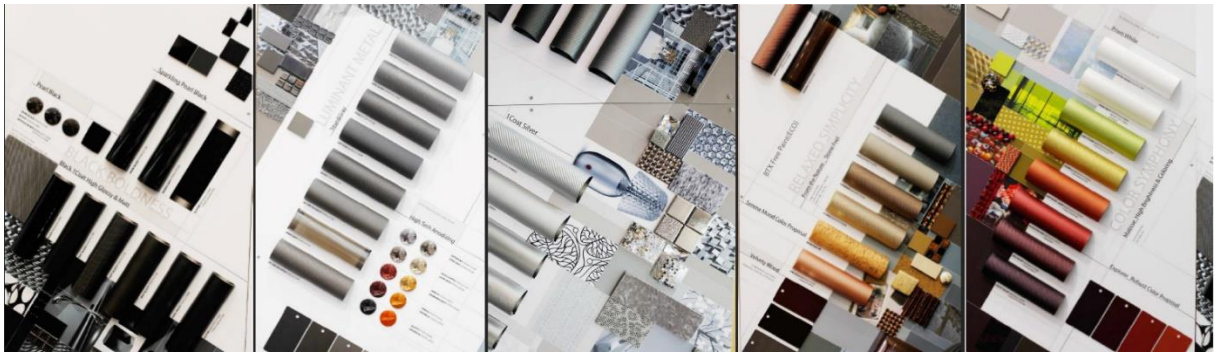

Figure 4: Examples of a display of functional colours proposed for an automobile company (3500x2100mm).

For the successful presentation of colours, the colour designer also needs to be well-acquainted with appropriate software. Also, speech and presentation skills are needed in this stage. If designers cannot explain colours and related concepts, their efforts may be underestimated, and the value of new colours may be neglected. Figure 4 shows newly developed functional colours displayed on a designed board created using Adobe Illustrator. Displaying images, various objects, and videos with

actual colour samples can engage the attention of clients. This can result in selection of colours by the clients enhancing the profits of the paint company.

CONCLUSIONS AND FUTURE WORK

The work of colour designers has been described within a five-stage colour design framework based on the practical experience of one of the authors, Lee, in paint companies as a colour designer.

Overall, to carry out these five stages (see Table 1) colour designers are required to possess a range of skills. These are: (1) excellent communication skills, (2) data collection, management, and analysis skills, (3) visualisation skills using design programmes to turn intangible ideas and inspiration into the tangible, and (4) presentation skills to capture the attention of their clients, throughout the colour design process. Although five-stages of a colour design framework were described in this study, this may need to be subdivided in detail. Thus, further work is needed. The work of colour designers within a more detailed framework would provide more clear information and knowledge of colour designers roles in the colour design industry. A detailed colour design process needs to be set out using the results of in-depth interviews with large numbers of colour designers. This also would enhance the generalisation as well as reliability/validity of the research findings.

The results of this research offer deeper understanding and knowledge about the roles of colour designers in the practical colour design industry, as well as providing a clear colour design framework based on the practical activities of colour designers. From a wider perspective, the clear description of the work of colour designers during the colour design process and a detailed colour design framework will also increase awareness of the role of colour designers in our society not only among designers more broadly, but also for the general public. Increased awareness may lead designers and design students to enter the colour design area and engage in colour design research.

ACKNOWLEDGEMENTS

This work was supported by the W.D. Wright Award from The Colour Group (Great Britain).

REFERENCES

Casakin, H., and Goldschmidt, G. 1999. Expertise and the use of visual analogy: implications for design education. *Design Studies,* 20 (2): 153–175.

Ertmer, P. A., Stepich, D.A., Flanagan, S., Kocaman-Karoglu, A., Reiner, C., Reyes, L., Santone, A. L., and Ushigusa, S. 2009. Impact of guidance on the problem-solving efforts of instructional design novices. *Performance Improvement Quarterly,* 21 (4): 117-132.

Goldschmidt, G., and Rodgers, P.A. 2013. The design thinking approaches of three different groups of designers based on self-reports. *Design Studies,* 34 (4): 454–471.

Nini, P. 1995. What graphic designers say they do. *Information Design Journal,* 8 (2): 181–188.

Pelias, R. J. 2003. The Academic tourist: an autoethnography. *Qualitative Inquiry,* 9 (3): 369-373.

Sancar-Tokmak, H., and Dogusoy. B. 2020. Novices' instructional design problem-solving processes: second life as a problem-based learning environment. *Interactive Learning Environments*, 1-14.

Spry, Tami. 2001. Performing autoethnography: an embodied methodological praxis. *Qualitative Inquiry,* 7 (6): 706-732.

Zande, R. 2006. The design process of problem solving. *Academic Exchange Quarterly,* 10 (4): 150–154.