



# The effect of involvement on visual attention and product choice



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## ABSTRACT

Our study examined the effect of consumers' level of involvement on visual attention to product, information sign and price sign guided by the Elaboration Likelihood Model (ELM). We also investigated the relationship between visual attention captured by eye fixation on information and price sign and product choice for garden plants. Using a Tobii X1 light eye tracking device, we obtained data from 101 respondents in Texas and Michigan. We found that participants who had high (vs. low) product involvement paid more attention to the product and its information as demonstrated through higher fixation count (FC), longer total fixation duration (TFD), and total visit duration (TVD). We also found highly involved participants processed price information as a central rather than a peripheral cue. In addition, total visit duration (TVD) on an information sign was found as the strongest predictor of product choice.

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## 1. Introduction

As product decisions made at the point-of-purchase (POP) have increased from 70% in 1995 to 76% in 2012, so marketers' in-store advertising budget has also increased in order to capture consumers' attention at the point of purchase (POPAL, 2012). Recognizing the cognitive processes that underlie decision-making has been of great interest to researchers, marketers, and retailers. Historically, human decision-making has been investigated simply by input-output analyses or just by observing the final decision (Payne, Bettman, and Johnson, 1993; Reisen, Hoffrage, and Mast, 2008). The physiological processes underlying consumer decision processes that occur at the POP were largely ignored until Russo and Rosen (1975) used eye-movement to assess how consumers evaluated used cars. Later studies analyzed eye movements to examine: which advertisement attributes received the most attention (Pieters and Wedel, 2004; Maughan et al. 2007), which visual elements on a package affected in-store purchase decisions (Clement, Kristensen, and Grønhaug, 2013), and patterns of eye fixations in order to understand the information seeking process used to make choices (Russo and Leclerc, 1994; Pieters and Warlop, 1999; Pieters and Wedel, 2007; Kuo, Hsu, and Day, 2009; Ju and Johnson, 2010).

Despite the vast amount of money spent on “buying” consumer

attention, there is a dearth of research on in-store visual attention (Clement et al., 2013). This observation, originally made 20 years ago by Janiszewski and Bickart (1994), is still true, as few studies have examined consumer visual attention to POP marketing (see Chandon et al., 2009; Nordfält 2011; Seva et al. 2011; and Clement et al., 2013, as exceptions). Eye tracking technology has been identified as one tool to ‘open the black box’ of consumer decision making and facilitate the testing and adaptation of existing theories. As a process tracing technology, it has the potential to analyze the processes before, during and after a decision, and provide insight into what a consumer chooses (Schulte-Mecklenbeck et al. 2011).

Rosenbergen et al. (1997) posit that physiological responses to advertising may be more reliable measures of attention than self-reports. Their study focused on magazine advertising, but we believe this assumption *may* also hold for POP advertising. We believe this because eye-movement is physiological response that “cannot easily be consciously controlled or steered” (Bates 2002) and due to “the pervasive role of the task in guiding when and where to fixate” (Hayhoe and Ballard, 2005). Because both magazine advertising and POP advertising influence information search and communicate product information to persuade consumers to purchase a product, physiological responses should be similar. Thus, we believe eye movement *may* be a better indication of the underlying search for information in the buying process compared to self-reports because it is task specific and difficult to consciously control. Despite the call for employing process tracing technologies to gain a greater understanding of consumer

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attention, few investigations have related visual movement to purchase intention. Still, little is known about the deliberate but subconscious eye movement of consumers as they gather visual information to evaluate products at the point of purchase. Further, most studies that do use eye-tracking focus on print advertising (Pieters and Warlop, 1999; Pieters and Wedel, 2004) rather than POP displays, where most consumer decisions are finalized. Our study sheds light on how consumers attend to POP displays.

The availability of inexpensive eye-tracking technology has facilitated the study of consumer attention. However, until recently, less attention has been given to analyzing the relationship between eye movement and consumer attention to retail product displays (Behe et al., 2013a). Those studies investigated which display attributes had an impact on American and Australian consumers' purchase intention in a retail environment (Huddleston et al., 2013) and consumer product involvement, visual attention and purchase intention (Behe et al., 2013a). Sorensen, Clement, and Gabrielsen (2012) examined the relationships between a product name on a label, participant's level of general food knowledge, and attractiveness of the product. They found that consumers with higher general food knowledge showed longer time to first fixation (TFF) on information and shorter total visit duration (TVD), and that consumers paid attention to sign-post labels early in the search process. While researchers are devoting more attention to analyzing eye movement and its relationship to decision-making, an understanding of these processes is not complete.

The purpose of our study is to examine the relationship between visual attention devoted to in-store marketing (i.e. the product itself and price and production information on accompanying signs) to better understand information acquisition and use. We analyzed the influence of consumers' level of involvement with a product on the aforementioned relationships.

Understanding which elements first capture and then hold visual attention helps us to assess the role of product display elements in consumer choice. Consumers' eye movements could be informative about processes such as attention, perceived attractiveness and product choice, but visual attention had been overlooked in marketing research (Pieters and Warlop, 1999, p. 1). Despite its potential, applications of eye-tracking to relevant POP marketing strategies have been limited (Kroeber-Riel, 1984; Clement et al. 2013). Given that visual attention is often a precondition to subsequent processes that lead consumers to choose a product, exploring precisely what draws and keeps visual attention in retail setting should shed light on product display designs that will facilitate consumer decision-making. Involvement, or personal relevance, also influences the amount of effort a consumer expends in the buying process. Thus, the Elaboration Likelihood Model framework may help us understand how information is processed by consumers in high or low involvement states. More specifically, we strive to fill the gap in the literature that relates eye-movement with purchase intention and investigate the relationship with involvement level.

Further, an eye-tracking device offers an inexpensive and innovative means to accurately capture a reflection of the process of consumer information acquisition and decision-making. The data acquired from an eye tracking device provides a physical link between consumer characteristics (involvement) and attention. Our study provides evidence to support the intuitive notion that high and low involvement consumers process information differently. In a highly competitive marketplace, marketers and retailers need to know which display elements capture attention (or are ignored) when consumers make a choice and which factors associated with consumers' personal characteristic affect their final decision. This knowledge results in more effective POP display design and the potential to earn higher margins and ensure their brands' survival in a highly competitive market.

## 2. Theoretical background

In this section we provide a discussion of consumer product involvement, the Elaboration Likelihood Model (ELM) and visual attention. We posit that the importance consumers place on products (involvement) should influence the way that they visually collect and process information. The ELM provides a theoretical foundation for information processing. Both product involvement and manner of information processing, should, in turn affect visual attention to a product display.

### 2.1. Involvement

Researchers agree that involvement is a crucial factor in consumers' product choice (Mitchell, 1986; Shamsher and Chowdhury, 2012; Pan 2014) and that the study of a low versus high involvement condition is both interesting and important (Cacioppo et al., 1982; Greenwald and Leavitt, 1984; Petty and Cacioppo, 1983; Petty et al., 1983; Breugelmans and Campo, 2011; and Matthes et al., 2013). However, there is little agreement on how to best define the involvement construct. The literature suggests that a person can be involved with an advertisement (Krugman 1977), or with purchase decisions (Clark and Belk 1978). Involvement with these different objects/processes leads to different responses. Our study adopts the general view of involvement as a person's perceived relevance of the object based on inherent interests, values, or needs (Hupfer and Gardner, 1971; Greenwald and Leavitt, 1984; Suh and Yi 2006; Josiassen 2010).

Involvement influences the amount of mental and physical effort a consumer puts into the buying process. Highly involved consumers will search for more information before they buy, will process relevant information in greater detail and use more criteria in their buying decision than other consumers (Laaksonen, 1994; Breugelmans and Campo, 2011).

### 2.2. The Elaboration likelihood model (ELM)

The Elaboration Likelihood Model (ELM) suggests that because the level of involvement a consumer has with a product is based on the relevance of that product to the consumer's inherent needs, values, and interest, involvement influences the amount of mental and physical effort a consumer puts into the buying process. (Petty and Cacioppo, 1983; Petty et al., 1983). According to ELM, individuals with high product involvement process information through a central route in which they carefully examine information that they believe is fundamental to a meaningful and logical evaluation of the product. By contrast, low product involvement induces processing through a peripheral route whereby consumers evaluate the product based on superficial but salient cues in the information, regardless of whether these cues are meaningfully related to the product. Some researchers have shown convincing evidence to support these core ideas of ELM (Batra and Ray, 1986; Celsi and Olson, 1988; Park 1995; Park et al., 2007; Breugelmans and Campo, 2011; Matthes et al., 2013). For example, Park et al. (2007) showed that highly involved consumers formed more careful assessments of advertising information, such that their response time for generating brand evaluation was longer than less involved consumers. In an online context, highly involved consumers focused on the product information obtained from an online review, whereas less involved consumers focused on peripheral cues, such as reviewers' popularity, instead of product information. Matthes et al. (2013) suggested that high involvement consumers processed the arguments displayed in an advertisement, whereas less involved consumers processed emotional appeals such as beautiful nature scenery in the context of environmental advertising. Based on these studies, the following

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