

RETAIL DESIGN: EXPLORING LIGHTING FOR CREATING EXPERIENCES THAT INFLUENCE CONSUMERS' MOOD AND BEHAVIOUR IN RETAIL SPACES.

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ABSTRACT

Several developments stimulated an increase in research activities into the discipline of retail design. The differentiation trend, the change in our economy and the shopping behaviour of consumers towards a more hedonic experience led to a different, more sophisticated design approach. To create a design as such, a crossover of several research disciplines is necessary. Till now, research in retail design with the focus on atmosphere, is mostly marketing based, but the challenge lies in a more holistic approach focusing on a 3D-experience. Our aim is to measure the importance of the retail environment via the analyses of several retail atmospherics. Therefore, respondents will be observed and moods will be measured via questionnaires. An emphasis is put on lighting as a first atmosphere variable; it plays an important role in the holistic perception of a space and, surprisingly, it has not yet received the attention it deserves. This paper explains the methodology with respect to the concept of design research, as well as the results of the first experiments. In addition, some of the difficulties and obstacles we have encountered in studying moods and atmospherics, mostly as a result of their holistic nature, are discussed.

Keywords: atmosphere, lighting, mood, consumer behaviour

1 INTRODUCTION

Several developments stimulated an increase in research activities into the discipline of retail design. Firstly, store design and its achieved atmospheres became important, as merchandise of competitive retailers is often perceived as similar. Therefore, creating a unique environment becomes a necessity for customer binding and differentiation. This differentiation trend, the change in our economy and the shopping behaviour of consumers towards a more hedonic experience led to a different, more sophisticated design approach. To verify this, research showed that shop environments create 'retail experiences' that influences consumer's purchase behaviour (Moye & Kincade, 2002; Sherman et al., 1997, Babin & Attaway, 2000). Moreover, keeping shoppers in store longer is likely to result in increased browsing behaviour, which in turn is likely to cause impulse purchasing (Beatty & Ferrell, 1998). Some research even suggests that up to two third of purchase decisions are made in stores (POPAI, 1998; Inman & Winner, 1998). Furthermore, Kotler (1973) described 'atmospherics' as an important actor in shop environments. This is also noticeable in the contemporary urge for empathic design.

Secondly, up till now, research in retail design and atmosphere is usually marketing-based and lacks a three dimensional approach. Atmosphere is then dissected in different aspects (odour, music, colour, etc.) and their influence on the (buying) behaviour of the consumer, but never from the actual experience they can create in a proper space (Turley & Milliman, 2000). So, the challenge lies in a more holistic approach: to measure the importance of the retail environment via the analyses of several retail atmospherics placed in their architectural context.

Supermarkets are excellent *loci* for this research, as they have to address both functional and supra-functional design elements. These two categories come from the trends of 'easy shopping' (functionally orientated) and 'emotional leisure shopping' (supra-functional) that will dominate the role of atmosphere.

Although many design features, either individually or integrated, exert influence on behaviour in retail environments and deserves special attention, our research handles a first atmospheric element: the influence of lighting on the consumers' mood and behaviour. It plays an important role in the holistic perception of a space and, surprisingly, it has not yet received the attention it deserves (Boyce, 2004).

Accordingly, the focus of this paper lies on the influence of lighting on product choice behaviour in food retailing.

There are three parts in this study: a theoretical framework, lab-experiments, and a validation of the results of the lab-experiments in a real retail setting. This results in lighting design guidelines. The paper describes the setting-up and results of a first lab-experiment (out of a serial of three).

As a result of the literature on lighting in architectural places and expert interviews, several hypotheses were developed. Its theoretical background was published previously (Quartier & Christiaans, 2007). Furthermore, the research builds on a long tradition of studying lighting in architectural spaces and its relationship with psychology. We have tried, however, to connect the notions of 'mood', 'consumer behaviour' and 'lighting', rather than, yet again, treat them as separate entities.

The following hypothesis were developed:

H1: Lighting has an influence on the mood of consumers in retail stores.

H2: Lighting has an influence on the people's behaviour in retail stores, as measured by their purchase behaviour.

H3: Lighting has an influence on people's product preference in retail stores.

H4: Lighting has an influence on people's behaviour as measured by the time people tend to stay in the retail store.

H5: Lighting has an influence on people's behaviour as measured by the sales numbers of the retail store.

Hypothesis 3 was recently tested in our lab. The results are here discussed after an introduction of the methodology and setting-up of the lab.

2 CONTEXT

To create a retail environment that meets the expectations of the consumers as well as the objectives of the retailers, in its functional and supra-functional needs, a crossover of several research disciplines (psychology, technology, ergonomics, etc.) is necessary. Because of the topicality and the need for well educated retail designers, our Interior Design Master Programme took this as a concern and established a 'Retail design Research Lab' for conducting experiments, which are valuable both for educational and research purposes.

We understand that the research by design approach has limitations due to the holistic nature of architecture and that it cannot be narrowed down to a few easily testable variables (Quartier & Van Cleempoel, 2008). The difficulty lies in isolating lighting from all other aspects that play a role in the perception and experiencing of a retail environment. Therefore the lab was set up as a mini-supermarket. It provides two rooms to conduct interviews and a 'shop' space with a one-way-mirror from one of the interview rooms. There is a central lighting control system and observation cameras are installed. By controlling and monitoring every possible detail in the lab environment (smell, temperature, products, people,...) except the lighting, which is an independent variable, we come close to attributing any change of behaviour and/or mood to the lighting. This method can be used for most of the aspects isolated from architecture. But, dissecting retail architecture into several parts only works in one direction: architecture is more than the sum of its parts. It is important to take count of this holistic nature of architecture. Therefore, results of research on isolated matters should always be set back to its context before they can become fully supportive in the design process. The designer must be aware of this and needs to develop the ability to select and merge valid information into a congruent whole.

3 METHODOLOGY

3.1 Step one: Theoretical framework

The first step contains a literature review, extended with in depth interviews with twelve selected experts in Belgium and the Netherlands. The study provided a broader look on how lighting is applied in retail spaces, now and in the future, and how this research can be an added value to the design process of retail

lighting. The result showed lighting is acknowledged to have an incremental added value to the retail environment, store branding and maybe even customer binding (Quartier & Christiaans, 2007). Knez (2001) emphasized the problem of the current research dealing with the relationship between light and psychology: we still do not know if light effects cognition via emotion or if the light effects emotion and cognition independently. Therefore it is necessary to measure both mood and behaviour (buying-, browsing- and approach-avoidance behaviour). Quartier et al. (work in progress) give a complete statement of the research model developed for this research. Figure 1 shows the model used.

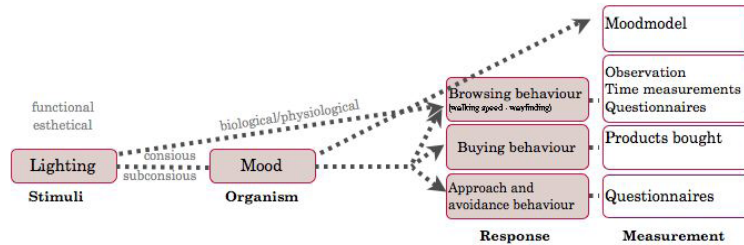


Figure 1: Conceptual research model

3.2 Step Two: lab-experiments

Via a ‘research by design method’, empirical experiments will be undertaken to confirm or deny the hypotheses developed in the first part. The experiments will be undertaken in our lab-supermarket, which produces results with strong internal value. This research by design method forms a continuous process, which repeatedly tests the targets that were set up at the beginning of the design process.

3.3 Step Three: validation and development guidelines

To test the external value, a lighting design exerted from the lab results, will be made for a real retail space. Finally, a toolkit will be developed presenting new design typologies for creating unique retail environments, now and in the future, via the use of light. The toolkit should be applicable and comprehensible for all people, involved in the design process of retail lighting.

4 EXPERIMENT

So far, a first lab-experiment is conducted. The goal of this experiment was to test hypothesis H3.

Set-up: nine product categories are presented in our lab-supermarket. Figure 2 shows the floor plan of the supermarket and the position of product categories.

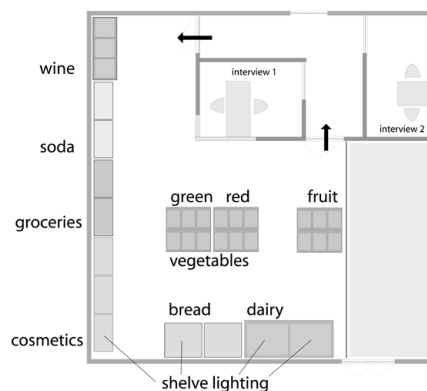


Figure 2: Conceptual research model

Each product category consists out of a repetition (twice or triple) of the same products, as is shown in figure 3, both lit with a different lamp. The choice of lamps that are put on the test was based on the knowledge of some lighting experts and the results of a small photograph based pre-test which was conducted and designed by us. Table 1 shows the chosen spotlighting. The CDM and SDW spots emit

comparable light amounts; the difference lies mainly in colour temperature and colour rendering. Hanging down from the ceiling, they were positioned at equal distances from the products. The fluorescence lamps (TL) used for bread, dairy and cosmetics, are put directly under the shelves. This resulted in a higher amount of light on the products on each shelf, then on the products, lit with a spot.



Figure 3: Conceptual research model

| | green vegetables | red vegetables | fruit | bread | dairy | wine | soda | grocery | cosmetics |
|---------|------------------|----------------|---------|-----------------------|--------|---------|---------|---------|------------|
| light 1 | SDW 825 | SDW 825 | CDM 830 | SDW 825 | TL 830 | SDW 825 | SDW 825 | SDW825 | CDM 942 |
| light 2 | CDM 930 | CDM 930 | CDM 930 | TL nafa gold 36W/3000 | TL 840 | CDM 930 | CDM 930 | CDM 930 | TL 21W 830 |
| light 3 | | | | | | | | | CDM 930 |

Table 1: Lamp set-up

To exclude the influence of any behaviour based on habitudes, all lamps, per product category, were randomly switched in place at the end of each day. Only the fluorescence lamps placed in the corner rack of the cosmetics were not changed because this was too difficult.

Variables: the lighting was the main independent variable, next to gender, age, education level, income level, shopping frequency, the places shopped for groceries (market, specialised stores, and supermarkets), left- or right handed and family composition. All were used for further analysis. The products bought (taken out of the right or left rack mattered, not the brand) are the dependant variables.

Respondents: 120 people, 78 woman and 42 men, with different ages and backgrounds showed up to participate. These respondents represent a diverse group.

Procedure: Before entering the shop, respondents were interviewed on the independent variables. Next, without knowing what the experiment was about, they were requested to shop in the lab-supermarket by taking one product of their choice out of each product category, regardless the brand. Furthermore, they were asked to behave as they would in 'normal' shopping circumstances. The respondents were observed during the shop experience and the selected products of each participant were scanned. After the experiment a questionnaire was conducted to ask whether all choices made were done on a conscious level next to some questions about the experience of the supermarket.

Results: A significant difference was recorded in the lamp-preference for the green vegetables: the CDM 930 lamp (which is a more cool white light) was chosen much more than SDW 930 lamp (which is a more warm reddish white light): 60 percent over 40 percent. This result confirms hypothesis H3. For all other product categories, no significant difference could be found.

Furthermore, the results revealed no significant difference in the choice behaviour between men and women. Additionally, age, education level, income level, shopping frequency, places shopped, family composition and left- or right-handed factors showed not to have any relation with choice behaviour either.

During these experiments, however, a rather unexpected parameter revealed to have a greater influence on the choice behaviour of the respondents than anticipated: the route taken while shopping. It also seemed to dominate the influence of lighting. While observing the behaviour of the respondents, it

became obvious that for groceries, fruit, red vegetables, bread and dairy, respondents tend to take a product out of the first rack on their chosen route. While for wine, soda and cosmetics, another pattern was found. Discussions with the respondents offered a possible explanation for this behaviour. The doubled presentation of soda and even triple for wine was positioned at the entrance. Respondents passed by these first racks and usually picked up a bottle from the last one. During the interview respondents explained that at that stage (starting at the groceries) they realised the set-up of the shop and thus started to pick up products from the first rack because the following one contained exactly the same products. For cosmetic products there might be another explanation. Some respondents were confused by the product presentation: the triple repetition of the products and the more diverse products and brands made them walk further down the racks to get a clear view of the product offer.

We also recorded that the selected routing had more influence on respondents' choice behaviour than extra-lit products with the shelf lighting did (as was used for bread and cosmetics). For example: the shelf lighting of the cosmetics was positioned in a corner (and was not switched places), as it was expected that the lighting might lure the respondents to walk into that corner. But this was not the case. The respondents chose a product out of the first two racks without even looking at the rack in the corner. This was also confirmed by the set-up of the bread: although randomly switched in place, one side had extra-lit shelves, but, again we recorded that, in most cases respondents picked up the bread out of the first shelf they passed regardless to the light setting. And, on the answer if they noticed anything special about the lighting: 41 people said to have seen 'a difference' about the lighting in general, only six of them noticed the extra shelf lighting in the cosmetic area and only two noticed the difference in the lighting for the bread shelves.

Conclusion: lighting does not have the expected power to influence consumers in their product choice behaviour. The routing of the respondents, however, seems to determine the choice behaviour, despite any initiative to attract costumers by extra-lit shelves.

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