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"Autotelic versus Instrumental Need for Touch: Empirical Evidence from a Field Study"

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INTRODUCTION

Product attitude is influenced by a person's innate need to touch, which consequently plays a fundamental role in consumer behavior. Effective Marketing, therefore, needs to study the implication of differing needs to touch. Firstly, there is a desire to examine the consequences of need for touch on product evaluations so that concepts can be integrated accordingly within successful marketing strategies. Secondly there are two inherent needs to touch instrumental or autotelic. The former explores product attributes in order to evaluate their functionality aimed at purchasing. The latter involves touching a product for the sole purpose of experiencing sensory enjoyment without a purchasing goal. The need to touch can vary depending on person, products, or situation.

This thesis, which is part of a research project undertaken by Professor Matteo De Angelis and Professor Cesare Amatulli of the Management Department of Luiss University, Rome, endeavors to highlight evidence of the effectiveness of need for touch impacting customer attitudes and behavior when evaluating different categories of products: consumer electronics and fabrics. Two experiments were conducted to examine how different levels of instrumental or autotelic touch, and differing conditions can impact product attitudes and evaluation.

Need for touch literature is inherent to the current development of sensory marketing, which is explored in the first chapter of this thesis. Not only have sensory marketing strategies gained ground amongst firms, but also we are witnessing a paradigm shift. Originally we saw a transition from transactional to relational marketing. Nowadays, firms are tending towards a more sensory

marketing framework. The senses have recently emerged as being the dominant factor in shaping customers' perceptions regarding products and brands. Sensory marketing, contributes substantially to the development of both brand and marketing management by using sensorial strategies based on cognitive, emotional or value-based elements. Firms can differentiate brands and products and challenge the individual mind in a highly personalized way, thus impacting on consumer behavior.

In the field of marketing, touch is the least explored sense, and the most complex to define and analyze since there is no graded objective lexis available. Despite its complex nature, a deeper understating of tactile marketing could seriously impact future paradigms allowing brands to be engaged in communication by tactile means. To explore the opportunity offered by tactile marketing it is important to examine the NFT literature, which provides relevant insights into the consequences of product touch.

A scientific analysis of sensory marketing remains illusive; however, in its practice since consumer reaction is dictated by subconscious stimuli which scientific research has yet to explore thoroughly. So far contribution to marketing research has been furnished by questionnaires, which do not take into account the complex nature of individual's decision-making faculties. Neuromarketing has launched a new approach toward future development in sensory marketing, by taking into consideration the subconscious.

Chapter 2 gives an overview of the marketing literature available on product touch to which, the main contribution was provided by Peck and Childers, who developed a scale to measure individual differences in need for touch. Their research has been one of the bases for the studies to follow, in which the impact of

NFT on consumer attitude and behavior is explored. For example, consumers with a high need for touch were found to be more frustrated and less confident about products that they were unable to touch; thus, impeding the decision to buy process.

Chapter three moves onto the detailed description of two on field studies, which in line with previous research, confirm that touch impacts attitudes towards products whether instrumental or autotelic. A pillow and a scientific calculator were chosen for the experiment since they are familiar products and possess material properties whose salience is not comparable. In fact, for a pillow pre purchase touch is particularly important, whereas this does not seem to be the case for a scientific calculator.

The first study showed the moderation effect of instrumental touch on attitude towards the scientific calculator, through the mediation effect of perceived ease of use. The second study showed the moderation effect of Autotelic Touch on attitude towards the pillow, through the mediation effect of sensory enjoyment.

This thesis concludes with a description of the implication of the aforementioned studies together with the previous marketing research on Need for Touch in chapter four. Successful retailers such as Gap, Hollister and Abercrombie have been actively engaged in adopting retail settings encouraging touch where merchandise is readily accessible. This has contributed to their success and distinguished their shopping experience in terms of style. However touching products does not necessarily guarantee sales. Retailers must be aware of the limitations of touching products particularly in lower quality goods and commodities, where touch may well decrease evaluation and deter sales.

In advertising the tactile feel is evoked through pictures and written descriptions and sometimes tactile sensations can be simulated through the use of synesthetic association.

Online retailers should not ignore the effect and implication of need for touch, seeking strategies to overcome the practical barriers of their shopping forum. The lack of opportunity to touch can be effectively offset by non-haptic cues such as low price or the launch of a new product. Since interfaces able to effectively simulate touch sensations are not yet available, retailers must ease the return or refund of merchandise in order to consolidate customer confidence.

Thus, this thesis seeks to demonstrate that the research on NFT and its practical implementations will ever increasingly become a necessary tool in marketing.

CHAPTER I

Sensory Marketing

The senses allow consumers to capture and memorize the information from the environment, Consumers often face situations in which they have to make judgments, partially or completely, on the basis of product sensory attributes, such as smell when buying a perfume, sound when buying a stereo system, or texture if we wish to sample the quality of a towel (D'Astous & Kamau, 2010). Despite this routine behavior, until a decade ago research had principally focused on studying the impact of verbal only information on judgment; and as more recent research has sought to examine the extent to which sensory attributes influence consumer judgments about products and brands as well as the factors that may moderate that influence (e.g., Shapiro and Spence, 2002).

However, sensory information is inherently complex and multidimensional (Shapiro and Spence, 2002). Present development of sensory marketing illustrates the emergence of a new epoch in marketing, one in which the five senses will be at the center of a firm's marketing strategy and tactics (Hulten and all, 2009). Sensory influences are subtle and powerful, since costumers are unable to perceive the mas marketing messages and therefore do not react with the usual resistance to ads and other promotions. It therefore, becomes more important for firms to affect and influence customers in new provocative, imaginative ways (Hulten and all, 2009). In the last few years, more than 30% of the world's largest brands have been working on "sensory branding" strategies (Johnson, 2007)

1.1 Paradigm Shift: Transactional, Relational and Sensory Marketing

In the 1950s, the transactional marketing model gained ground and was widely accepted among marketers. This model is based on "goods logic", in which the individual is considered as a consumer with standard needs within a mass-market reality, in which advertising is a major tool for tapping into the market (Rodrigues et all 2011). It is grounded on microeconomic theory and the behavioral theory of the firm, from an exchange perspective. The model aims at acquiring customers that are passively engaged in short-term exchanges and single transactions with active sellers.

Despite the supremacy of the transactional marketing model, mainly due to its simplicity, doubts started to be raised from scholars and practitioners, who claimed it to be too limiting overly scientific and did not allowed for long term economic transactions. Thus, new frames of reference started to appear and with it a paradigm shift in marketing, proclaiming the benefits of relational strategies (Egan, 2008). The relationship-marketing model is more sophisticated; it is based on interactions, networks and relationships between active and adaptive sellers and buyers. The model revolves around customer retention, long-term relationships, two-way communication and personal interactions, emphasizing a customer-centric view with relationship handling in the focus of a firm's marketing strategy and tactics.

However, further doubts were raised once again as to whether companies

realized that it was not always suitable or profitable to develop relational strategies (Egan, 2008), or whether they should rather combine TM and RM approaches at a managerial level. In addition, over the past decade the development towards a more relationship marketing approach was expressed through the use of techniques such as customer relationship management and customer specific marketing. This often, rather than strengthening customer relationships has been used in ways that are more technically advanced rather than personal leading to marketing becoming even more depersonalized.

Hultén (2011) proposes a sensory marketing model, which is not equivalent to either mass or relationship marketing since it is not about the masses or the segment, but focuses on the point of origin being in the brain of the individual. In addition, Rodriguez and all (2011) consider how a sensory marketing model can be regarded as an alternative to conventional marketing models. His framework takes its point of departure in the human mind and senses, where mental flows, processes and physiological reactions lay the ground for a multi- sensory brand-experience. His research is in accordance with the marketing strategy continuum hypothesis, since it combines both transactional and relational strategies in facilitating a multisensory brand-experience. By putting the human brain, with its five senses at the center of marketing, It also recognized that a firm should treat its customer in a more intimate and personal way than have been achieved was achieved through mass and relationship marketing before (Hulten and all, 2009).

Customers turn away from appreciating only functional product attributes and features; instead they want to see the product as an experience (Hulten and

all, 2009). Each person has a subjective experience called “experience logic”, that is a result a result of how the individual’s five human senses perceive ad interpret the experience (Hulten and all, 2009).

Much of the new research centers on “embodied cognition”, the idea that without our conscious awareness, our bodily sensations help determine the decision we make. Marketing researchers are starting to realize how powerful the responses to non-conscious stimuli can be. Work on embodied cognition has begun blowing up amongst academics. In 2014 at the Journal of Consumer Psychology and at the Association for Consumer Research’s North American conference there has been more publication on sensory perception, with a focus on how sensory inputs can drive consumer behavior.

1.2 Sensory Branding

Krishna (2012) defines “sensory marketing” as “marketing that engages the consumers' senses and affects their perception, judgment and behavior.” In a way, sensory marketing is an application of the understanding of sensation and perception to the field of marketing to consumer perception, cognition, emotion, learning, preference, choice, or evaluation (Krishna 2012). From a managerial perspective, sensory marketing can also be used not only to affect the perceived quality of an abstract attribute like its color, taste, smell, or shape, but also to create subconscious triggers that define consumer perceptions of abstract notions of the product and brand's personality (Krishna 2012).

Sensory marketing, contributes substantially to the development of both

brand and marketing by using sensorial strategies based on cognitive, emotional or value-based elements. Firms can differentiate brands and products and challenge the individual mind in a highly personalized way, thus impacting on consumer behavior (Rodrigues, 2011). The value of a brand emerges when interactions occur through the customer's multi-sensory experiences in the value-generating process; thus, creating a symbiosis between individual and brand (Rodrigues, 2011).

Brands have their own personality defined as a *"set of human characteristics associated with a brand"* (Möller and Herm, 2013). Brands are rather commonly associated with personality traits; for example H&M is linked to excitement, while Ikea is synonymous to sincerity. Möller and Herm, (2013) investigated the nature of brand personality arising from a variety of experiences with a brand. For example, the way in which the store is defined in the shoppers' mind and the people that work in the store have many contributing factors. In addition, logo packaging and brand color input brand personality. Moreover, bodily experiences can determine psychological association influencing consumers' perceptions of product brand personalities.

Lindstrom (2005b), who has extensively studied relations between the five senses and brand, defines sensory branding as a type of marketing that appeals to all senses to relate customers to the brand on an emotional level, there by influencing purchasing behavior. Brands can forge emotional associations in the customers' minds by appealing to their senses. A multi-sensory brand experience generates certain beliefs, feelings, thoughts and opinions to create a brand image in the consumer's mind.

The Coca-Cola versus Pepsi-Cola experiment is a good example of the aforementioned importance to create a brand image inn consumer's mind. An MRI scanner was used to analyze bodily responses of preference, which resulted more favorably towards Pepsi cola (McClure et al., 2004). However, when requested to express preference to the different beverages when the brand was clearly marked, Coca Cola was the winner (McClure et al., 2004). The MRI scanner showed differing effects on brain activity where memory and emotional information processing were activated at the sight of the Coca-Cola brand thus influencing preference. Pepsi cola was physically preferred according to taste, while coca cola remains unbeatable as a choice based on emotions and memories evoke by its distinctive brand personality.

These results highlights the importance of brand personality and image on impacting shopping patterns; so consumers rely on subconscious stimuli that leave much room for investigation. The adoption of neuromarketing technique in branding allows us to identify real stimuli toward purchase behind the explicit evaluation of customers. Traditional questionnaires rely on explicit and superficial information rather than subconscious influencing factors; not allowing for identification of what are the true products attributes influencing brand personality and evaluation (Lindstrom, 2008; McClure et al., 2004). The results of the neuromarketing research related to the way in which our senses interact in eliciting a response to a given stimulus will be of utmost importance, since it is clear that simple customer opinion is unreliable when it comes to perception aroused from multisensory integration (Spence and Gallace 2011).

1.3 Tactile marketing

As early as 1932, Sheldon and Arens stressed the importance of making products feel good; they championed an approach to product design called *consumer engineering.* This was the definition for a business tool for designing products that paid more attention to addressing typical consumer taste or needs. They also hold that the hand is the first judge to pass sentence and product acceptance after the eyes. The importance of tactile stimulation in shopping behavior has been repeatedly kept in the limelight ever since (Holbrook, 1983; Spence, 2002).

Gallace and Spence (2011) offered a cognitive neuroscience explanation giving reasons for the importance of tactile stimulation on multisensory product evaluation. This gave us the notion that tactile stimulation may influence multisensory product evaluation by means of *affective ventriloquism*: they insinuate that a person's estimates of the quality of a product can be perverted by other sensory modalities in alignment excluding touch; however it can subsequently be biased by the hedonic attributes of a product perceived via touch.

Therefore, touch has the power to alter a person's overall (multisensory) product experience and will likely "dominate" or "drive" perception over the inputs provided by the other sensory modalities. The skin appears to be competent in the coding of affective responses (Spence, 2002); As such, it could be argued that touch is likely to provide better indicator of a product's hedonic value than, audition or vision. Consequently, it would be expected that tactile cues would dominate the overall multisensory product affective response (Gallace and Spence, 2011). As such, changing the pleasantness of the feel of a product or

package could have a more profound effect on the affective (or hedonic) response than changing any of the other sensory cues associated with the product.

Nevertheless, recent research by Schifferstein and Desmet (2007) has quantitatively assessed the importance of each sensory modality to people's evaluation of products while in use. The participants had to interact with products when a given sensory modality was "blocked": blindfolding the participant blocked vision; touch was partially blocked (by making the participant wear thick, inflexible oven gloves, and so on. The results showed that if the feel of a product was blocked, participants tended to report stronger feelings of "alienation" than if sight of the product was denied. That is, the lack of touch more than the lack of vision resulted in participants perceiving familiar products as being foreign. Schifferstein and Desmet's results might therefore be taken to suggest that a person's familiarity with a given product is heavily based on its tactile attributes. Note, though, that one limitation of this research is that the procedures used for blocking the sense of touch also affected the "usability" of the item. Therefore, the results could, at least in part, simply reflect the fact that participants were not able to use the products properly while wearing the inflexible gloves. Given this observation, it will be important in future research to investigate the possibility of evaluating the contribution of the tactile modality, independent of the usability of a product (Gallace and Spence, 2011).

Indeed, most likely, we would avoid purchases where our idea of how a product should feel when held in the hand does not correspond to reality. So that, an expensive piece of jewelry should and is expected to feel heavy and substantial, giving information about quality of its raw materials (Lindstrom,

2005). This is of particular concern where products come into direct contact with our skin such as clothing, bed linen, pillows, shoes, and so on (McCabe & Nowlis, 2003). For example, *in fashion and furnishings most of decision making is tactile. Shoppers are trying to picture through touch, the weight of cloth and how it would feel to wear, so touch fuels emotions for rational decision- making. (Soars,* 2009*, p. 294).* Although the available evidence suggests that tactile information is relevant to people's evaluation of products, it is important to point out that even within a particular product category, there are likely to be significant differences in the relative importance of the tactile attributes of the product as a function of the brand concerned. That is, the consumer's need to touch objects that he/she might want to buy varies markedly as a function of both the specific class of product and the particular brand.

However, the majority of product design efforts have, at least until recently, been directed toward customers' other sense: the visual, olfactory, and, gustatory aspects of product design and marketing (Gallace & Spence, 2011). Over the years to come, it seems feasible to investigate how to manipulate the tactile aspects of a given product together with its other relevant sensory properties, to create objects with *multisensory appeal* to as wide a market as possible (Gallace and Spence, 2011). However, very little is currently known about the way in which our brain analyzes, recognizes, and stores tactile information; while it is clear that tactile sensation cannot be as easily labeled as visual ones (Gallace & Spence, 2014). In fact, while many other product-related sensory cues have already been optimized over the years, less attention has thus far typically been given to modifying the tactile attributes of products. This means

that there may be greater room for improvement in terms of tactile innovation in product design (Gallace and Spence, 2011).

1.3.1 Touch Opportunities for Branding

Taking into consideration that, in the last few years, more than 30% of the world's largest brands have been working on "sensory branding" strategies (Johnson, 2007), touch is likely to offer numerous opportunities for innovative branding and marketing in the years to come. Some companies are even going so far as to consider the practicalities associated with trademarking the signature feel of their brands in order to help distinguish them from the competition at a more emotional and/or affective level (Lindstrom, 2005).

Most firms tried to create an identity image around a product in terms of tactile marketing (Hulten and all, 2009). Companies are trying to give their product and packages a surface feel that is multisensory congruent with the overall brand image (Gallace & Spence, 2011). For example, a few years ago the makers of Velvet toilet tissue packaged their product in a protective plastic wrapping that had been specially treated to give it something of the feel of real velvet, thus ensuring that the tactile feel of the product's packaging was semantically congruent with the overall brand image (Gallace & Spence, 2011) The touch experience is also of importance in purchasing and consuming services (Hulten and all, 2009). This fact is often recognized, for example through the soft chairs for comfort at a travel company and through the hard chairs and tables at a fast-food restaurant (Hulten and all, 2009). Also, the hardness of the floor has been shown to be determinant on product evaluation and retail brand perception (Möller and Herm, 2013).

Companies need to consider how their brand feels to the costumer's touch and the ensuing emotions evoked. Clear objectives to cognitive contents must be established in order to communicate them via the sense of touch (Gallace & Spence, 2014). Once the message to be communicated by touch has been defined the challenge becomes that of choosing those tactile sensations that are best suited to delivering that message (Gallace & Spence, 2014). Brands can be clarified through tactile sense expressions such as material and surface in product and service landscapes, and also through temperature and weight (Hulten and all, 2009). For example, heavy objects are often associated with high quality; other important sense expressions are form and stability.

Lindstrom (2005) discusses Coca-Cola's use of the nostalgic glass bottle to reinforce its brand image and suggests that it is the tactile sensation (due to its form and stability the feel of the bottle in the one's hand, which is associated with the brand. The importance of the tactile aspects of packaging design comes from the effect of the reintroduction of the traditional Coke bottle: reports in the consumer target market suggested that sales increased by 12%, attributable in part to the reintroduction of Coke's signature contour bottle (Gallace & Spence, 2011). However, it has been argued that is the "sight" of the shaped bottle to be determinant in purchase, rather than the feel of its distinctive shape. This is reiterated by the presence of the image of the bottle on cans and advertising. Spence and Gallace (20011) report on much research where in situations of intersensory conflicts vision dominates over touch when evaluating the shape of an object. This is highlighted through people's need to pick things up once visualized. As a common guideline visual indicators overcome touch when people judge the external properties of an object such as its size or shape,

while tactile indicators are prominent when evaluating microstructural features of a product, like texture or temperature. (Gallace and Spence 2011; Gallace and Spence, 2008).

As Howes (2005) notes, playing with a product's feel through the alteration of its tactile attributes provides an additional means of differentiating one's product from that of the competition. Using Apple iPod as an example, Johnson (2007) reported that it is the innovative feel of the case, which has set the standard for portable electronic equipment to follow. Cameras provide an example of how visual and tactile inputs if not manipulated lead to negative differentiation, given that cameras from different brands have been proven to appear too similar to consumers. *Digital Photo* maintained that most people are unable to tell the difference between camera brands prior to touch (Concorso Coolproject, 2009). Thus, altering macrogeometric or tactile attributes of a camera could provide an effective means of product or brand differentiation (Spence and Gallace 2011).

However, our explicit association of a certain brand with a particular tactile attribute might be misleading. In an article published in the *European Management Journal*, Gentile, Spiller, and Noci (2007) conducted a study in which participants were asked to rate the sensory modality most important to them in purchasing specific products. A table of scientific criteria was produced where, for example Pringles potato chips were distinctive for their taste alone, ignoring the importance of the crunch sound when biting into a chip. Harley-Davidson motorcycles were considered to be desirable because of their visual aspects overlooking the impact of their distinctive roar. Lastly the iPod success was

attributed to its musical clarity about, negating the importance of its tactile feel.

Considering the aforementioned examples, it seems clear that traditional marketing techniques are not enouge sensory cues drive purchasing subconsciously. Tactile branding is important to explore from a neuromarketing approach since the touch qualities of a product can be implicitly associated with a given brand (cf. Ballesteros & Reales, 2004). Since our explicit association of a certain brand with a particular tactile attribute might be misleading, further research should observe he actual behavior rather than responses to a questionnaires to provide more reliable data for marketers and product designers (Spence and Gallace, 2011).

1.4 Current Challenges for Sensory Marketing

1.4.1 Online Shopping

When making a decision in online shopping where the ability to touch products is not possible there is much to learn about the role of haptics. People have started to make an increasing proportion of their purchases via the Internet and/or via home shopping channels on the TV. Under these conditions decisions are made on the basis of the product-extrinsic features such as price, brand, the reliability of the Web site, and the visual attributes of the product (Gallace & Spence, 2011). The potential customers, isolated from the full multisensory product experience, are unable to touch, feel, smell, or often even hear their products while making a purchasing decision. Object properties can only be assessed via sight that offers an alternative exploratory option to touch: in visual

processing, eye movements scan across an object and analyze its color, size, and shape (Yazdanparas & Spears, 2012). On the other hand, touch is more important when encoding information about an object's material information properties (Yazdanparas & Spears, 2012).

Online shopping companies need to develop marketing strategies compensating for the lack of opportunity to touch. According to Gallace and Spence (2014) one of the reasons why some consumers' don't use the Internet in order to make their purchases relates to the lack of multisensory experience associated with the medium. Given that touch has been considered one of the dominant sensory modality from which to extract product and brand information, the absence of tactile stimulation in online sales might even help to explain the relatively slow growth of some Internet firms catering to retail consumers (Gallace & Spence, 2011). Therefore, figuring out how to appeal with consumer s that prefer traditional retail stores constitutes one of the most significant challenges for many companies in the marketplace today.

For those brands that have tactile brand capital, in-store shopping seems the only feasible solution. For the moment two possible options are available: to simply facilitate the return of unwanted products or/and to study the effectiveness of sending products sample "on demand" to online customers before the actual purchase. In the meantime experts are investigating the possibilities associated with the use of VR technologies to deliver stimulation that can more effectively mimic those obtained by the actual contact with the product (ex foot glove project, for the possibility of using augmented reality facility to try, fit, and even customize products without actually trying them (Gallace & Spence, 2014). We

are still a long way for commercially viable haptic interfaces that can bring the tactile attributes of the retail shopping experience into the average home (Gallace & Spence, 2014).

Devices to provide haptic information have been developed (e.g., Logitech iFeel mouse) to attempt to provide haptic information when touch is unavailable (Burdea 1996). Also, other types of digital technology such as aircraft, cars, videogames and cinemas can produce a touch experience through artificial pressure and oscillations. Technology is also available that stretches the skin when a digital object is touched, which makes it possible to replicate the sense of touching something that is visualized on a screen (Hulten and all, 2009). The effectiveness of these devices as a compensation for the opportunity to touch is an important area for consumer research. The haptic interfaces developed are still rudimentary compared to direct haptic exploration, and the sense of touch is thought to be the most complicated sense to replicate (*Moneyline* 2000).

Several developments have been made in the high-tech world of sensory marketing, which is helping brands provide sensory experiences that more involving. An example is given by *Marriott Hotels' new Teleporter*. The hotel chain is using Oculus Rift technology to allow guests to virtually explore holiday destinations, such as Hawaii (Cassidy). Its "4D technology" allows teleported guests to experience the physical sensations generally associated with a good holyday; for example, the sun hitting your body simulated through heaters, or the feeling of the see spraying your skin simulated through a water sprayer.

Although eventually there may be a proper substitute for the sense of touch in the technological world, this sense remains the most complicated to replicate (Peck & Childers 2003b). While visual and auditory cues can be used as marketing tools by those companies selling products online, until now touch could not be replicated through an online interface. Currently, information obtained by the sense of touch cannot be realistically reproduced in the any touch media. This indicates that perhaps for some consumers and for some products, traditional retail shopping may not be easily replaced (Peck & Childers 2003b).

1.4.2 Ageing Population

Another important challenge for companies involved in sensory marketing strategies comes from the recent alteration in population demographics, which need to address the issue of rapidly aging population. As people age, their senses will inevitably decline both in the brain itself, and at the periphery, notably the surfaces of the skin (Lin et al., 2005; Nusbaum, 1999). "Tactile acuity" defined as *a measure of a person's ability to discriminate as separate two stimuli presented close together* declines linearly with increasing age (Lin et al., 2005; Nusbaum, 1999). While the decline of visual and auditory sensitivity in older people can be compensated by the sensory prostheses, such as glasses and hearing aids; the same cannot be said for overcoming the loss of tactile, olfactory, and gustatory sensitivity that now is decreasing in the elderly (Gallace & Spence, 2011).

The sensory decline in tactile acuity is especially likely to affect people's perception of the microgeometric properties of tactile stimuli such as their awareness of the particular texture of a product surface or of its packaging (Gallace & Spence, 2011). Given that touch provides an important means of

developing an emotional, or affective, connection with a product (e.g. Sonneveld & Schifferstein, 2008), many companies are currently struggling with the question of how exactly to ensure that their products remain usable by, as well as appealing to, the touch of the elderly customer.

Products need to be haptically appropriate, and easy to use, for the elderly (Gallace & Spence, 2011). Given that tactile information has been shown to have strong effects on people's behavior regardless of their awareness of the tactile sensations presented using tactile signature feels in order to help elderly people choose a given product might result in important advantages for the marketing industry when targeting this section of the population (Gallace & Spence, 2011).

CHAPTER 2

Literature Review

2.1 Haptics

For centuries, the importance of touch has been recognized a central key to understanding the world around us. Both inter-personal and product touch have been analyzed in varying fields from ancient philosophy, to psychology, medicine, criminology, marketing and so on. As early as the 4th century BC, Aristotle proposed his theory of aesthesis or sensation suggesting that our five senses are ordered hierarchically, with "touch" on top, and the other senses increasing the acuity of the touch sensation. Aristotle believed that touch mediates every type of sense perception, even vision (Siegel 1970). Also, touch and the cosmos were connected since sexual stimulation worked through the sense of touch allowing the human race to continue. Aristotle gives us the very first marketing insight into the need for touch literature by stating that touch provides a true picture of the intrinsic nature of the object: for example, the soft coat of a kitten can be relied upon to indicate the innate softness of the character's object itself.

Touch is also the first sense to develop in the womb and the last sense one loses with age. Even before we are born, we start responding to touch and for infants it is the most immediate sense to explore the world around them. During pregnancy, the senses develop in the following order touch, smell, taste, audition and then vision (Krishna, 2011) Physical contact towards human babies has been

demonstrated to enhance comfort. Touching the baby has been shown to enhance parent–infant attachment and also enhance the baby's emotional and physiological health.

The valence of tactile stimulation amongst humans could hold for interaction between human and object as it is reported by literature mentioning, the emotional valence of the transitional objects to infants, (Peck & Wiggins, 2006; Sonneveld & Schifferstein, 2008). From a psychological and marketing perspective, different research has shown that information gained from touching a product often lies at the heart of purchase decisions; (e.g., Peck and Childers, 2003a, 2003b; Peck and Shu, 2009; Peck and Johnson Wiggins, 2011). Moreover it has been found that contact with objects increases peoples' willingness to pay for those objects. (Wolf *et al*. 2008)

The Need for Touch (NFT) is conceptually defined as a *preference for the extraction and utilization of information obtained through the haptic system* (Peck & Childers 2003a.) Haptics is defined as the "*active use of hands to retrieve the attributes of an object stimulus, using both cutaneous and kinesthetic inputs*" (James et al., 2007 p. 219). Information available through the sense of touch is called *haptic information*, which can be further distinguished between instrumental and autotelic information (Peck and Childers, 2003b). Instrumental information is strictly related to the structural properties of the product is and it is developed toward the evaluation of its performance or purchase, (Peck and Childers, 2003b). In contrast, autotelic information is related to the sensory experience and hedonic appreciation of the product (Holbrook and Hirschman, 1982).

As a preference, Need for Touch is based on motivational versus ability differences among individuals (Spreen and Strauss 1991). Nevertheless, not everyone has the same need for contact or touch. From a marketing research perspective, given that some consumers have a greater preference for touching products than others it is important to understand what makes these individuals different and what are the implication of these differences on consumer behavior, and on the evaluation of product. The majority of studies that have been undertaken thus far have made use of questionnaire-based procedures in order to evaluate people's attitudes toward specific products measuring the opinion of potential buyers with regard to the importance of touch in the purchase of a particular item (Gallace & Spence, 2011)

2.2 Drivers of Need for Touch

According to Peck and Childers (2003b) difference in need for touch vary across individuals, products and situation. As a preference, individual differences in Need for Touch are based on motivational versus ability differences in individuals (Spreen and Strauss 1991). Whilst ability components can be ignored since there is an irrelevant variance amongst individual, other factors such as information processing strategies, product expertise, and cultural background may have an impact on motivation to touch; also variances can depend on gender and age.

2.2.1 Individual Differences

This need to examine products through touch can be driven by motivations

associated with what Holbrook and Hirschman (1982) describe in terms of either consumer as problem solvers or consumers seeking fun, fantasy, arousal, sensory stimulation, and enjoyment. Consumers as problem solver are concerned with purchasing products in an efficient and timely manner to achieve their goals with a minimum of irritation. On the other hand, "*consumer seeking fun….*" are gratified by shopping's potential entertainment value and the enjoyment that is part of the experience without the need to achieve any priory specified end goal (Holbrook and Hirschman 1982).

The difference in motivation to touch highlighted by Holbrook and Hirschman is consistent with the implicit versus self- attributed dual motivation model advocated by McClelland et al. (1989). These differences are similar to distinctions made between the conscious goal- setting nature of episodic driven motives versus those derived from semantic memory, which more automatically influence behavior without conscious effort (McClelland et al. 1989).

This dual characterization of differing motivational drivers of NFT is consistent with Peck and Childers' (2003a) perspective on the NFT as a multi-dimensional construct with two underlying factors, instrumental and autotelic touch. In this dichotomy, the instrumental dimension of NFT that corresponds to self-attributed motives is characterized by organized analytic thought that is initiated by an explicit goal that drives behavior (Peck & Childers 2003a). In contrast, the autotelic dimension of NFT, which corresponds to more implicit motives, reflects compulsive and affective themes intrinsic to an activity that are not elicited by reference to unmet goal (Peck & Childers 2003a).

The differing need of touching product among individuals may be also be due to their differences in information processing strategies. Yazdanparas &

Spears (2012) investigate the notion that a preference for touch search is a form of analytical processing, and demonstrate that consumers varying levels of reliance on haptic modality, display distinct processing strategies. They gathered and tested evidence of the differing processing styles of those high in need for touch, compared with those low in need for touch in an online context where touch was unavailable.

Cumulatively, the findings indicate that high need-for-touch consumers follow an analytical, feature-by-feature processing strategy. The haptic information processing style results in more feature-by- feature information processing, which could be considered as a type of analytical or systematic processing, an example would be gathering information about the smoothness of a sweater's buttons. On the other hand, those low in need for touch rely more on a relational processing strategy, which is based on an overall assessment of the entire product at once in relation to other concepts, such as those from past experience and resembles heuristic processing in which multiple features are extracted with one glance. (Yazdanparas & Spears, 2012). Consequently, when individuals do not rely heavily on the haptic system for extracting product information, their information processing approach would be more consistent with that of the visual system (i.e., more relational) and less consistent with the feature-by-feature (i.e., less analytical) approach (Yazdanparas & Spears, 2012). .

Findings revealing that the importance of sensory stimulation varies across individuals provide an important base for segmentation and targeting. Consumers who have a higher need for affective touch is especially responsive to the consequences of haptic stimulation. These findings about individual difference on motivation to touch were incorporated in the following studies to assess how

product attributes and the shopping environment affect consumer touch and therefore affects attitude toward the product. Not only is there an individual difference in preference for haptic information, but also different situations or product may motivate shoppers to want to touch prior to purchase. Moreover, the salience of haptic information differs significantly not only across costumers but also products and situations (Peck and Chiders, 2003b). Many studies have been conducted to assess how these factors interact to impair or enhance the acquisition and use of haptic information.

2.2.2 Product Haptic Properties

Products differ in the extent to which they possess salient material properties. In fact, the haptic system is particularly adept at encoding the object's material properties that correspond to texture, hardness, temperature, and weight information (Klatzky and Lederman, 1993). Thus, product categories in which material properties vary in a diagnostic way are more likely to encourage touch (Peck and Childers, 2003b). Wright and Lynch (1995) distinguishes between search and experience product attributes. Experience attributes, for example the feel of a sweater, can be ascertained only by touch because they are dependent on subjective experience. On the other hand, search-attribute information e.g., the brand name or the color of a sweater can be successfully acquired without touching a product. On the basis of such considerations, one might predict that *novel and innovative* products that need frequent tactile interactions in order to be used are those where the tactile attributes are likely to play the most important role in purchase behavior (Gallace & Spence, 2011).

2.2.3 Situational Factors

Also, characteristic of the physical setting such as retail environment and display cases may influence the salience of material properties by facilitating diminishing or precluding the opportunity to touch products directly. Research by Peck and Childers (2006) examines the influence of touch on impulse-purchasing behavior, resulting that both individual and environmental touch-related factors can increase impulse purchasing. Overall, individuals higher in autotelic NFT purchased more impulsively than their lower autotelic NFT counterparts. However, for both high and low autotelic individuals, the environmental salience of touch information induced by, for example a point-of-purchase sign inviting touch of products, increased impulse purchasing behavior (Peck and Childers, 2006). On the other hand, impairment to touch is expected to interact with a person's need for haptic information decreasing confidence in product evaluation (Peck and Childers, 2003b). Not surprisingly, situations differ in terms of haptic options, and some remote contexts, such as the Internet or television channels, eliminate the opportunity to touch the product, do that consumers rely mainly on the sense of vision.

Further research provides additional insight by indicating that Product Expertise is an individual factor (situation specific) that affects the motivation and preference for haptic information about salient material attributes (Yazdanparas & Spears, 2013; Selnes & Howell, 1999). Results from a study conducted by Selnes and Howell (1999) indicate that the degree of expertise reduces reliance on written cues and increases the reliance on sensory cues since experts have cognitive skills that enable them to better search for sensory information cues. Since non-experts lack these skills, they are more likely to base their evaluations

and subsequent choice on written or extrinsic descriptions (Selnes & Howell, 1999). The role played by product expertise was confirmed by Yazdanparas & Spears, 2013, which tested the reliance on hearing for making purchase decision for portable stereos, and found that experts and novices differ in their decision making and information acquisition (Yazdanparas & Spears, 2013). Thus, one can argue that in situations where sensory information such as touch is not accessible, product experts may have lower purchase intentions and confidence in product judgment since these consumers rely more on sensory information than novices (Yazdanparas & Spears, 2012b).

Cultural background may impact individual variation in need for touch NFT as it is related to individual touch avoidance and personal touching behavior, which vary across cultures. Individual variation in touching behavior correlates with differences between cultures and every society a cultural consensus related to touch; in addition, there are individual differences that determine how comfortable people are with touching and how they respond to being touched (e.g., Fromme et al. 1989). Researchers have examined individual differences in touch avoidance, which is defined as *the tendency to approach or avoid interpersonal communication by touch*, within corresponding to the concept in marketing that that individuals vary in their need for touch (NFT) (Peck and Childers 2003a). While NFT primarily relates to customers touching products – recent evidence (Peck and Wiggins 2011) suggests that individuals' desire to seek tactile input closely correlates with their need for sensory information obtained through the skin (Orth et all, 2013). Integrating this finding with reports that individuals differ in their desired level of sensory input (Krishna and Morrin

2008) suggests that individual differences in the NFT relates to a more general preference for sensory input obtained through the skin.

In fact, findings from a study conducted by Orth (2013) indicate that a salesperson's touch increases trust only when consumers have an inherent NFT or when they are from a culture where personal touching behavior is more prevalent (Orth et all 2013). Therefore, the cultural background of the customer may be another moderator of the individual NFT, which is related to personal touching behavior. The finding that the effects of interpersonal touch vary between individuals according to their NFT and PTB implies that the cultural background of a customer may lea to differing propensity of obtaining sensory information through the skin, but also to different levels of NFT.

2.3 NFT Scale:

With the growth of various forms of nontouch media (e.g., catalog, television and Internet shopping), individual differences, in preference for information obtained trough touch, are important to conceptualize and measure (Peck & Childers 2003a). Assessing the differential role of haptic information among consumers can contribute to a better understanding of consumer behavior across a broad range of domains (Peck & Childers 2003a). Until 2003, however, the preference for information obtained through the sense of touch had not been explored yet (Peck & Childers 2003a)

In 2003 Peck and Childers operationalized the individual difference in NFT developing and validating the "Need For Touch" scale to measure individual differences in preference for haptic information. It is a 12-item scale; whose

psychometric properties were empirically assessed in a set of studies, consisting in autotelic and instrumental dimensions (Peck & Childers 2003a). Six of the questionnaire items were chosen to measure the autotelic NFT of respondents, including them to rate the extent to which they agree with statements such as "*touching products can be fun*" and "*when browsing in stores, I like to touch lots of products."* The other six questionnaires were designed to measure the instrumental dimension of NFT; participants were asked to rate the extent to which they agreed with statements such as "*the only way to make sure a product is worth buying is to actually touch it*" (Gallace and Spence, 2011)

Individual differences in chronic accessibility to haptic information across groups were found in two experiments in which haptic information was found to be more chronically accessible for those higher in either instrumental or autotelic NFT (Peck & Childers 2003a).

2.3.1 Instrumental dimension

2.3.2 The instrumental dimension *of NFT refers to those aspects of pre purchase touch that reflect outcome-directed touch with a salient purchase goal* (Peck & Childers 2003a). Instrumental touch involves the costumer being confident and satisfied when evaluating the haptic properties of an object (texture, hardness, temperature, or weight) to make judgment about its functional attributes. The instrumental factor reflects the utilitarian orientation: the image of the consumer involved in this form of touch is that of a problem solver consciously engaged in the goal-directed activities of searching for information and arriving at a final product judgment (Peck & Childers 2003a). For example, when someone picks up a mobile phone to assess its weight to make an inference

about its portability, he is evaluating the product instrumentally. Instrumental touch includes goal-driven evaluative outcomes to eliminate doubts, evaluating, for example, quality and durability of products.

The ability to touch a product has been shown to increase positive attitudes and purchase intentions toward products that possess instrumental touch attributes such as the material properties of texture and softness (Grohmann, Spangenberg, & Sprott, 2007; Peck & Childers, 2003a, 2003b).

2.3.2 Autotelic dimension

The autotelic dimension of NFT relates to touch as an end in and of itself Peck & Childers 2003a). This form of touch refers to the sensory aspects of product touch, with no purchase goals necessary salient; it includes a hedonic oriented response to consumers seeking fun, arousal, sensory stimulation, and enjoyment (Holbrook and Hirschman, 1982). Thus, central to defining the domain of autotelic touch are its hedonics (e.g., enjoyment) and the compulsive or irresistible need to engage in exploratory variety sought via touch (e.g., lack of control and indiscriminate processing (Peck & Childers 2003a). Evidence for the appreciation of this experiential aspect of consumer behavior is found in museums that offer multisensory environments including music and hands-on displays of sculpture (Fiore, Moreno, and Kimle 1996) (Peck & Childers 2003a). Autotelic touch is also consistent with McClelland et al.'s (1989) discussion of the compulsive nature of an implicit motive

As a spontaneous behavior without a salient purchase goal, autotelic touch is reflective of impulsive behavior. (Peck & Childers 2003a). The impulse-purchase trait is characterized by the lack of a salient purchase goal, at least at

the start of the shopping experience (Peck and Childers, 2006). Researchers appear to agree that impulse buying involves a hedonic component (Ramanathan and Menon, 2002). Ramanathan and Menon (2002) argue that hedonic gratification underlies most impulse behavior, and that for impulsive people, hedonic motives are more chronically accessible. Ramanathan and Menon (2002) report that impulsive behavior occurred for both impulsive and non-impulsive when a hedonic goal was primed. The autotelic dimension of need for touch has is positively associated with experiential shopping, which is driven more by social or recreational purposes (Viera, 2013). In fact, in Both cases, that the experience of buying is driven more by the desire for fun than by the necessity of acquiring information to purchase a product (Viera, 2013)

2.3.3 International Validity of the NFT scale

Following studies have examined an individual's preference for NFT as a moderator variable influencing different relationships in marketing, supporting the existence of the of the autotelic and instrumental and the validity of the scale developed by Peck and Childers (Krishna, 2011; Peck and Shu, 2009; Gallace and Spence, 2011; Viera, 2013).

However, observing actual touching behavior during product evaluation would provide an important contribution to the NFT literature. A study, in which behavioral measures are used instead of questionnaires, should provide more reliable data (Gallace and Spence, 2011). Also, the fact that the NFT scale is used and accepted across different countries requires further research since scales and instruments have been used in various studies conducted in different countries without any change (Viera, 2013)

Viera (2013) suggests the necessity to test the cross-cultural generalizability of the Need For Touch scale since there could be culture-specific attributes and meanings. Also, language of the questionnaire affects the way respondents answer the same question.

2.4 Effect of Touch on Consumers Attitudes and Behavior

Wolf *et al*. (2008) found that touching objects increases peoples' willingness to pay for those objects. Research has investigated how product evaluation is affected by NFT, which directly impact costumer attitudes and behavior: confidence in judgment, perceived ownership of a product, affective reaction, and persuasion.

Peck and Childers (2003a) tested the role of NFT as a moderator of the relationship between direct experience and confidence in judgment; showing that for those higher in NFT, the lack of direct experience through a barrier to touch resulted in less confidence in their judgment; while, for those lower in NFT, direct experience did not result in elevated confidence. Also, Those high in need for touch are likely to be more frustrated when shopping if they do not have the opportunity to experience the product directly (Peck and Childers, 2003b). In contrast less haptically oriented people may still assess haptically oriented attributes, but they do so by visually examining a product (Klatzky, Lederman, and Matula 1993).

Peck and Wiggins (2006) and (2011) found that pleasant touch influences persuasion for both high and low NFT, leading to an increased affective response,

which in turn, influences positively product evaluation. In addition to examining specific instrumental product information through touch, their research has investigated and found the experience of touching an object can influence persuasion, even if the touch element provides no information regarding the functionality of the product. They explored the persuasive influence of touch as an affective tool in the absence of useful product-related information and found that touch has a moderated mediation affect on affective response and persuasion (Peck and Wiggins 2006). The authors find that for people who are motivated to touch because it is fun or interesting, touch that provides neutral or positive sensory feedback leads to increased affective response and persuasion. People who are not motivated to touch for fun will also be persuaded by pleasant touch, but only when they are able to make sense of how the touch is instrumentally related to the product (Peck and Wiggins 2006). Two years later saw the extension of this research where manipulation toward involvement with the product was present. It was found that under conditions of low interest toward the product, an appeal that includes an enjoyable haptic element could also be persuasive for low autotelics. It is important to emphasize that from their experiments in which a soft fabric swatch was used, while the effect of touch was positive across the board the affective response effect was greater in high NFT individuals (Peck and Wiggins 2006). It can be seen that touch which is not necessary for product evaluation can result in an increased affective response and persuasion for both high and low need for touch individuals.

Further research found that product touch, whether pleasant or not influences perceived ownership generating an affective reaction; which in turn can

impact product evaluation positively or negatively, depending on the valence of the touch experience. Peck and Shu 2009 state that the emotional experiences that can be generated through physical touch, can be powerful and resonate with the emotional nature of loss aversion*: for individuals who are high in NFT, taking away the object that provides that pleasure may be increasingly painful.* More specifically, it has been empirically tested that perceived ownership and affective reaction could mediate the effect of touch on valuation (Peck & Shu, 2009). Also, when touch is unavailable, ownership imagery is effective being able to substitute the touch experience. It was found that the opportunity to touch an object increases the feeling of perceived ownership of that object and that the valuation of the object is also increased when the touch experience provides either neutral or positive sensory feedback. Therefore, touch directly influences perceived ownership and the valence of touch whether pleasant or not, together with perceived ownership, influences object valuation. Peck and Shoo (2009) conducted a study using two popular toys a slinky and play foam, measuring the effect of the individual affective reaction towards an object generated by touch. Whereas this effect was positive for the enjoyable slinky, it becomes negative for the unpleasant play foam, resulting in a lower affective reaction among participants who could touch the play foam than among those who could not (Peck & Shoo, 2009). While touch impacts evaluation by increasing perceived ownership and affective reaction; it is true that pleasant touch leads to a positive attitude toward the product and unpleasant touch lead to a negative experience and attitude toward product.

On the other hand, according to Grohmann, Spangenberg, and Sprott

(2007), the effects of tactile input are best explained by an information-processing mechanism rather than in terms of its affective reaction towards the product. That is, the effect of touch should be related to the amount of information that this sensory modality provides to the cognitive processes leading up to the evaluation of the stimulus, rather than to the affective value that touch carries. However, his claim deserves further investigation, whilst noting that recent evidence has highlighted the affective contribution of tactile input to people's evaluative responses.

Wolf *et al*. (2008) found that touching objects increases peoples' willingness to pay for those objects. Grohmann, Spangenberg, and Sprott (2007) added another important contribution to the literature by addressing the question of whether, and under what conditions, the presence of tactile input would positively affect consumers' evaluation of retail products. Their results demonstrated that tactile input (consisting of the active manipulation of products) did indeed influence people's product evaluations. As one might have expected, they showed that tactile input had a positive effect on the evaluation of products with characteristics that were best explored by touch (e.g., softness and texture for the evaluation of a pillowcase; Underhill, 1999). More interestingly, they also found that the effect of touch was particularly positive for high-quality products; by contrast, tactile input generally had a negative effect on participants' evaluations of lower-quality products. Tactile input had a positive effect on the evaluation of products with characteristics that were best explored by touch, for example, softness and texture for the evaluation of a pillowcase (Underhill, 1999). More interestingly, they also found that the effect of touch was particularly

positive for high quality products; by contrast, tactile input generally had a negative effect on participants' evaluations of lower quality products.

The effect of touch for fast-moving consumer goods has been explored in a study conducted by Marlow and Jansonn-Boyd (2011). By altering the surface texture of two products, soap and biscuits, both visual appreciation and tactlile sensing were compared; finally, consumer's perception of the packaging of the goods was affected more by vision than by touch. Therefore, it is not true that marketers should always try to encourage consumers to engage in extensive tactile interaction prior to purchase. (Grohmann et all, 2007).

CHAPTER 3

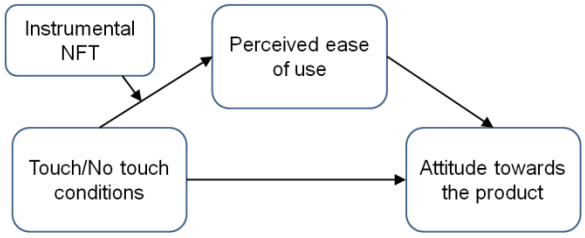
Studies 1 & 2

3.1 Instrumental product: Calculator

3.1.1 Research Hypotheses

- H1: Touching an instrumental product increases consumer perception of the ease of using that product;
- H1a: The effect of touch on perceived ease of use of instrumental products is stronger for consumers who have a high Instrumental NFT;
- H2: Perceived ease of use mediates the positive effect of touch on consumer attitude towards an instrumental product;
- H2a: The mediation effect of perceived ease of use is stronger for consumers who have a high instrumental NFT.

Figure 1: Theoretical framework tested in Study 1



3.1.2 Procedure

We conducted an in-lab study to test the validity of our research hypotheses. A total of 106 undergraduates (mean age = 22 years, SD = 2.28, 63% males) participated in this Study. They were randomly approached by a confederate in a university campus and invited to take part in marketing survey. The survey involved the completion of an online questionnaire and the evaluation of an instrumental product, i.e., a scientific calculator. We chose such a product because consumer electronics (e.g., laptops, smartphones, etc.) are products that are commonly touched for instrumental purposes (cf. Peck and Childers 2003a) and because of its familiarity to the selected sample.

Participants initially filled in Peck and Childers (2003b) NFT scale, which consists of twelve items: six items measure an individual's autotelic NFT (e.g., "Touching products can be fun"); the others measure an individual's instrumental NFT (e.g., "The only way to make sure a product is worth buying is to actually touch it"; 1 = Strongly agree, 7 = Strongly disagree). Then they interrupted the completion of the questionnaire and were presented with the selected instrumental product by the confederate. Those in the "Touch" condition (N_{Touch} = 53) were allowed to touch the product and physically examine it; those in the "No touch" condition ($N_{\text{No touch}}$ = 53) were not allowed to touch the selected product. After touching/seeing the product, participants continued to fill in the online questionnaire. They indicated how ease, in their opinion, would be to use that ("I think that the test-product is easy to use"; "I would feel comfortable using that product"; "It would have no difficulty to use that product" 1 = Strongly agree, 7 = Strongly disagree). Then, participants expressed their attitude towards the test-

product on a two item 7-point bipolar scale (bad-good; negative-positive). The questionnaire finally gathered their socio-demographic data (gender and age).

3.1.3 Results

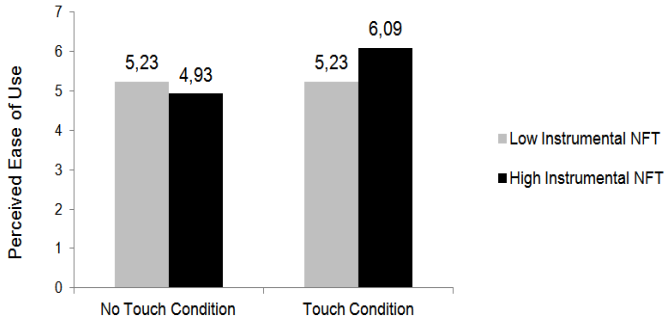
On average, participants exhibited a modest Instrumental NFT (M = 4.27, SD = 1.08). Subjects in the Touch condition perceived the tested product more ease to use than subjects in the "No touch" condition ($M_{\text{No touch}}$ = 4.73, *SD* = 1.52; M_{Touch} = 5.30, *SD* = 1.38, $F(1, 105) = 4.02$, $p < 0.05$).

Moderation effect of Instrumental NFT − We ran a linear regression model that assessed respondents' Perceived ease of use as a function of the "Touch" versus "No touch" conditions (coded as -1 and + 1, respectively), respondents' instrumental NFT (continuous and mean centered), and the interaction between these two variables. Results revealed a non significant main effect of Instrumental NFT and a significant main effect by the Touch/No touch condition on Perceived ease of use ($b = 0.32$, $t(104) = 2.33$, $p < 0.05$), suggesting that touching the examined product led respondents to perceive is easy to use. This finding confirmed H1a.

The analysis also returned a significant positive interaction between Instrumental NFT and the Touch/No touch conditions ($b = 0.38$, $t(104) = 2.93$, $p < 0.01$) suggesting that, when respondents had the opportunity to touch the product, Instrumental NFT led them to perceive the product easy to use (see Figure 2). We probed this interaction more closely by looking at the conditional effects of the Touch/No touch condition on Perceived ease of use at low (M - 1SD) and high (M + 1SD) levels of Instrumental NFT (Hayes, 2013). For participants who resulted

low in Instrumental NFT (M-1SD), the Touch/No touch conditions did not affect Perceived ease of use (b = -0.13, $t(104)$ = -0.67, $p > 0.05$). On the opposite, for participants who resulted high in Instrumental NFT (M+1SD), the Touch/No touch condition had a positive and significant effect on Perceived ease of use (b = 0.96, $t(104)$ = 3.52, $p < 0.01$). Based on these results, we accepted hypothesis H1b.

Figure 2: Perceived ease of use as a function of the Touch/No touch conditions and respondents' Instrumental NFT



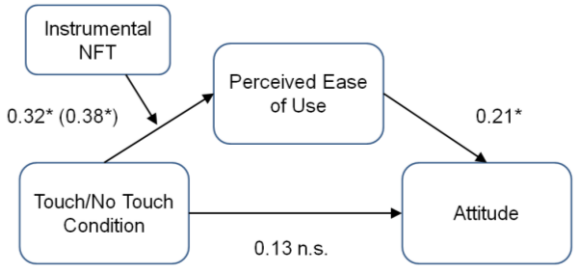
Mediation effect by Perceived ease of use − We ran another linear regression analysis to test the Touch/No touch condition has an effect on respondents' attitude towards the tested product through Perceived ease of use. We found that the Touch/No touch condition has a marginally significant effect on Perceived ease of use (b = 0.28, $t(104)$ = 2.00, p = 0.05). Controlling for the Touch/No touch condition, Perceived ease of use proved to exert a significant positive effect on respondents' attitude towards the tested product (b = 0.21,

t(104) = 2.59, *p* < 0.05). Controlling for Perceived ease of use, the Touch/No touch condition proved to exert a non significant effect on respondents' attitudes towards the tested product (*b* = 0.13, *t*(104) = -0.37, *p* > 0.05), thus suggesting total mediation. The direct path from the Touch/No touch condition to respondents' attitudes towards the tested product was not significant (CI: -0.10, 0.36); conversely, the indirect effect through perceived ease of use was significant, with the 95% confidence interval excluding zero (CI: 0.00, 0.16) and suggesting *an indirect only* mediation effect (Zhao, Lynch Jr. and Chen 2010). Based on these results, we accepted hypothesis H2.

Moderated mediation effect of Perceived ease of use and Instrumental NFT − We ran a third linear regression analysis to test whether respondents' attitude towards the tested product is simultaneously moderated by Instrumental NFT and mediated by Perceived ease of use. This analysis revealed a significant main effect of the Touch/No touch condition on Perceived ease of use (*b* = 0.32, *t*(104) = 2.33, *p* < 0.05) and a non significant main effect of Instrumental NFT on Perceived ease of use (*b* = -0.10, *t*(104) = -0.76, *p* > 0.05). The analysis also revealed a significant interaction effect of the Touch /No touch condition and Instrumental NFT on Perceived ease of use (*b* = 0.38, *t*(104) = 2.93, *p* < 0.05). Results also revealed that, controlling for the Touch/No touch condition, Perceived ease of use exerted a significant positive effect on respondents' attitude towards the tested product (*b* = 0.21, *t*(104) = 2.59, *p* < 0.05). While, controlling for Perceived ease of use, the Touch/No touch condition proved to exert a non significant effect on respondents' attitude towards the tested product (*b* = 0.13, *t*(104) = 1.11, *p* > 0.05).

The direct path from the Touch/No condition to respondents' attitudes towards the tested product did not result significant (CI: -0.10, 0.36). While, consistent with our expectations, Perceived ease of use proved to exert an indirect effect on respondents' attitude towards the tested product. However, such an effect resulted significant only for respondents who resulted high in Instrumental NFT (*b* = 0.96, *CI*: 0.03-0.31). A significant index of moderated mediation (CI: 0.01, 0.19) confirmed the validity of Hypothesis H2b. The results of the tested research framework are synthesized in Figure 3.

Figure 3: Results of the mediated moderation of model tested in Study 2



Note: 0.32* = Main effect (of the Touch/No touch condition); 0.38* = Interaction effect.

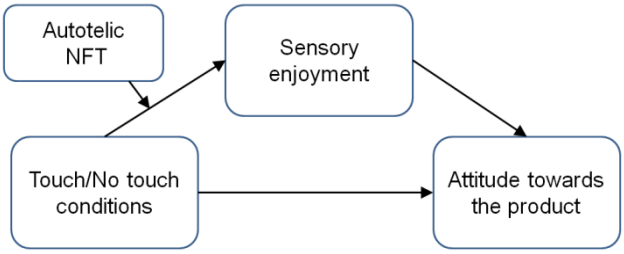
3.2 Autotelic product: Pillow

3.2.1 Research hypotheses

- H1: Touching an autotelic product increases consumer sensory enjoyment of that product;
- H1a: The effect of touch on sensory enjoyment is stronger for consumers who have a high autotelic NFT;

- H2: Sensory enjoyment mediates the positive effect of touch on consumer attitude towards an autotelic product;
- H2a: The mediation effect of sensory enjoyment is stronger for consumers who have a high autotelic NFT.

Figure 1: Theoretical framework of Study 2



3.2.2 Procedure

We conducted another in-lab study to test the validity of our research hypotheses A total of 105 undergraduates (mean age = 37 years, 39% males) participated in this study. They were randomly approached by a confederate in a university campus and invited to take part in a marketing survey.

Also in this case, the survey involved the completion of an online questionnaire and the evaluation of an autotelic product, i.e., a pillow (with a silk cover). We chose such a product, which has been testesd in previous literatures (cf. Grohmann, Spangenberg and Sprott 2007), because softness, which is a prior characteristic of this type of product, has an instrinsic autotelic nature.

Participants initially filled in Peck and Childers (2003) NFT scale, which consists of twelve items: six items measure an indiviudal's autotelic NFT (e.g.,

"Touching products can be fun"); the others measure an indiviudal's instrumental NFT (e.g., "The only way to make sure a product is worth buying is to actually touch it"; 1 = Strongly agree, 7 = Strongly disagree). Then they were presented with the selected autotelic product, i.e., a pillow with a silk cover. Those in the "Touch" condition ($N_{\text{Touch}} = 59$) were allowed to touch the product and physically examine it; those in the "No touch" condition ($N_{\text{No touch}} = 46$) were not allowed to touch the selected product. After touching/seeing the product, participants continued to fill in the online questionnaire. They indicated how enjoying was evaluating the product ("I enjoyed evaluating the test-product"; Evaluating that product was stimulating to me"; "It was pleasing to evaluate that product" 1 = Strongly agree, 7 = Strongly disagree). Then, participants expressed their attitude towards the test-product on a two item 7-point bipolar scale (bad-good; negative-positive). The questionnaire finally gathered their socio-demographic data (gender and age).

3.2.3 Results

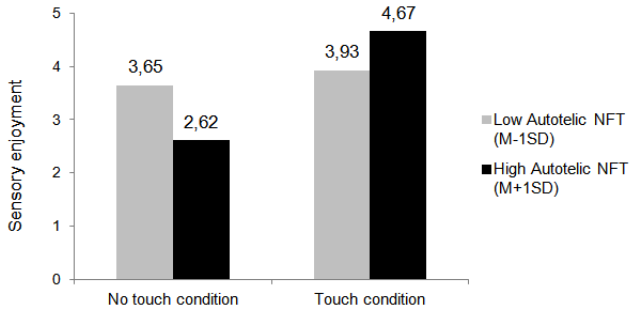
On average, participants exhibited a discrete Autotelic NFT (M = 5.35, SD = 1.35). Subjects in the Touch condition perceived a higher sensory enjoyment than subjects in the "No touch" condition ($M_{\text{No touch}} = 3.12$, $SD = 1.37$; $M_{\text{Touch}} = 4.29$, $SD = 1.36$, $F(1, 9) = 19.02$, $p < 0.01$).

Moderation effect by Autotelic NFT − We ran a linear regression model that assessed respondents' sensory enjoyment as a function of the "Touch" versus "No touch" conditions (coded as -1 and + 1, respectively), respondents' Autotelic NFT (continuous and mean centered), and the interaction between these two

variables. Results revealed a non significant main effect by Autotelic NFT (b = -0.06, $t(103)$ = -0.50, $p > 0.05$) and a significant main effect of the Touch/No touch conditions (b = -0.58, $t(103)$ = 4.50, $p < 0.05$) on Sensory enjoyment. This latter finding confirmed Hypothesis H1.

The analysis also revealed a positive significant interaction effect between Autotelic NFT and the Touch/No touch conditions (b = 0.35, $t(103)$ = 3.17, $p < 0.001$) on Sensory enjoyment, thus suggesting that, when respondents had the opportunity to touch the product, a high Autotelic NFT increases their feeling of enjoyment (see Figure 2). We probed this interaction more closely by looking at the conditional effects of the Touch/No touch condition on Perceived ease of use at low (M - 1SD) and high (M + 1SD) levels of Autotelic NFT (Hayes, 2013). For participants who resulted low in Autotelic NFT (M-1SD), the Touch/No touch conditions did not affect Sensory enjoyment (b = 0.14, $t(103)$ = 0.73, $p > 0.05$). On the opposite, for participants who resulted high in Autotelic NFT (M+1SD), the Touch/No touch condition had a positive and significant effect on Sensory enjoyment (b = 1.02, $t(103)$ = 5.44, $p < 0.05$). Based on these results, we accepted Hypothesis H1a.

Figure 2: Perceived ease of use as a function of the Touch/No touch conditions and respondents' Autotelic NFT



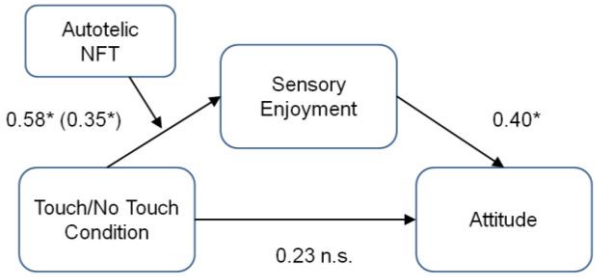
Mediation effect of Sensory enjoyment – We ran another linear regression analysis to test the Touch/No touch condition has an effect on respondents' attitude towards the tested product through Sensory enjoyment. We found that the Touch/No touch condition has a positive significant effect on Sensory enjoyment (b = 0.59, $t(103)$ = 4.36, $p < 0.05$). Controlling for the Touch/No touch condition, Sensory enjoyment proved to exert a significant positive effect on respondents' attitude towards the tested product (b = 0.40, $t(103)$ = 4.37, $p < 0.05$). Controlling for Sensory enjoyment, the Touch/No touch condition proved to exert a non significant effect on respondents' attitudes towards the tested product (b = 0.23, $t(103)$ = 1.70, $p > 0.05$), thus suggesting total mediation. The direct path from the Touch/No touch condition to respondents' attitudes towards the tested product was not significant (CI: -0.04, 0.50); conversely the indirect path through Sensory enjoyment was significant, with the 95% confidence interval excluding zero (CI: 0.09, 0.41). Based on these results, we accepted Hypothesis H2.

Moderated mediation effect of Sensory enjoyment and Autotelic NFT – We ran a third linear regression analysis to test whether respondents' attitude towards the tested product is simultaneously moderated by Autotelic NFT and

mediated by Sensory enjoyment. This analysis revealed a significant positive main effect of the Touch/No touch condition (b = 0.58, t(103) = 4.50, $p < 0.05$) and a non significant effect of Autotelic NFT (b = -0.06, t(103) = -0.50, $p > 0.05$) on Sensory enjoyment. The analysis also revealed a significant interaction effect of the Touch/No touch condition and Autotelic NFT on Sensory enjoyment (b = 0.35, t(103) = 3.17, $p < 0.001$). Results also revealed that, controlling for the Touch/No touch condition, Sensory enjoyment exerted a significant positive effect on respondents' attitude towards the tested product (b = 0.40, t(102) = 4.37, $p <$ 0.05). While, controlling for Sensory enjoyment, the Touch/No touch condition proved to exert a non significant effect on respondents' attitude towards the tested product (b = 0.23, t(102) = 1.70, $p > 0.05$), thus suggesting total mediation.

The direct path from the Touch/No condition to respondents' attitudes towards the tested product did not result significant (CI: -0.04, 0.50). Consistent with our expectations, the Touch/No touch conditions proved to exert an indirect effect on respondents' attitude towards the tested product. However, such an effect resulted significant only for respondents who resulted high in Autotelic NFT (b = 0.41, *CI*: 0.20-0.66). A significant index of moderated mediation (CI: 0.06, 0.25) confirmed the validity of Hypothesis H2a. The results of the tested research framework are synthesized in Figure 3.

Figure 3: Results of the mediated moderation of model tested in Study 2



Note: 0.58* = Main effect (of the Touch/No touch condition); 0.35* = Interaction effect.

CHAPTER 4

Theoretical and managerial implications

4.1 Managerial Implications

Literature on NFT suggests that a more intelligent exploitation of the sense of touch by marketers might have a profound impact on consumer behavior given that tactile stimulation has a dramatic effect on multisensory product evaluation in terms of the notion of *affective ventriloquism* (Gallace & Spence, 2011). Marketers have a variety of options when attempting to alleviate, or circumvent, the problems associated with the likely ongoing lack of tactile experience resulting from the increase in Internet- based purchasing and from the growth of the ageing population, and in order to exploit the opportunities provided by haptic in communication, advertising, product design and retail environment.

4.1.1Traditional Retail Store Implication

Touch has significant implications for in-store and point-of-purchase displays (Peck &Wiggins, 2006). Marketing applications that focus on instrumental touch have been shown to have an effect on purchase behaviour. In another study, McCabe and Nowlis (2003) reported that consumers preferred to select those products from retailers, which allowed their products to be touched, especially products for which tactile input is important for evaluation (e.g., clothing, or portable electronics (Gallace & Spence, 2011). A point-of-purchase sign encouraging touch exploration may increase the salience of touch information motivating individuals to touch and impulsively purchase the

displayed product (Peck and Childers 2006). For example, providing unwrapped rolls of toilet paper at a point-of-purchase allowed customers to feel and compare the textures of different brands resulting in large increases in sales for the store brand in a supermarket chain (Lindstrom, 2005). People who are high in autotelic NFT are drawn to opportunities to touch and are likely to respond to opportunities to touch clothing, paper goods, and other products that provide positive sensory feedback, even if they are not in the process of evaluating the product (Peck &Wiggins, 2006).

A display that encourages touch may lead customers to interact with products that they otherwise would have ignored, which in turn may increase impulse and unplanned purchases (Peck and Childers 2006). The clothing store The Gap has been very successful in making the most of such opportunities for tactile appraisal by their customers (Gallace and Spence, 2011). In any Gap store there are tables piled high with clothes, all positioned at an easy-to-touch height with customers handling goods freely (Underhill, 1999). Also, Apple encourages touch of its products in retail stores; for example, when handling ant iPhone, perceived ownership may be increased and so too the amount the customer is willing to pay for it, even in the absence of ownership imagery (Peck & Shu, 2009).

However, there is a flip side to allowing tactile exploration, namely the possibility of "tactile contamination." (Gallace & Spence, 2011). That is, while people like to touch certain product that does not mean that they like to purchase products they believe to have already been touched by customers. It has been estimated that people, indeed buy less than 25% of the items they actually touch

in store (Spence and Gallace, 2011). Evidence is given by routine behavior such as taking a newspaper or magazine from the stand from anywhere avoiding the one on the top of the pile (Gallace & Spence, 2011). Such behavior is not irrational when seen in light of the fact that store towels are touched by an average of six shoppers before being purchased (Underhill, 1999, p. 162).

Also, unique aspects of the in-store environment, such as music, lighting, layout, and signage, may affect a consumer's decision making process inducing or hindering product touch (Underhill, 1999). For example Hollister and Abercrombie retail outlet revolutionized teenage shopping by recreating a discotheque atmosphere within their store through low lighting and music inducing product touch.

Another important implication that the need for touch literature offers on the management of traditional retail stores, comes from the findings that incorporating relevant verbal information to sensory information, enhances the effect of touch on evaluation. Shapiro and Spence (2002) have shown that sensory information is more easily retrieved from memory and more likely to impact the decision making process when it is associated with verbal criteria aimed at mitigating its implicit ambiguity. The results of this experimental study are consistent with a study conducted by D'Astous and Kamout, (2010), which demonstrates the positive impact of providing consumers with verbal information for their encoding of sensory information. In their experiment, half of the participants were given verbal information about the essential attributes of the silk before having the opportunity to see and touch; while the remaining participants were able to touch and see the product without prior information. Results have demonstrated that those who also relied on verbal information could later identify

the product they had experienced more efficiently than the participants who relied on sensory information only (D'Astous and Kamout, 2010). Those participants who were given verbal information demonstrated more confidence in their own judgment than the others and had a better memory resulting from product experience. These results showed that memory, confidence in memory, and confidence in product evaluation were positively influenced by the availability of verbal information and therefore support the proposition that relevant verbal information can improve the encoding, retention, and retrieval of consumer experiences that include sensory information and lead to preferences that are better defined. Thus, providing shoppers with a consumption vocabulary would help retailers maximize the positive effect that touching products has on purchase intentions. Therefore, it would seem to be preferable to encourage product touch allowing consumers to be haptically engaged with merchandise. Traditional signage prohibiting the handling of product should now be a ting of the past, since they clearly block important communication channels. (Grohmann et all, 2007).

Viera (2013) suggests that supermarkets should provide the opportunity for men to touch soap products inside the store. This generates more information and increases confidence in judgment. He believes that specific products for men, such as Dove Man Care, can sell more units using this retail strategy (Viera, 2013)

However, we do not know if this theory can be applied to all products. First the feeling of a low quality product has been demonstrated to lead to a decrease in product value. Another study examined the effects of tactile information fast-moving consumer goods indicating that touch has a marginal role with respect to vision, and that when assessing the value of a biscuit box the haptic sensory information consistently lowered the overall evaluation (Marlow

and Jansson-Boyd, 2011). Thus, marketers should not encourage tactile interaction in every instance. Attention should be focused on making certain products visually appealing, while others appealing from a tactile point of view. (Marlow and Jansonn-Boyd, 2011). Consequently, future studies ought to investigate different types of product categories in order to establish exactly how each one could be affected by tactile evaluation, then applying those findings to product design and packaging.

4.1.2 Product Design and Packaging

In order to enhance product value, haptic stimulation may be used on every occasion where the consumer physically interacts with the product. Haptic stimulation may start as early as the unpacking of a product (e.g. when a consumer handles the box, unties the ribbon and takes the product out of its tissue paper) or may arise even after the product is in use (e.g. when a consumer touches the back cover of a cell phone, the touchscreen of a tablet, keyboard of a laptop) (Atakan, 2014). This has significant implications for both designers and marketing managers alike. Every occasion that the consumer physically interacts with the product may be used to increase a bond between consumers and their products (Atakan, 2014).

Results from Grohmann, Spangenberg, and Sprott (2007) suggest that providing an opportunity to touch various products does not necessarily have an absolute effect on people's liking for them. Touching poor-quality linen might actually lead to a more negative evaluation of the product compared to a condition in which people are only allowed to see the product. This might suggest that, for a number of items, "tactile quality" should even come before "visual quality" in the mind of product designer. This theory is substantiated by peck and Wiggins

(2006) findings, stating that touch influences attitude toward the product in a positive or negative way, depending on the touch experience.

Essential to marketing must be product packaging. Designers need to consider touch literature implications. Because barriers to touch are especially frustrating to shoppers who are high in NFT, product packaging that enables some haptic exploration may be worthwhile (Peck & Childers 2003b). Some evidence suggests that tactile elements of product packaging can even contribute to the overall brand image of a product (Peck ad Wiggins, 2006). For example, Lindstrom (2005) discusses Coca-Cola's use of the nostalgic glass bottle to reinforce its brand image and suggests that it is the tactile sensation, the feel of the bottle in the customer's hand that is associated with the brand. Packaging impacts product perception, several studies have shown that the color and feel of a package make a difference in product appeal. Also, packaging, when appropriate might enhance the qualities of food or beverages contained therein (Krishna & Morrin, 2008)

A subconscious association between product quality and container or shape influences customers. For example some kind of packaging are associated with freshness such as tetra pack format traditionally used for milk whilst promotion of soup product in tetra pack has been extremely successful consumers have rejected this format in wine in favor of the traditional association of quality attributed to a glass bottle (Spence and Gallace 2011).

While many such decisions have led to hugely successful products and marketing campaigns, it is important to note that the majority of all new products fail (estimated at around 70–80%)Underhill, 1999, p. 163; see also Robinson, 1998, p. 134; Zaltman, 2003, p. 3). This has led many companies to wonder whether there might not be a better way to go about product design, development, and marketing. (Spence and Gallace 2011)

4.1.3 Advertising Implications

NFT literature has important implications in a firm's communication strategy. Research highlighted that touch is beneficial when incorporated into marketing messages in a variety of contexts. In fact, haptic elements have been adopted recently to enhance a variety of advertising campaign. For example, high-end products are sending advertising through direct mailings incorporating the innovative uses of tactile graphics and tactile design second (Spence and Gallace 2011).

For High NFT consumers an advertisement using pleasurable haptic feedback may influence the attitude toward the ad and the product (Peck & Childers 2003b). Peck and Wiggins (2006) find that for people who are motivated to touch because it is fun or interesting, a communication that incorporates touch leads to increased affective response and increased persuasion, particularly when the touch provides neutral or positive sensory feedback. People who are not motivated to touch for fun will also be persuaded by a communication that incorporates touch when they are able to make sense of how the touch is related to the message

These studies suggest that touch elements provide unexpected information and can be used along with pictures, photos, colour, humour, and other elements to increase the persuasiveness of print advertising (Peck &Wiggins, 2006.) They have been shown to increase further the persuasiveness of advertisements, when consumers are able to make sense of how these elements are congruent with the message (Lee and Mason 1999; Peck &Wiggins, 2006).

Incorporating touch may help adding a hedonic aspect to advertising and other marketing communication tools since ads that are rich in sensory content

enhance the affective response (Peck &Wiggins, 2006). An example is given by the marketing campaign by Unilever for its Surf fabric conditioner in which visual images involving people touching soft materials are used to "evoke" the softness of the results that can be obtained by using the product (Gallace & Spence, 2013)

Therefore, ads ought to stress the emotional side of the product. Similarly, demonstrating pictures in the ads that evoke positive feelings can be extremely useful. For example, incorporating humor or famous people or feel-good vignettes or appeals that ask the consumer to imagine how great they will feel upon buying the product are identified as being potential successful strategies (Yazdanparast & Spears, 2012b.).

When marketing product with distinctive tactile/ haptic properties traditional advertising avenues can be limiting as information is conducted exclusively through the eye and the ear (e.g., Johnson, 2007). Alternatives to touch have been found in advertising, for example in the use of touch-related adjectives in advertising or naming a given product or showing somebody touching the product. This is particularly true from laundry products such as fabric conditioners, beauty products and accessories, everyday household items and even beverages. Another example is given by Nivea's new Irresistibly Smooth and Light Touch body lotions, (Spence and Gallace, 2011)

Another approach is the adoption of synesthetic advertising to stimulate a sense indirectly. The Lou Lou perfume brand used the synesthetic copy "When the perfume becomes a caress . . . "; Purex Toss 'n Soft fabric softener claimed "Softness you can smell"; and for Skin Musk cologne, the strap line was "If warmth had a scent, it would be Skin." In the aforementioned examples, advertising stimulates tactile sensations through synesthetic associations. If

anything, this trend toward sensory blending is predicted to increase in the coming years (Gallace and Spence, 2011).

Many advertisers have also repeatedly attempted to simulate the sense of touch through visual content. Potential buyers can be equally convinced to consider purchase of products such as foods, drinks, fabric conditioners, furniture, moisturizing creams, and clothing, when accompanied by *images* selected to evoke tactile sensations A final successful approach to the advertising of the tactile attributes of products has come from the modification of the auditory cues of a product in an advertisement. This technique can be used to suggest to the customer what the tactile qualities of the product will be like. For instance, the sound of the crack of the chocolate on a Magnum ice cream tells the person who is eating it (and anyone else who can hear the sound about the tactile attributes of the chocolate coating (Gallace and Spence, 2011)

4.1.4 Non-store Retailing

Literature on NFT suggests that sales of product categories that consumers perceive to not differ on material properties are more likely to flourish through non- touch media (Peck & Childers 2003b). Importantly, researchers have shown that consumers experience a greater need to touch certain classes of product prior to purchase than others (Lindstrom, 2005). For example, a survey, with more than 270 undergraduates on a university campus in the U.S., conducted by Citrin and colleagues, revealed that the only product that students reported a significant need to touch prior to making an Internet-based purchase was clothes (see also Underhill, 1999). By contrast, participants claimed that they would be happy to make Internet purchases of books, videos, compact discs, electronics, and/or flowers without having the opportunity to touch them first.

There are, in fact, many other categories of products that customers never need to touch. For example, touching a light bulb it is not considered a necessity for purchase (see Underhill, 1999, pp. 162–163). Amazon.com, one of the most successful Internet retailers, offers books, music, and videos, which are all product categories for which haptic attributes are not diagnostic among choices. Similarly, *BusinessWeek* has detailed products that sell well over the Internet and estimated their expected sales (Hof, McWilliams, and Saveri 1998). Products selling better than others over the Internet includes financial services, entertainment, travel, personal computer hardware and software, books and music, tickets for events, and clothing and apparel (Peck & Childers, 2003b). Of all the categories, only clothing and apparel vary appreciably on material properties (Peck & Childers 2003b. It has been predicted that clothing sales on the Internet would be one of the slowest growing categories (Hof, McWilliams, and Saveri 1998) and that current sales skew toward unfitted clothing items (Peck & Childers 2003b). In addition to specific product categories in which consumers would be less willing to forgo pre purchase touch, NFT literature demonstrates that certain consumers would also be less willing to forgo pre-purchase touch (Peck & Childers 2003b). High-NFT shoppers may be difficult to convert to users of no touch media; therefore, some companies will necessarily have to be present both online and offline through an integrated "bricks and clicks" strategy may be necessary (Peck & Childers 2003b).

Another important implication for online retailers is given by the insight that a high level of Product expertise and a high need for touch work together resulting in lowering purchase intention and confidence in product judgment when touch is not available (Yazdanparast & Spears, 2012b). Because experts have an enhanced

understanding of the products in a category, a hierarchical Web site design with click- through capabilities to obtain more detailed information could be beneficial (Yazdanparast & Spears, 2012b). Moreover, expert chat features could be included for those who may prefer to engage in a higher level of analytical product information (Yazdanparast & Spears, 2012b). Because consumers generally have less expertise and knowledge about new products or features, the Internet may be a sound channel for product launch. When products are launched through online channels, non-expert consumers as well as early adopters may be satisfied with the product based only on the written descriptions provided through the Web site (Yazdanparast & Spears, 2012b). As further knowledge and expertise comes to light, suitability of the product in traditional retail outlets will give the accessibility of sensory information sought by consumers who are product experts (Yazdanparast & Spears, 2012b).

The finding that high and low need for touch individuals differ in their processing strategies (relational versus systematic) also provides important implications for online merchants (Yazdanparas & Spears, 2012). Because high NFT individuals would favour more feature-based information as opposed to an overall evaluation of the product, incorporating options that provide additional details could improve online sales (Yazdanparas & Spears, 2012). Moreover, online retailers could employ tactics that interact with and/or influence the feature-by-feature processing approach of high-NFT consumers and consequently lower their reliance on analytical information processing (Yazdanparas & Spears, 2012). Thus, e-tailers can provide different levels of information about products in varying formats (list vs. hierarchical) that match the information gathering style of customers Yazdanparast & Spears, 2012)

4.2 Compensatory Mechanisms for High Need for Touch

The obstacle of inability to touch for high need for touch customers can be mitigated by online retailers if they are able to compensate for haptic information. Compensatory mechanisms for high need for touch individuals have been identified by demonstrating that situational factors can moderate the influence of haptic need on important response variables in an online context (Yazdanparast & Spears, 2013). Price promotions, level of situation-specific product and positive mood expertise are influential, yielding greater purchase intentions and product judgment confidence when touch is not available (Yazdanparast & Spears, 2012b).

4.2.1 Non Haptic Cues

Findings indicate that price promotion with other situational nonhaptic factors is likely to motivate high-NFT consumers to purchase in an online context (Yazdanparast & Spears, 2013). Also, Brand names, low prices, or other nonhaptic compensation mechanisms (Kirmani and Rao 2000) may signal both high and low NFT shoppers to forgo product touch before purchase. (Peck and Childers 2003b). If a consumer is aware that products in a category differ with respect to a haptic attribute, but there is no opportunity for direct touch, a nonhaptic cue, such as a brand name, a return policy, a warranty, or a low price, may serve as a compensation mechanism that moderate consumer's motivation to obtain haptic information. The study conducted by Yazdanparast & Spears, 2012b provides the first empirical support for the proposed role of low prices on the purchase behaviour of haptically motivated individuals and adds to our understanding of promotional tactics as risk relievers.

Sales promotions entice consumers to act first without initially forming product attribute beliefs or affect toward the target. Because behaviour is directly influenced first, retailers could utilize the Internet as a channel in a twofold way: first, the Internet channel could be used for products that are no longer offered in the brick-and-mortar stores. Second, the online venue could be employed for online exclusive products, new product offerings, or brand extensions aimed at capturing large early market share using promotional deals (Yazdanparast & Spears, 2012b).

Also, this investigation suggests that the frustration of not being able to touch products experienced by high-NFT individuals can be offset by positive mood strategies. Inducing a positive mood has the potential to stimulate actionable responses for those who rely heavily on haptic information without dampening the responses of those low in haptic requirements. E-store layout, visual artistic graphics, and embodied conversational agents that make the Web site "socially warm" may foster a positive mood state. Yazdanparast & Spears, 2012b.

4.2.2 Pictures and Written Descriptions

In the absence of direct product experience, concrete haptic written descriptions and visual depictions of products can partially enhance acquisition of certain types of touch information (Peck and Childers 2003b). In the experiment conducted by Peck and Childers (2003b) Low-NFT subjects were more likely to increase confidence in their judgment by using both haptic and nonhaptic information to infer product quality. On the other hand, high-NFT subjects were more likely to form their beliefs through written haptic descriptions.

For some individuals, ownership imagery may serve as a substitute source of emotional experiences connected to the object touch, as evidenced in study by Peck and Shu (2009). This has important implications not only for traditional retailers but also for catalogue or online merchants. Offers of a “free trial” for a certain time period before the consumer is obliged to pay are likely to increase perceived ownership, which ultimately influences positively product valuation (Peck & Shu, 2009). In the non touch environment, ownership imagery was powerful in increasing both the feeling of ownership and the amount a consumer was willing to pay (Peck & Shu, 2009).

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