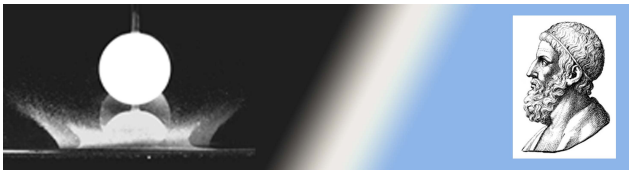
Developing and applying advanced research tools for human perceptual measurement

IFPress® Research Papers

Number 901

# Variables Driving 'Light' Product Success

**Michael B. Casale and Daniel M. Ennis**



**The Institute for Perception**

**7629 Hull Street Rd.**
**Richmond, VA 23235**

**Available at www.ifpress.com**

# Variables Driving 'Light' Product Success

Michael B. Casale and Daniel M. Ennis
*The Institute for Perception*
Richmond, VA, USA 23235

## INTRODUCTION

It is often thought that the development of 'light' products is a fairly modern health phenomenon. However, light products as we know them have been around for hundreds of years. Colonists in the New World were drinking lighter beer than their European counterparts from the earliest days after their arrival. Factors such as the weather, availability of raw materials, and amount of manual labor contributed to the type of beer consumed. Because it is highly unlikely that the consumption of low calorie products was foremost on the minds of early American colonists, light products as we know them may be consumed for a variety of reasons not directly related to individual health. Social factors such as temperance movements and cognitive factors like perceptual fluency are examples of non-health related factors that may contribute to the long-term use of light products. This article explores the extent to which these health and non-health related factors drive the consumption of light products and associated trends toward 'lightness' in general. Understanding these drivers may ultimately help understand the appeal of light products as well as provide a novel and more meaningful framework from which to predict the appeal and success of light products.

The latter half of the twentieth century witnessed the inception of a light movement marked by the introduction of light consumer products introduced as healthy alternatives to an existing line of products. Although increased purchase and consumption of these products ostensibly represents an increasing awareness of health in the consumer population, the popularity currently enjoyed by light products may be due to factors not directly related to personal health. Although lightness is most commonly associated with food and beverage products such as light beer, light ice cream, and light popcorn, the lightness label extends beyond just these items. For example, in a recent article reviewing a men's cologne, a user described the fragrance as "one of those scents that's not *sweet*, and *light* at the same time" (Dani, 2008). But what does it mean to have a light scent, especially in contrast to a sweet scent? Though it may be difficult to precisely define what it means to have a light scent, most everyone has an intuition of what a light fragrance might be in contrast to a heavy fragrance. The ubiquity of the light moniker transcends other domains as well; light reading is an often used term and light jazz is an actual category of music. Does each one of these labels describe something specific about that particular category or something more generalizable, more fundamental, about lightness? Given the fact that no real explicit definition for the light label exists within the category it is applied to (e.g. music, food, literature), it is likely that the light label describes something fundamental and that, to wit Justice Potter Stewart's famous Supreme Court remarks regarding pornography, we simply know light products "when we see them". But this vague, non-scientific way of viewing light products is not very satisfying and makes it impossible to understand the appeal of the lightness phenomena, let alone predict preference for light-versions of existing products.

Presently, there appear to be no rigorous, scientific examinations that attempt to identify the factors that drive light product consumption. The aim of the present manuscript is to present relevant research findings so that one may begin to systematically investigate and ultimately predict the appeal of a light product. This does not mean that the document provides an exhaustive account of all of the factors driving light product consumption. In contrast, some of the variables studied apply more broadly to all products in general and are not restricted to light products.

In this article, we assume motivations for light product consumption fall into one of two primary categories: those that are hedonic and those that are utilitarian. Briefly, hedonic motivations refer to drivers of consumption that are directly related to the immediate hedonic benefits that occur following consumption of the item with no regard to any nutritional benefit that the item may possess. In contrast utilitarian items are those items consumed primarily for health reasons; any hedonic consequence the item may possess is ignored. The mechanisms for utilitarian-based consumption include an awareness of nutritional benefits that result from the consumption of light items as well as the influence of current societal values that may place a premium on individual health. However, as time goes on, drivers of continued consumption may shift from being primarily utilitarian to being primarily hedonic. Mechanisms of hedonic-based consumption include perceptual fluency and prototype learning. The idea is that under certain conditions, simple repeated exposure to an item will lead to an increase preference and liking for that item. Understanding the specific conditions for which fluency leads to preference and liking can ultimately lead to predictions for item preference in a given context. Further, we will also explore the role expectation has in modifying preference for both hedonic and utilitarian items. Taken in total, it would appear that consumption of light products can occur for a variety of reasons, and that the scope of light product appeal may go beyond our intuition.

## HEALTH BASES

### Urbanization and Health

Research on eating habits in various economic regions of the world indicates that economic factors significantly influence the types of foods people consume and, further, that these factors can ultimately influence the prevalence of degenerative diseases, such as obesity, in certain regions of the world. This issue has been addressed by examining factors related to economic development that affect diet such as urbanization of low- and high-income individuals, migration, and changes in income patterns (Huang & Bouis, 2001; Monteiro, D'A Benicio, Conde, & Popkin, 2004).

Urbanization may be a factor in determining an individual's diet in that diet patterns for people living in urban areas are distinctly different from those living in rural areas. These differences may vary according to relative income; rural areas in high-income countries still experience market penetration and the existence of nationally integrated food distribution systems, whereas this is not necessarily the case for low-income countries. Nevertheless, differences in diet patterns in urbanized versus non-urbanized regions exist independent of income. Popkin (1998) cites several of these differences including greater penetration of marketing activities of the processed commercial food sector into the denser urban markets as well as different occupational patterns, characterized in urban areas of reduced compatibility of jobs with home food preparation and child and elder care and different disease and health service use patterns.

In terms of the issues relating income to nutrition, three key factors have been identified: (a) the effect of income changes on dietary structure (b) the effect of income changes on the amount of energy, protein and fat consumed and (c) the effect of change in the structure of the economy, particularly the change to commercial agriculture on the nutritional status and diet of subsistence agriculturalists. In addition, this line of research has attempted to dissociate the economic trends in various regions of the world and link them to current or potential health epidemics, primarily obesity. It would seem, then, that regions that are currently experiencing or that will experience such nutrition-related symptoms of urbanization, such as India, China, and Brazil, will see increased levels of awareness of such health-related issues among their consumers. This may include an influx of health-related products, such as light foods and beverages.

Urbanization can also result in shifts of labor types. Primarily, these shifts involve a shift away from labor based in agriculture and towards labor based in manufacturing and in service industries (Popkin, 1997; Huang & Bouis, 2001). A shift away from work that is more energy intensive towards work that is more sedentary may contribute to long-term health issues such as obesity. The introduction of longer-term health concerns such as obesity can result in increased awareness of healthy food alternatives, such as light products.

In addition to the direct health-related issues that result from urbanization, patterns in overall lifestyle can influence what types of products are consumed. The results of a trend towards urbanization include changes in the role of women (especially with respect to patterns of time allocation), changes in income patterns, rapid development in household food-preparation technology, changes in food production and processing technology, and changes in family and household composition. All of these changes directly result in concomitant shifts in diet and nutrition patterns. Shift in patterns of time allocation can lead to a preference for readily available foods. For example, convenience foods are often favored in urbanized environments, as indicated by the levels of consumption of fast-food items, as well as other store-bought convenience items such as ready-made dinners. Consumption of these items may ultimately lead to a shift in consumption toward light foods. Although the initial consumption of light items that results from urbanization may be driven by initial health concerns, the drivers of continued consumption of these items over time may shift away from social and health concerns and toward individual-based hedonic phenomena that occur with increased exposure to the products. These phenomena include expectation, compatibility, and fluency. These factors will be explored in more detail later in this report.

### Moral Motives

As stated earlier, individuals may choose to initially consume products for health- related reasons, but continued consumption may occur for reasons other than substantive concern for one's health and include superficial health concerns instigated by societal trends that seek to improve health and lifestyle in general. Therefore, light products may be consumed to conform to societal norms which, in turn, may alter the way that products are consumed. Evidence for this comes from the fact that consumers of light products, such as light cigarettes and light beer, will compensate for the penalties they pay for consuming those light products (e.g., lack of taste, alcohol, nicotine). Essentially, it has been demonstrated that users of these products consume greater quantities than their regular counterparts so that any ostensible health benefits are negated (Liptak, 2008). In a series of studies exploring the effect of 'light-labeling' on food items, Wansink and Chandon (2006) found that light labels increased the consumption of hedonic food items versus their regular, non-labeled counterparts. As mentioned earlier, the term hedonic refers to any item that is consumed primarily for short-term benefits and long-term consequences are not considered. It is presumed that hedonic foods are consumed primarily for purposes of taste; nutritional content is irrelevant. In contrast, utilitarian foods are those consumed primarily for their nutritional content and the taste of the item is regarded as a very low priority. In their study, Wansink and Chandon found that M & M's presented to subjects in an office reception area branded with a health label (i.e., 'low-fat') were consumed in greater quantities than those without a health label. The authors interpreted the result as an indication that the health label relieved any guilt or concerns

subjects had for consuming the M & M's. As a result, subjects consumed more M & M's when they were regarded as healthier relative to regular M & M's. Therefore, any perceived health benefits subjects gained by consuming the healthier M & M's were negated by the fact that they consumed more. In a related follow-up experiment, the authors measured the amount of guilt that was anticipated for consuming unlabeled and light-labeled M & M's. Not surprisingly, light-labeled items were associated with less anticipated guilt than regular items. Further, this effect was greater for an hedonic item (unlabeled M & M's vs. light-label M & M's) than for a utilitarian item (unlabeled granola versus light-labeled granola).

In general, there is little research surrounding the role of guilt as a factor driving light product consumption. Emotions of guilt or those associated with guilt have been found to be more prevalent among American consumers than those in Japan or Europe. The notion is that feelings of guilt arise because decisions surrounding food consumption usually involve a dilemma between short-term hedonic benefit versus longer-term health benefits. Kivetz and Keinan (2006) demonstrated that decisions made about hedonic foods were more likely to involve feelings of guilt than those involving decisions about utilitarian foods. Nonetheless, the repeated consumption of products due to personal health concerns, ostensible or otherwise, could ultimately lead to consumption of light products for purely hedonic reasons, which are discussed in more detail in the following sections.

**Temperance Movements**

Temperance movements can provide useful illustrations about how societal values, and consequently product consumption, can drive or modify individual behavior. In the history of the United States, there have been a handful of temperance movements, the first one beginning in the Colonial Era. During this period, many colonial regions experienced rapid urbanization during the late 18$^{th}$ Century. Inevitably, urbanization brought with it many social ills such as unemployment, poverty, and crime. Many blamed alcohol as the root cause responsible for these new societal ills. This anti-alcohol sentiment has cyclically existed to the present day and was periodically so strong that organizations formed for the sole purpose of advocating moderation or temperance in alcohol consumption, such as The Independent Order of Good Templars, The Sons of Temperance, and The Anti-Saloon League. Other cycles of temperance have existed throughout American history, including what is probably the most well-recognized temperance movement formed in the early part of the 20$^{th}$ Century. This movement followed a period during the mid to late 19$^{th}$ Century in which a large influx of European immigrants spurred another bout of rapid urbanization in many areas of the United States. The temperance movement that resulted this time was even more extreme, calling for the prohibition of alcohol and paving the way for a very successful movement that ultimately led to the ratification of the 18$^{th}$ Amendment.

Musto (1984) has argued that a new temperance movement began in the United States about 1980. This temperance movement is not necessarily concerned with societal ills such as crime and poverty brought about by urbanization, but instead is concerned with individual health dysfunctions that have emerged as a result of the diet and lifestyle patterns that are associated with urbanization (Popkin, 1998; Sahn & Alderman, 1998; Huang & Bouis, 2001). The new temperance movement began with negative effects on non-users, such as drunk driving (e.g., MADD: Mothers Against Drunk Driving) and later the effect of environmental tobacco smoke on non-smokers. The health and monetary cost of preventable health dysfunctions to users and non-users has resulted in an increased awareness of the factors that lead to such disorders. Diet and non-active lifestyles have become the new targets of the current temperance movement that ultimately aims to eliminate the resulting chronic health dysfunctions.

An increase in awareness of health dysfunctions via social movements may ultimately result in the mainstream acceptance and subsequent consumption of light products. This shift towards light product consumption and an overall 'light lifestyle' that emerges as a result of their mainstream acceptance and promotion may eventually produce continued consumption of light products for purely hedonic reasons. It is probably the case that a shift towards hedonically-based motivations of light product consumption is not necessarily restricted to foods, but transcends other product categories, such as fashion, media, and transportation, although these categories fall beyond the scope of the present manuscript.

## HEDONIC BASES

The preceding sections were dedicated to exploring some of the social factors that contribute to the consumption of light products. These factors are most likely to involve initial consumption of relatively novel, light products. With repeated exposure to these products, however, motivations for continued consumption may become partly or even purely hedonic. The following sections explore the idea that factors other than explicit health motivation can explain consumption of light products. Specifically, we will explore the idea that simple repeated exposure to an item can ultimately increase liking or preference for that item, a phenomenon termed perceptual fluency. Further, we will discuss the conditions under which fluency produces preference items and those for which it does not. Relatedly, we will discuss how preference for a prototype of a given category compares to other category members. We will also discuss the role prior expectations play in influencing fluency and preference. One key concept to note is that the hedonic phenomena discussed in the following sections occur almost exclusively without conscious awareness. This is in contrast to likely initial motivations for health-driven consumption of products which are most likely conscious, explicit processes. Therefore, it is important to understand

the role exposure plays in modifying preference for items.

**Expectation and Congruence**

Expectation and congruence are two factors that can affect overall liking for a variety of light and health items. Generally speaking, expectation effects reflect the fact that an individual associates a set of qualities with an item for which they have prior experience. If the actual experience of an item does not match prior expectations of the experience, then the item may experience a decrease in hedonic value relative to having experienced the item with no prior expectations of the experience. For example, a recent study by Wansink, Van Ittersum, and Painter (1998) investigated the idea that liking ratings for food items are affected by branding with a light label and that this effect depends on whether or not the food was perceived to be hedonic or utilitarian, as each is associated with a different set of expectations. That is, most people would judge a light or diet hedonic item as worse than its regular counterpart given it is expected to have less sugar, fat, etc., all of which could induce the expectation that item's taste will not be as pleasant. Thus, it is reasonable to assume that people will have prior expectations that the hedonic experience of the light or diet items will be lower than the regular counterparts. Because of the lowered expectations induced by the light or diet labeled product, the actual consumption of the item is likely to elicit an experience that is better than expected, leading to higher liking ratings for the product. With utilitarian products, however, taste is not a primary motivation for consumption, if at all. Therefore, there should be no meaningful differences between the expectations of the hedonic experience between utilitarian products with a light or diet label and utilitarian products without a label. In the study, overall liking of both utilitarian and hedonic products with and without health or diet labels were obtained. As expected, the taste of the hedonic products with the light or diet label was liked more than their unlabeled counterpart, whereas no significant differences were found between utilitarian items with and without labels.

This result supports the notion that perception of taste for hedonic items, primarily consumed for taste reasons, is affected by light or diet labels, suggesting that these labels lower the expected taste of hedonic items. Not surprisingly, the presence of healthy or diet labels did not appear to affect the expectation of taste for utilitarian items, which appear to be consumed for reasons other than taste. Given the way in which diet and healthy labels may influence (or not influence) taste perceptions of hedonic and utilitarian food items, it might be interesting to explore the neurobiological mechanisms by which taste perceptions might be modulated by cognitive factors such as expectation.

The notion that diet or healthy labeling differentially affects the taste perception of utilitarian and hedonic foods might apply to different types of beer categories. In this context, one could consider the light or economy category of beers as utilitarian products and the Worthmore or craft beer category as hedonic products. That is, one might think that preference for economy beers is driven by something other than taste, whereas preference for craft beers is primarily driven by taste. The taste of a particular product, therefore, could be influenced by a light label associated with it in that a light label may elicit a certain set of expectations with respect to taste. Therefore, a product with a light label may not be liked if the taste is incongruous to what is expected. Specifically, a product with a label that carries a light taste expectation but that actually has 'full taste' may not be as well-liked as a product with a label that carries a light taste expectation and actually has a corresponding 'light taste'. Of course, the same phenomena may occur for hedonic items as well: A hedonic item that is typically associated with a 'full taste' (e.g., a craft beer) may not be accepted by consumers (at least initially) if the item is presented with a light label or implies the concept of lightness. This of course assumes that an individual has prior experience with a range of the product category and probably does not apply to totally new product categories.

To sum, expectations associated with particular items have been demonstrated to influence preference for that item. This is especially true with respect to light items. If the item is expected to have a less preferred taste but does not, it should experience an increase in hedonic value. In fact, the item with the light label was liked even more than the same item unlabeled. In addition, expectations of fluency, a concept discussed in more detail below, have been shown to influence preference.

**Perceptual Fluency and Preference**

Perceptual fluency refers to a decrease in the amount of cognitive processing associated with the perception of an item. For example, a familiar face will require less cognitive processing resources to recognize it than an unfamiliar face that requires more processing resources needed identify it as unfamiliar. Thus, familiar faces have higher fluency than unfamiliar faces. In addition, research investigating perceptual fluency has demonstrated that items high in fluency will receive more favorable evaluations (e.g., "more preferred", "better liked") (Winkielman, Schwarz, Fazendeiro, & Reber, 2003).

Although there are many instances for which increased fluency leads to an increase in liking or preference, it is unlikely that fluency exclusively results in preference, or even an increase in liking. In the following sections we describe the conditions in which fluency can lead to preference and increased liking for an item, including examining fluency in the context of familiarity, complexity, and expectation. We will also limit our discussion of fluency to perceptual fluency and not include any discussion of conceptual fluency. This is an important

distinction as the former is assumed to be a strictly unconscious process, whereas the latter includes explicit, higher-level cognitive processes. In addition, making accurate predictions of item preference and liking based on fluency likely involves examining item fluency not in isolation, but in the context for which it is consumed.

**Familiarity**

One explanation why people associate positive affect with highly fluent items may be due to the fact that items that are more easily processed signal high levels of familiarity. Highly familiar items, in turn, require less cognitive demands. That is, they are recognized more easily and more quickly than unfamiliar ones, especially in contexts where the percept of the stimulus is highly degraded. Therefore, a cognitive system that 'monitors' stimuli for fluency should be able to detect familiar items as highly fluent. But why should highly familiar stimuli be associated with positive hedonic value? From an evolutionary perspective, it has been posited that highly familiar stimuli have more inherent ecological attractiveness versus novel, unfamiliar stimuli. That is, it is an evolutionary advantage to approach unfamiliar items with more trepidation than familiar items (e.g., encountering a new, potentially harmful animal or plant). In addition, attraction to familiar items may be an evolutionarily adaptive trait (e.g., recognizing a familiar place along a lake where many fish were caught). Similarly, items that are more symmetrical and more prototypical will require less processing demands and be recognized as familiar, causing it to elicit a higher level of positive affect.

When initially consuming light products, it is probably the case that products are not familiar and are consumed without regard to their hedonic value. However, with repeated exposure, light items naturally become more familiar, offering the potential for light items to acquire a positive hedonic value. However, familiarity does not exclusively lead to an increase in positive hedonic value and other factors such as initial complexity and the context for which the item in consumed need to be considered when determining then influence of exposure and familiarity on preference. These factors are discussed in more detail in the following sections.

**Complexity**

As already mentioned, one needs to examine the conditions for which item fluency develops in order to understand how fluency may affect the hedonic value of the item. For example, certain environmental contexts in which the item is consumed may be considered high-fluency and consequently modify the preference for a high or low-fluency item. In fact, Zajonc (1968) demonstrated that fluency for items only led to increased liking if the items were initially perceived as relatively complex and unfamiliar, such as unfamiliar Chinese characters. In contrast, relatively simple items, such as simple geometric figures, became less preferred when they became more fluent. Therefore, it seems that fluent items are preferred only if the items are initially considered relatively novel or complex. This means that one should consider the initial novelty or complexity of an item when predicting whether or not fluency will increase its hedonic value or not. More importantly, the relative complexity of the item will vary across individuals, so an assessment of complexity relative to an individual needs to be determined in order to more accurately predict how fluency modifies the hedonic value of an item.

Attempts to systematically investigate how initial complexity and fluency interact to produce a change in hedonic preference of items are few and far between, but a handful of studies have attempted to examine the behavioral correlates of fluency. In a study recently conducted by Cox and Cox (2002), they examined preference for a series of drawings of women's dresses. The drawings were systematically manipulated so that they varied in dress complexity while other features of the dresses were held constant. Complexity ratings, novelty ratings, and preference ratings were derived for each of the dresses. In addition, complexity and preference ratings were obtained following the initial presentation of a dress and following multiple presentations of a dress. The results of the test demonstrated a strong correlation between preference and complexity. In addition, preference ratings changed significantly between one and multiple exposures to the dresses. Further, the direction of the change was different depending on the initial assessment of complexity for the dress, demonstrating an interaction between preference for initially highly complex items and preference for initially low complexity items. Specifically, items having initially high complexity ratings were preferred more following multiple presentations. In contrast, items having initially low complexity ratings were preferred less after multiple presentations.

Given that light items typically have less of a set of attributes relative to their light counterparts (less sugar, fat, taste, etc.), it reasonable to assume that the inherent complexity of light items is less that their 'full' counterparts. As such, one might expect the overall preference for light items to be lower after repeated exposure. However, it is never the case that items are experienced or consumed in a vacuum, and one must consider the context for which the item is consumed. If a moderate level of complexity is generally preferred, then it might be the case that a low complexity item such as a light item might be preferred if the context for which it is experienced or consumed in produces an overall moderate level of complexity. Ultimately, it might be necessary to understand how an item interacts with a particular context to produce an overall level of complexity.

**Expectation**

Willem and colleagues (2007) also explored the idea that fluency-driven or fluency-based preference occurs only under certain contexts. Following prior research investigations, including the one conducted by Cox and Cox (2002) mentioned above, they hypothesized that enhanced fluency for an item does not always result in preference, and that whether or not an individual will experience enhanced preference for an item based on increasing fluency depends on other factors such as the relative available information. They found that fluency for items, as measured by improvements is detection and recognition of the items, led to increased preference only when the items were presented with degraded quality (i.e., pictures were out of focus) versus items that were presented normally. The authors hypothesize that this may be due to the fact that individuals do not expect to process any degraded stimuli fluently. Thus, if recognition of degraded stimuli does occur, it comes as unexpected, and therefore elicits a positive affective state.

In their review, Reber, Schwarz, and Winkielman also examined the role of expectation in fluency-driven preference. If an item is expected in a given context, fluency is high, but so is the ability of an individual to identify the source of the fluency. For instance, fluency via repeated exposure for an item that one expects to be fluent makes the item less preferred than fluency via repeated exposure for an item that is expected to have less or no fluency. Obviously, there are items that will never experience an increase in fluency no matter the amount of exposure, so that they will never experience an increase in preference.

Expectation, then, appears to be linked to complexity in that whether or not an item is expected in a given context can influence the overall complexity of the item experienced or consumed in a given context.

**Predicting Liking from Fluency**

It is an open question as to how fluency of multiple items interact to ultimately produce an overall level of fluency. Further, it might be the case that overall fluency, and ultimately preference, is derived by determining how well the levels of fluency of items and their contexts match. For example, a low fluency item such as red wine experienced along with a low fluency medium such as an opera may produce an overall higher level of fluency than a high fluency item such as a light beer with the opera, despite the fact that the items considered in isolation sum to a higher fluency than the former.

Currently, no well-accepted metric for fluency exists. Current research identifying items as high fluency or low fluency are highly qualitative, imprecise, and difficult to quantify. The problem of defining a metric for fluency becomes even more difficult when attempting to gain an understanding of how multiple items or contexts may produce an overall fluency. Developing a metric for fluency could provide a way to ultimately predict preference for items based on fluency. Presumably, higher levels of involvement or engagement should require higher cognitive demand higher levels of fluency. There is already a growing body of literature linking an increase in fluency with decreases in reaction times (Reber, Schwarz, Winkielman, 2004; Winkielman, Halberstadt, Fazendeiro, & Catty, 2006). As one becomes more fluent or more proficient with the stimuli in the various tasks, reaction times decrease. In addition, data from neurophysiological sources such as EMG (Harmon-Jones & Allen, 2001; Winkielman & Cacioppo, 2001; Winkielman, Halberstadt, Fazendeiro, & Catty, 2006) support the idea that increases in fluency and proficiency result in changes in brain network activity as well as markers of preference and liking. In addition, other neurophysiological measures, such as fMRI, have been employed in order to assess hedonic preference for items such as faces (O'Doherty et al., 2003; Ishai, 2006), food items (McClure et al., 2004), paintings (Vartanian & Goel, 2004). The results from these studies demonstrate a common network of activity for preference across categories and indicate relative success in predicting liking. These measurements may ultimately offer a more reliable and accurate measure of fluency and liking, as well as a more direct measure of fluency and liking.

A real life example of how environment and context may influence fluency-based preference may occur for music. Take a person who only speaks and understand Russian. One day while listening to their favorite Russian radio station, they hear a popular Chinese song randomly played on that station which, up until that point, played popular Russian music exclusively. Thus, with respect to the individual, the Chinese song is considered exotic and complex. However, if the same Russian individual heard the same Chinese song in the Beijing Airport instead of on the Russian radio station, it would not be considered as exotic and complex. Given the individual expects Chinese songs to be played in the Beijing Airport, the song is more compatible for the context in which it was played.

It could be that the latter phenomenon is more general so that the expectation of any novel music was higher. Additionally, if the same or similar Chinese songs started to play more frequently on the Russian radio station, then fluency would increase and hence preference for the song. Conversely, if the person began to travel more frequently to Beijing and heard the same or similar songs in the airport, fluency should increase but preference should not, or at least not as much for the song presented in the first scenario.

Light beers provide another example of how environment can drive fluency for an item. A typical light beer contains little color and taste information compared to most other beverages, as well as less proprioceptive information versus a beer like Guinness or even a glass of milk. Thus, a light beer has relatively low sensory

processing demands and is therefore considered to be relatively highly fluent. Because of their high fluency, light beers may not be well-liked when consumed in isolation. However, the fact that they are high fluency might make them liked in contexts in which the fluency of the light beer in addition to the fluency of the context it is being consumed results in a fluency that is not too simple or not too complex. In opposition, a red wine has a high amount of sensory information relative to the sensory characteristics of light beer. In fact, red wines have enough sensory information by themselves that they are often are consumed that way; in many parts of the world, wine tastings are a frequent occurrence. But the complexity of the red wine may limit the occasions for which it is consumed. Adding the relatively low fluency of a red wine to an already low fluency context may result in a fluency that is so low that the wine is no longer liked.

**Prototype Preference**

As already mentioned, fluency may not only refer to familiarity based on prior experience with an item, but also on prototypicality. Although prototypes represent a 'central' or most frequent member of a category (Posner & Keele, 1970; Smith & Minda, 2001), prior studies have demonstrated that an individual can form prototypes despite having never been exposed to the prototype itself (Posner, 1970; Smith & Monda, 2001, Winkielman, Schwarz, Fazendeiro, and Reber, 2004). Thus, there appears to be a cognitive advantage for prototypes in that prototypes appear to possess a higher amount of perceptual fluency than related category members so that they elicit faster recognition times in addition to being rated the best category representation (Posner, Goldsmith, & Welton, 1967) and experiencing a greater amount of preference (Monin, 2004). Further, there is evidence that prototypes tend to be the most favored or most liked item. Preference for prototypical members has been demonstrated for 'natural' categories such as dogs and birds as well as 'non-natural' categories like watches (Halberstadt, 2006). It has been posited that for faces, the central member of a distribution of faces is typically the most frequent because of high reproductive success. Thus, the most prototypical face is likely going to be the most reproductively successful one and consequently the most desirable.

Returning to light beers as an example, it can be argued that because of the substantial increase that light beers have experienced over the past 3 decades, the prototype for the beer category for many individual beer drinkers may be a light beer. That is, when first introduced to the market, a particular light item might be consumed for health reasons, ostensible or otherwise. However, as the products makes their way into the mainstream market, as several light beers have, they may be more similar to the beer category prototype that many users have abstracted individually, or may even become the category prototype. This in turn will lead to greater preference for these items that is no longer predicated on the potential health benefits of consuming the light beer.

In a recent article that explored Heineken's decision to make a new light product, Heineken Premium Light, Brand Director Andy Glaser mentioned that part of the decision making process included "taking a look at trends, embracing them and saying if you want a lighter beer for whatever reason, be it health and wellness or taste profile...". Here, Glaser acknowledges that light beers for which the Heineken Brand is attempting to compete with can be consumed for reasons other than health. In fact, it was an open question whether or not a light beer under the 'full-flavor' label of Heineken would be accepted by consumers. From the article:

> *The perception of consumers in the target group is that Heineken is high quality and a prestigious brand, but perhaps not a flavor or a taste that works for them. However, Heineken Premium Light is a liquid that's very light, very palatable and of excellent quality*.

Again, one of the implications from this statement is that Heineken, a premium beer, may have trouble competing with light beers because of the expected taste of a premium beer versus a light beer and, most importantly, there might be a preference for light beers versus Heineken that is based on the expected taste for a light product.

## FUTURE DIRECTIONS

**Towards a Synthesis of Light Product Consumption**

Presently, this manuscript provides a new way to view the light products phenomena and the underlying motivations for light product consumption. On the surface, it appears that light products are consumed for the utilitarian benefits they provide. However, the motivations for continued consumption may shift over time so that product consumption is driven, at least in part, by hedonic benefits such as the ones that result from phenomena like perceptual fluency. Because the overall cognitive demand associated with light products is likely to be lower than their regular counterparts, light products may ultimately be preferred, at least in certain contexts. Compatibility of an item to other items or a particular context may also play a role, as items that are highly compatibility are likely to be perceived as more fluent and thus have higher hedonic value than those products that are incompatible. One may think of compatibility as an overall level of fluency experienced by an individual. It is important to consider that compatibility isn't necessarily a property restricted to discrete, tangible items such as food, clothing, or scents, but could

include more abstract concepts such as contexts or occasions (e.g., watching a baseball game on television, watching a baseball game in person, a wedding, going to an opera, a beach setting).

The concepts that support the notion that light product consumption can be driven by hedonic factors primarily come from indirect sources in various areas of research mentioned above. The concepts that have been outlined at present are meant to provide the reader with a new, coherent, and tractable framework that can more efficiently guide direct investigations into the phenomenon of light product consumption. The interdisciplinary nature of this research, drawing from a diverse set of fields such as sociology, neuroscience, economics and food science, should not discourage investigations seeking to understand light consumption behavior but rather stimulate research in this area, as well as related areas of human behavior, in order to elucidate fundamental connections between these fields as they apply to a variety of human behavioral phenomena.

**REFERENCES**


Cox, D. & Cox, A. D. (1988). What does familiarity breed? Complexity as a moderator of repetition effects in advertisement effects. *Journal of Consumer Research*, *15*, 111-116.

Cox, D. & Cox, A. D. (2002). Beyond first impressions: The effects of repeated exposure on consumer liking of visually complex and simple product designs. *Journal of the Academy of Marketing Science, 30,* 119-130.

Dani, S. (2008). *Appetite for seduction: BK's new fragrance*. Retrieved December 17, 2008, from MSNBC website:
http://today.msnbc.msn.com/id/28284679?GT1=43001

Halberstadt, J. (2006). The generality and ultimate origins of the attractiveness of prototypes. *Personality and Social Psychology Review*, *10*, 166-183.

Huang, J. & Bouis, H. (2001). Structural changes in the demand for food in Asia: empirical evidence from Taiwan. *Agricultural Economics*, *26*, 57-69.

Ishai, A. (2007). Sex, beauty and the orbitofrontal cortex. *International Journal of Psychophysiology*, *63*, 181-185.

Kivetz, R. & Keinan. A. (2006). Repenting hyperopia: an analysis of self-control regrets. *Journal of Consumer Research*, *33*, 273-282.

Liptak, A. (2008). *Top court lets smokers sue for fraud*. Retrieved December 15, 2008, from New York Times website:
http://www.nytimes.com/2008/12/16/business/16bizcourt.html?_r=1&scp=1&sq=light%20cigarettes&st=cse

McClure, S., Li, J., Tomlin, D., Cypert, K., Montague, L., & Montague, P. (2004). Neural correlates of behavioral preference for culturally familiar drinks. *Neuron*, *44*, 2, 379-387.

Monin, B. (2003). The warm glow heuristic: when liking leads to familiarity. *Journal of Personality and Social Psychology, 85,* 1035-1048.

Musto, D. F. (1984, June 25*).* New temperance vs. neo-prohibition. *Wall Street Journal*.

O'Doherty, J., Winston, J., Critchley, H.D., Perrett, D., Burt, D.M., Dolan, R.J., (2003). Beauty in a smile: the role of medial orbitofrontal cortex in facial attractiveness. *Neuropsychologia*, *41*, 147–155.

Popkin, B. (1998). The nutrition transition and its health implications in lower-income countries. *Public Health Nutrition, 1,* 5-21.

Posner, M.I., Goldsmith, R., & Welton, K.E. (1967). Perceived distance and the classification of distorted patterns. *Journal of Experimental Psychology, 72,* 28-38.

Posner, M.I. & Keele, S.W. (1970). Retention of abstract ideas. *Journal of Experimental Psychology*, *83*, 304-308.

Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience? *Personality and Social Psychology Review*, *8*, 364–382.

Roskelly, N. (2006). *Light beer beacon: Heineken Premium Light shines in new category*. Retrieved March 13, 2009, from AllBusiness.com: http://www.allbusiness.com/manufacturing/food-manufacturing/3916380-1.html

Sahn, D. & Alderman, H. (1998). The effects of human capital on wages, and the determinants of labor supply in a developing country. *Journal of Developmental Economics*, *29*, 157-183.

Smith, J. D. & Minda, P. J. (2001). Journey to the center of the category: The dissociation in amnesia between categorization and recognition. *Journal of Experimental Psychology:Learning, Memory, and Cognition*, *27*, 984-1002.

Vartanian, O. & Goel, V. (2004). Neuroanatomical correlates of aesthetic preference for paintings. *Cognitive Neuroscience and Neuropsychology*, *15,* 893-897.

Wansink, B. (2004). Environmental factors that increase the food intake and consumption volume of unknowing consumers. *Annual Review of Nutrition*, *24*, 455-479.

Wansink, B., Van Ittersum, K., & Painter, J. E. (2004). How diet and health labels influence taste and satiation. *Journal of Food Science, 69*, S340-S346.

Wansink, B. & Chandron, P. (2006). Can low-fat nutrition labels lead to obesity? *Journal of Marketing Research*, *43*, 605-617.

Winkielman, P. & Caccioppo, J. T. (2001). Mind at ease puts a smile on the face: psychophysiological evidence that processing facilitation elicits positive affect. *Journal of Personality and Social Psychology*, *81*, 989-1000.

Winkielman, P., Halberstadt, J., Fazendeiro, T., & Catty, S. (2006) Prototypes are attractive because they are easy on the mind. *Psychological Science*, *17*, 799-806.

Winkielman, P., Schwarz, N., Fazendeiro, T., & Reber, R. (2003). The hedonic marking of processing fluency: Implications for evaluative judgment. In J. Musch & C. Klauer (Eds.), *The Psychology of Affective Processes in Cognition and Emotion*. (pp. 189-217). Mahwah, NJ: Lawrence Erlbaum.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology Monograph Supplement*, *9,* 1-27.