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Master Thesis

A Touch of Words:

Influencing Consumers' Purchase Intentions Using

Touch-Describing Adjectives in Digital Advertisements

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Abstract

The purpose of this master thesis is to investigate whether touch-describing adjectives in a digital advertisement can trigger consumers purchase intention. We answer this question by conducting an online survey-based experiment, and first find that consumers' need for touch moderates the effect of touch-describing adjectives on perceived physical control. Secondly, we find that perceived physical control and perceived ownership mediate the effect of touch-describing adjectives on purchase intention. Further, we find that there is a positive total effect of touch-describing adjectives on purchase intention. Finally, we see an indication that arousal has a moderating effect on the relationship between touch-describing adjectives and perceived physical control.

These findings contribute to extending the existing theoretical framework developed by Peck, Barger and Webb (2013) in their article; "In Search of a Surrogate for Touch: The Effect of Haptic Imagery on Perceived Ownership". In addition, it is of relevance for businesses looking to find new ways to influence their customers through digital advertisements.

Keywords: Sensory Marketing, Touch-Describing Adjectives, Need for Touch, Perceived Physical Control, Purchase Ownership, Purchase Intention.

Table of Contents

Table of Figures

List of Tables

1.0 Introduction

Over the past years, a strategy that has gained popularity in the field of traditional marketing is the use of sensory marketing tactics made to appeal to the sense of touch. This strategy mainly consists of manipulating the tactile aspect of a product, such as texture and shape to help capture consumers' attention and increase their purchase intention (Spence & Gallace, 2011; Khandkar & Maurer, 2010). However, with the rise of digital marketing channels (Moorman, 2018), using tactics appealing to the sense of touch is more challenging, particularly as there is no physical touch involved with products advertised and sold online.

Digital marketing, described as the promotion of products or services via digital mediums such as social media or websites, has grown to become a strategic channel among marketing professionals (Moorman, 2018; Business Dictionary, n.d.). Furthermore, the 2018 "CMO Survey Report", outline that within five years, marketing managers expect to allocate over 54 % of their marketing budget to digital marketing (Moorman, 2018). Some of the benefits of digital marketing that differentiates it from traditional marketing include cost-effectiveness, measurability, the possibility to reach a broad audience and personalization of communication (Chaffey & Ellis-Chadwick, 2015). In addition, a variety of researchers insist that traditional marketing through TV, billboards and even brochures, are no longer a sufficient tool to gain the customer's attention in the marketing industry (Trusov, Bucklin & Pauwels, 2009; Scott, 2015).

On the downside of this digital trend, consumers find themselves overexposed and oversaturated with online communication, causing them to miss out on essential details of the advertisements (L`Italien, 2017; Krishna, 2012). As such, marketers are searching for new tactical methods to capture the attention of the customers (Spence & Gallace, 2011).

One emerging area of research has started to investigate ways of making consumers feel the product without it being physically present. This can, for example, be achieved through touch-enabling technology, such as the "haptic glove". A glove with embedded electronics that can transmit the feeling of an object to consumers hands (Van Kerrebroeck, Willems & Brengman, 2017). However, these technologies are still in the early stages, and its use is not widespread. Furthermore,

research shows that people are critical towards their use (Mulcahy & Riedel, 2018; Van Kerrebroeck et al., 2017) making it perhaps a more unreliable and risky choice than traditional marketing strategies.

Another stream of research has explored ways to trigger haptic cues through verbal and visual communication. For example, by asking consumers to close their eyes and imagine holding a product, also called haptic imagery (Spence & Gallace, 2011; Krishna, 2012; Peck, Barger & Webb, 2013). More in detail, a body of research has investigated how sense describing adjectives can evoke similar psychological effects as a real sensation. For example, words describing smells trigger sensory areas in the brain related to the olfactory sense (González et al., 2006), suggesting that perhaps similar effects apply to other senses, such as touch.

Accordingly, it is of interest to explore if it is possible to trigger the feeling of touch and influence consumers' purchase intention, through digital advertisements, by using touch-describing adjectives. Following, we propose the following research question:

> **RQ:** *Is it possible to use touch-describing adjectives to evoke touch-related sensations that trigger purchase intentions from a digital advertisement?*

Our thesis contributes to the literature of sensory marketing through four main findings. Firstly, we found that a consumers' need for touch moderates the effect of touch-describing adjectives on perceived physical control. Secondly, we found that perceived physical control and perceived ownership mediate the effect of touch-describing adjectives on purchase intention. In addition, we discovered a positive total effect of touch-describing adjectives on purchase intention. Finally, through a post hoc analysis, the results show directional evidence that different levels of the adjectives' arousal also influence perceived physical control.

The following sections are divided into; (2) Theoretical Background and Hypotheses, (3) Methodology, (4) Results, (5) Post Hoc Exploratory Analysis (6) Summary of Results, (7) General Discussion, and (8) Limitations and Further Research.

2.0 Theoretical Background and Hypotheses

2.1 The Sense of Touch

The author Krishna (2012), defines touch as the physical contact between a human being and their interaction with a tangible object. The sense of touch is often used for decision-making purposes, as it contains information (e.g. temperature, shape, texture and weight) about the object a person touches (Khandkar & Maurer, 2010; Minh, 2015). For example, when choosing between different product alternatives in a store (Khandkar & Maurer, 2010).

2.2 Implications of Touch in Consumer Decision-Making

Previous research has confirmed the influence of touch on consumer purchase decision through several studies. For example, Millward Brown (today Kantar, a global leader in brand strategy consulting), reported that 35% of consumers find that the touch and feel of their mobile phones were more important than their looks (Spence & Gallace, 2011). Further, a study by McCabe and Nowlis (2003), found that consumers in a retail environment prefer to purchase products they can touch. Additionally, touching products can increase impulsive shopping behaviour (Peck & Childers, 2006).

According to Sundar & Noseworthy (2016), the sense of touch also plays a significant role in affecting consumers` desire for a product depending on the personality of a brand. For example, for a brand perceived as exciting (such as Apple), consumers want the product more if the touch experience is superior to set expectations. On the other hand, for brands perceived as more sincere (such as Nokia), consumers only want the product more when the tactile experience is what the consumer expects, even if this experience is of less quality than an exciting competitor (Sundar & Noseworthy, 2016).

Authors Mulcahy and Riedel (2018), show a more recent example of how touch influences consumers. They investigated touch through mobile advertising and developed a model that comparatively investigated both haptic (for example, the vibration of the phone) and non-haptic scenarios. In addition, they found evidence that haptic touch is a sensation that can be used to engage consumers through mobile

experiences and improve interactivity, involvement, brand attitude and purchase intention (Mulcahy & Riedel, 2018).

One of the reasons the sense of touch is effective in consumers decision-making is that it increases the feeling of perceived ownership (defined as something that felt as if it was your own) and persuasion (Peck & Johnson, 2011; Peck & Shu, 2009). This contributes to an increase in purchase intention, which multiple studies have confirmed, is a strong predictor of actual purchase behaviour (Peck & Shu, 2009; Peck & Johnson, 2011; Chang & Wildt, 1994; Calvo-Porral & Lévy-Mangin, 2017).

2.3 Haptic Imagery

To address the absence of touch in digital channels, previous literature has looked into how haptic imagery, defined as imagining the tactile properties of an object, can act as a possible surrogate for touch (Peck et al., 2013). Although touch is physical, research has shown that brands can trigger consumers' feeling of touch, even in the absence of the physical product. For example, Peck and Wiggins (2006), showed that describing the attribute of a product resulted in a more complementary vision of the product, which led to an increase in purchase intention. These findings are interesting, as they suggest that marketers can deliver digital sensory experiences beyond vision and hearing. The stream of research into haptic imagery further provides us with two approaches:

On the one hand, Peck et al., (2013), found evidence that haptic imagery could trigger perceived physical control and perceived ownership. However, the effect was only observed when the participants in the experiments were asked to look at a physical object in front of them and asked to imagine holding it. We argue that this finding can be difficult to generalize to digital marketing situations, as products advertised online are typically not physically present during a digital encounter.

On the other hand, McCabe & Nowlis (2003), found that describing the properties of an object through text did not have a significant effect on purchase intention. The author Hemel (2015), supports this finding when investigating the effect of haptic pictures (with and without a descriptive haptic-text) on experience and purchase intention. The author only found a positive relationship between haptic imagery and

product experience and liking, suggesting that merely describing an object is not strong enough to increase the probability of a purchase.

These studies suggest that haptic imagery can trigger similar feelings to touch, indicating that it is possible to simulate cognitive areas related to touch. However, the effect is not strong enough to affect purchase intentions. One of the weaknesses of these two approaches is that they do not take into account effects that typically moderate the influence of an advertisement on consumers; for example, the characteristics of the presented text (e.g. valence). As such, we argue that it is of interest to see if the effect was observable by manipulating and controlling for these variables.

2.4 Touch-Describing Adjectives

In advertising, copywriters often use adjectives and descriptive phrases to inform and influence consumers` awareness and opinion about products and services (Torto, 2016; Gunelius, 2009). For example, Dove, an American beauty brand, have used touch-describing adjectives (e.g. soft and smooth) to describe the shower gel on the package design (Dove, 2019). Further, the same example comes through by another American brand; Palmolive. Palmolive uses phrases on their shower gel, telling that their products leave the consumers feeling "*smooth*" (Palmolive, 2019).

Authors Myers and Sar (2013) researched the effect of descriptive words on advertisements. Their results showed that when the communication of an image is unclear, a complimentary descriptive text acts as an enforcer of a persuasive message, giving supporting evidence that textual cues such as adjectives can influence individuals' perceptions (Myers & Sar, 2013). Furthermore, researching into the literature of psychology, studies confirm that reading words describing sensory feelings activate the sensory brain regions (Goldberg, Perfetti & Schneider, 2006). Previous research has investigated this phenomenon in detail in relation to the olfactory sense. For example, González et al., (2006), found that reading scent-related words such as "*cinnamon*" or "*garlic*" activated primary olfactory areas in the brain.

Following this line of thoughts, we suggest that touch-describing adjectives would also activate sensory areas in the brain related to touch. As Peck et al., (2013)

confirmed, haptic imagery triggers perceived physical control, and as physical control of an object is a sensation directly linked to touch, we suggest that touch-describing adjectives will also have a positive effect on perceived physical control.

Additionally, we expect the effect of perceived physical control to be stronger for consumers presented with touch-describing adjectives, than for consumers who are not presented with touch-describing adjectives, as perceived physical control is directly linked to the sense of touch (Peck et al., 2013). Following, we present two hypotheses:

> **H1a:** *Digital advertisement containing a touch-describing adjective will have a positive effect on consumers' perceived physical control.*

> **H1b:** *Consumers presented with a digital advertisement containing a touch-describing adjective will feel a higher sense of perceived physical control than consumers who are presented with the same advertisement containing a non-touch-describing adjective.*

2.5 Need for Touch

Peck and Childers (2003) have developed a twelve-item "need for touch" scale that measures how important physical touch is for individuals. This scale differentiates between two dimensions of touch; autotelic and instrumental. Need for autotelic touch refers to the need for touching to achieve pleasurable feelings. In contrast, instrumental need for touch is the need to acquire information about the physical aspects of a tangible object (Peck & Childers, 2003). The authors found that individuals with high scores on the need for touch (further shortened to NFT) scale experienced a decrease in confidence of judgement when touch is absent during product evaluation.

Additionally, Peck and Wiggins (2006) discovered that touch triggers an emotional response that is more visible with individuals who have a high NFT. This finding is important as, over the past years, research in psychology and neuroscience has found that emotions (most of the time subconsciously) have a surprisingly significant effect on decision-making processes (Feldwick, 2017). Following this line of reasoning, we propose that NFT will moderate the effect of touch-describing

adjectives on perceived physical control, as it has such a significant influence on consumer behaviour.

> **H2a:** *NFT moderates the effect of touch-describing adjectives on perceived physical control.*

More in-depth, we hypothesize that people with high autotelic NFT are less likely to be influenced by touch-describing adjectives, as the reason for engaging in tactile contact is emotional and related to the actual physical contact with an object (Peck & Wiggins, 2006; Feldwick, 2017). As physical contact is absent in digital marketing, their needs will not be satisfied and, therefore, they would potentially be less affected.

> **H2b:** *Individuals with higher autotelic NFT will feel less physical control than those with lower autotelic NFT when presented with a digital ad containing a touch-describing adjective.*

Continuously, we hypothesize that individuals with high instrumental NFT will achieve greater perceived physical control than those with lower instrumental NFT. The reasoning behind this is that they only touch objects for the informative cues they provide. These individuals would perhaps feel less of a need to touch the object, as the haptic information would, to an extent, be provided to them.

> **H2c:** *Individuals with higher instrumental NFT will feel more physical control than those with lower instrumental NFT when presented with a digital ad containing a touch-describing adjective.*

2.6 Purchase Intention

Over the past years, a majority of the products marketed through different media channels, such as the Internet or mobile applications, emphasize on the presented verbal word, as it can influence the consumers' perception of the product quality and performance (Citrin, Stem, Spangenberg & Clark, 2003). This perception can, in turn, increase the consumers' likelihood of purchasing the product (Citrin et al., 2003). As these products are marketed online, and many are unavailable to consumers touch before purchasing, a variation of brands includes touch-

describing adjectives on their package design. This is to give the consumers a perception of what the products contain, or an idea of how the product itself might feel like when touching it (Dove, 2019; Palmolive, 2019). For online retailers, the illustration or text used in the digital advertisement of the product can, therefore, compensate the availability of physical touch (Peck & Childers, 2003).

H3: *Touch-describing adjectives in a digital advertisement will have a positive direct effect on consumers purchase intention.*

Research has confirmed that perceived ownership mediates the validation of products (Peck & Shu, 2009). That is, the more perceived ownership the participants had, the more validation they attributed to the products. Validation of products, often described as perceived value, has been investigated and confirmed to be an important predictor with regards to purchase intention (Dodds & Monroe, 2019). As perceived ownership mediates validation of products, a construct closely linked with purchase intention, it provides us with reason to suggest that it will also mediate purchase intention. Therefore, building on the framework by Peck et al., (2013), were perceived physical control is an antecedent to perceived ownership, we hypothesize that their assumptions will hold and that these variables will mediate the effect of touch-describing adjectives on purchase intention.

H4: *Perceived physical control and perceived ownership mediate the effect of touch-describing adjectives on purchase intention.*

2.7 Message Valence

When exploring literature about marketing communication, an often-mentioned characteristic is valence, defined as the impact of positively versus negatively framed messages on peoples' reaction to a message (Bloom & Hautaluoma, 1987). The effect of valence on consumer perception has been tested and confirmed in several consumer behaviour related studies. For instance, the authors Elder and Krishna (2011), tested the impact of positive and negatively valence pictures and confirmed an increase in purchase intention for positive valenced images (mediated by mental simulation facilitation). Further, the authors Herbert, Junghofer and Kissler (2008), found that pleasant adjectives are processed and better remembered, compared to negative adjectives. Consumers also tend to have

a natural bias towards positive information and pleasant adjectives as well as a superior recall for this type of information (Herbert et al., 2008). This research leads us to expect that positively framed touch-describing adjectives will have a positive effect on information processing, as such, we have formed the following hypothesis:

> **H5a:** A *positive valenced touch-describing adjective will have a positive effect on consumers purchase intentions.*

Continuously, negatively valenced messages typically have a negative effect on consumers (Elder & Krishna, 2011). As previously mentioned, one example from the study performed by Elder and Krishna (2011), shows that negative images (visual stimuli) resulted in a decrease in purchase intention. These findings lead us to expect that when using negatively valenced touch-describing adjectives, the effect of the adjective on purchase intention will be lower than for a positively valenced adjective.

> **H5b**: A *negatively valenced touch-describing adjective will have a negative effect on consumers purchase intention*

In summary, we propose the following conceptual framework.
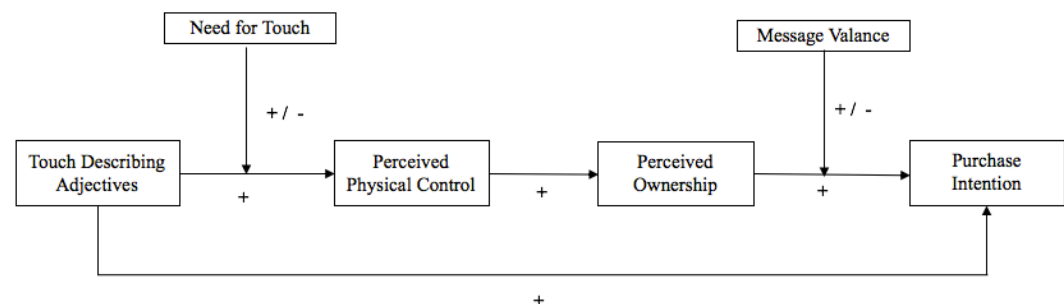
Figure 1

Figure 1: Conceptual Framework.

3.0 Methodology

In this section, we will immerse the foundation of the research design, the variables included and the preparation of the data from our study. Initially, we intended for two studies, however, after conducting study one, we found that a second study would not be of relevance for our research. We will discuss this decision in the summary of our results.

3.1 Participants

For this study to be relevant to the field of digital marketing, we selected a sample consisting of young adults between 18-49 years of age. According to the Nielsen Total Audience Report from 2018, this group has the highest Internet use and e-commerce habits compared to other age groups, both for phones and computers (Nielsen, 2018). Additionally, in a recent study by the authors Westcott, Loucks, Ciampa and Srivastava (2018), it comes through that companies should focus more on what the media consumption patterns are, rather than traditional media usage indicators. As such, the Internet is a highly important media channel, due to online advertising and to capture future customers in the market.

The participants were collected using Amazon Mechanical Turk (MTurk) to increase the diversity of the respondents (McDuffie, 2019). It is important to mention that although there are concerns about the representativeness of the users of MTurk, these are primarily attributed to them being overall better users of technology, and better educated than the general population average (McDuffie, 2019). As we were looking towards targeting the part of the population who are the largest consumers of digital channels, we did not find this to be a concern. Furthermore, the social desirability bias would decrease, as the participants were not contacted directly (Malhotra, 2010). The respondents were paid 0.90$, corresponding to an above average hourly wage rate in the U.S, at 7.25$ per hour (Duffin, 2019).

Using the software program GPower, we calculated a recommended sample size. We used a confidence interval of 95% and a p-value with alpha 0.05, which resulted in a suggested sample size of 176 participants, divided into two groups of 88

participants. Due to time and budget resource limitations, a collection of 100 responses was required in total.

3.2 Stimuli

The stimuli developed for the experiment illustrated an advertisement containing an image and a descriptive text of a blanket. We chose the image of a blanket as this item was used by Peck et al., (2013), in their research into the effects of haptic imagery. The image we used was retrieved from the online retailer Amazon (2019), to give the participants a realistic picture of a blanket (Appendix 1). Additionally, the image maintained the white background and grey coloured blanket to control for colour preferences and remain subtle (Bellizzi & Hite, 1992).

To make the advertisements as realistic as possible, we used the format recommended by Google (n.d.) of medium rectangle size (300 x 250) (Appendix 4A & Appendix 4B). Google is the largest search engine platform and has a high amount of display advertisements. Therefore, we argue that the use of their advertisement sizes would increase the generalizability of the study (Google, n.d.; Malhotra, 2010).

The stimuli distinguished between two conditions; (1) one containing touch-describing adjectives; condition, and (2) non-touch-describing adjectives; no-condition.

3.2.1 Touch-Describing Adjectives

To find the adjectives to use, we first conducted a pretest asking a limited number of respondents to provide us with touch adjectives that described the blanket in the stimuli. From the provided answers (N=21), we picked the adjectives that scored high as descriptors of touch according to researchers Stadtlander and Murdoch (2000). In addition, to reduce the probability of alternative explanations (exogenous variables), we proceeded to control for several syntax properties of the adjectives. First, we made sure that the number of syllables was within 2-4. Additionally, keeping the number of letters as a close range (Hauk & Pulvermüller, 2004). We also controlled for valence by only choosing adjectives with a positive valence value. Further, we looked into controlling for frequency. However, we did not find it possible to hold the level at the same across all the adjectives. Therefore, we chose

adjectives that had a reasonably high level of frequency, using the Zipf scale (logarithmic scale) by the researchers Van Heuven, Mandera, Keuleers and Brysbaert (2014). This scale is considered to be one of the most reliable, as it comprises both written and oral information (Brysbaert, Mandera & Keuleers, 2018). Accordingly, we concluded with the following five adjectives: *"soft"*, *"smooth"*, *"fuzzy"*, *"silky"* and *"fluffy"* (Appendix 3B).

3.2.2 Non-Touch-Describing Adjectives

For our no-condition scenario, we crossed referenced descriptive adjectives with Lynott and Conell`s (2009), framework of modality exclusivity norms (sense describing adjectives). Through this method, we would ensure that the adjectives were not considered descriptors of senses. Our suggested adjectives were also controlled for the number of letters, syllables, frequency and valence (see Appendix 3B for an overview of the adjectives).

3.2.3 Length of Text

Research shows that when exposing consumers to an advertisement, their consideration of relevance towards the text presented and the time spent reading it, will influence their reaction (Wilson & Sperber, 2002). One explanatory factor is that the consumers experience a reduced capacity to process the messages they are exposed to. They prioritize perhaps another form of activity while being presented with an advertisement, taking their attention away and, therefore, it is important to be clear and simple on the presented text to make the message come through (McQuarrie & Phillips, 2005, p. 7).

This observation is of great relevance to digital marketing, as more advertisements are shown on digital platforms where consumers are active. However, it becomes more challenging to capture the consumers' attention due to the continuous exposure of new information (Lowrey, 1998). In addition, a person may find themselves in a condition of memory overload, due to the extent of information advertised. The advertisement should, accordingly, avoid long headlines (Lowrey, 1998, p. 187). A touch-describing adjective presented in a short and precise sentence would, therefore, plausibly be more visible than in a longer sentence due to the consumers' information processing. As a result, we developed a short and

precise text to stay true to previous research conducted in this field (Wilson & Sperber, 2002; McQuarrie & Phillips, 2005; Lowrey, 1998).

3.3 Descriptions and Measurements of Variables

Purchase Intention: To measure the dependent variable in our model, purchase intention, we adapted a five-item scale measured on a 7-point Likert scale developed by the researchers Spears and Singh (2004). To reduce the number of questions the participant would answer, we used the two items from the scale (Table 1) with the highest factor loading score.

Need for Touch: To measure the impact of NFT as the moderator, we needed to measure the level of NFT each participant had. We applied the existing 12-point NFT scale by Peck and Childers (2003). The scale comprises 12 statements measured on a 7-point Likert scale ranging from "*Strongly Disagree*" to "*Strongly Agree*" (Table 1).

Perceived Physical Control: We applied the existing method for measuring perceived physical control by Peck et al., (2013), to ensure reliability in the gathered data (Malhotra, 2010). The two items were measured using a 7-point Likert scale ranging from *"Strongly Disagree"* to "*Strongly Agree*" to allow for distinguishable dimensions (Peck et al., 2013) (Table 1).

Perceived Ownership: Following the rationale above we applied the existing measurement scale used by Peck et al., (2013), comprising two items using a 7-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree" (Table 1).

Table 1

Summary of Variables and Measurements

Variable	Scale	Measurement	Reference
Need for Touch (NFT)	1-7	When walking through stores, I can't help touching all kinds of products	Peck & Childers (2003)
		Touching products can be fun	

I place more trust in products that can be touched before purchase

I feel more comfortable purchasing a product after physically examining it

When browsing in stores, it is more important for me to handle all kinds of products

If I cannot touch a product in the store, I am reluctant to purchase the product

I like to touch products even if I have no intention of buying them

I feel more confident making a purchase after touching a product

When browsing in stores, I like to touch lots of products

The only way to make sure a product is worth buying is to actually touch it

There are many products that I would only buy if I could handle them before purchase

I find myself touching all kinds of products in the store

Perceived Physical Control	1-7	When evaluating the product advertised, I felt as though I could move it	Peck, Barger & Webb (2013)	
		When evaluating the product advertised, I felt as though I had physical control over it		
Perceived Ownership	1-7	I feel like this is my blanket	Peck, Barger & Webb (2013)	
		I feel a personal ownership of the blanket		
		I feel I own this blanket		
Purchase Intention	1-7	If you needed a blanket, would you buy this product?	Spears and Singh (2004).	

14

> Please describe your overall feeling about the
>
> blanket

3.4 Procedure

To research our proposed hypotheses, we used a descriptive quantitative approach through a survey-based (between-subjects) experiment (Malhotra, 2010). The experiment was conducted online to be as realistic as possible to a real digital advertisement. The author Malhotra (2010), explains that a controlled environment might increase the efficiency and effectiveness of the experiment, due to diminishing the external factors. However, we argue that an online advertisement is often, if not always, surrounded with other sensory factors (e.g. sound and smell) and the experiment is, therefore, more generalizable and realistic in a natural environment. The participants would, therefore, have the opportunity to take the survey with their preferred device (e.g. mobile phone, computer or pad).

Before conducting the experiment, we pretested the survey on a limited number of respondents, representative of our sample. This was to identify any misperceptions of the questions and make adjustments before we proceeded with the data collection (Malhotra, 2010). A smaller sample size answered the first pretest (N=9), and at the end of the survey, the respondents were asked to share if they encountered any difficulties. After the feedback, we made small adjustments and re-distributed the survey for a final check-up. In our second pretest (N=7), we found no systematic errors and proceeded to the data collection.

At the beginning of the survey, the respondents answered some general warm-up questions before proceeding to questions regarding their level of NFT. In the following section, they were randomly assigned to one of the ten manipulations representing the two conditions (touch-describing adjectives/non-touch describing adjectives). After the stimuli, the participants answered questions measuring their perceived physical control, perceived ownership and purchase intention (Appendix 5).

3.4.1 Privacy and Ethical Considerations

To comply with guidelines for ethical, we included a section at the beginning of the survey, where we asked the participants to consent the data collection. We specified that the researchers had provided enough information and taken an ethical way of conducting, processing and maintaining the participants' privacy (The Norwegian National Research Ethics Committees, 2016). Furthermore, we maintained their privacy by distributing the survey online, ensuring anonymity (Malhotra, 2010).

3.5 Data Analysis Procedure

3.5.1 Preparation of Data

To keep the quality of our data and the analysis as high as possible, we followed Malhotras' (2010), process for data preparation. We first visually inspected the questionnaires for incomplete or inconsistent answers, and because the proportion of missing responses was below 10%, we treated them with case wise deletion (complete removal from the dataset) (Malhotra, 2010). To ensure compatibility between the scales, we also re-coded all scale data into metric values, ranging from 1-7 (Malhotra, 2010).

3.5.2 Consistency Checks

To check for any anomalies in the data that could be a potential threat to the reliability of our hypothesis testing, we computed descriptive statistics. We specifically looked at the maximum and minimum values of our data to identify potential outliers in the dataset, as well as the distribution of data (Malhotra, 2010).

Previous research (Peck et al., 2013) had already validated the internal consistency reliability for the scales used for NFT, perceived physical control and perceived ownership. However, we applied Cronbach's Alpha to ensure their scale reliability once more, in addition, we assessed the internal consistency of the construct for purchase intention (Malhotra, 2010).

3.5.3 Variable Respecification

NFT, perceived physical control, perceived ownership and purchase intention were measured using several items. To work with each dimension as one, we computed new variables for each dimension by taking the mean of the items measuring the

variable. To check any significant differences between the two NFT categories, we also created corresponding variables: autotelic (*ANTF*) and instrumental (*INFT*). Each variable was created by taking the mean of the six questions measuring each construct.

In addition, we developed a new dummy variable (*Condition*) by grouping the responses assigned to the condition to (condition=1) and those to the non-conditional group to (no-condition=0). This would enable us to look at mean comparisons between the two groups. Lastly, we made sure that we labelled the variables perceived physical control, perceived ownership, purchase intention, *NFT*, *ANTF* and *INFT* were as scale variables in SPSS, and *Condition* as nominal.

3.5.4 Analysis

We first ran a simple linear regression model to test for H1a, as it would show us the direct effect of touch-describing adjectives on perceived physical control (Malhotra, 2010). In addition, to test for the effect of our manipulation on perceived physical control we applied a one-way analysis of variance (ANOVA) (Malhotra, 2010), as we were looking for significance between the means of a variable between two independent samples (Table 2).

Further, to analyse the relationships, including mediation and moderation, between the variables of our conceptual model, we used PROCESS. This software is a freely available macro for SPSS developed by Andrew F. Hayes that performs moderation, mediation and conditional process analysis (Hayes, 2013).

To investigate whether NFT moderates the effect of touch-describing adjectives on perceived physical control, we applied Model 1 (single moderation model) in PROCESS. In addition, we also looked at the effect of touch-describing adjectives on perceived physical control at different levels of the moderating effect of NFT (Table 2).

To test for H2b, we needed to check if individuals with high autotelic NFT had less perceived physical control than those with low autotelic NFT when presented with a touch-describing adjective. To compare the differences between these groups, we had to categorize the data. We found k-means clustering to be the most suitable

method as this enabled us to create three distinct groups; low, medium and high autotelic NFT (Malhotra, 2010). The groups were added to the dataset as a new variable (*ANFT_groups*).

For H2c, we were also interested in checking the differences between high and low levels of instrumental NFT. We replicated the above clustering procedure and grouped the answers from instrumental NFT in three clusters representing low, medium and high. The corresponding groups were also added to the dataset (*INFT_groups*).

To test for H3 and H4, we first looked at the Pearson correlation coefficient to examine the linearity between perceived physical control, perceived ownership and purchase intention (Malhotra, 2010). Further, we applied Model 84 of PROCESS, as this is a moderated serial mediation model, with the same outline as our conceptual model.

4.0 Results

4.1 Data Cleansing

Out of the 100 respondents in the study, we deleted 15 responses for the following reasons; (1) uncompleted surveys, (2) disagreement with our ethical terms of data collection and (3) participants with an average response time below 60 seconds (time of the survey was approximately 4 minutes). We decided to remove them from our dataset, as this suggested that the respondents were rushing through the questions and not giving their truthful answer (Malhotra, 2010). Overall, we ended up with 85 participants (N = 85; 54 male, *SD* = .36 and 31 female, *SD* = .48).

Recoding was necessary for variable *Q21* where the scale 32-39 was transformed to a 1-7 scale. Running descriptive statistics, we found all remaining responses to be normally distributed and within the expected ranges (1-7).

4.2 Internal Consistency Reliability

Analysing the internal consistency reliability of the coefficient alpha, we found a satisfactory value above 0.6 (Malhotra, 2010) for all scales; NFT (α = .943), perceived physical control (α = .773), perceived ownership (α = .881) and purchase intention (α = .731), autotelic NFT (α = .939) and instrumental NFT (α = .858).

4.3 Effect of Touch-Describing Adjectives on Perceived Physical Control

First, we conducted a simple linear regression analysis, which revealed an insignificant negative effect (β = -.294, p=.223) of touch-describing adjectives on perceived physical control. According to these results, we can interpret that touch-describing adjectives do not significantly explain the variation in perceived physical control. Thus, we find we found no support for H1a.

Secondly, we inspected the means between groups for perceived physical control and found that the mean for the no-condition group (N = 45) were slightly bigger (*M* = 5.74, *SD* = 1.05), than the condition group (N = 40, *M* = 5.45, *SD* = 1.16) (Table 2). A one-way ANOVA revealed this difference in means to be insignificant with $F(1,84) = 1.51$, $p = .223$. As there were no significant differences between the groups, we found no support for H1b.

Table 2

Means and Standard Deviations for Perceived Physical Control, Perceived Ownership and Purchase Intention

Group	Perceived Physical Control		Perceived Ownership		Purchase Intention	
	M	*SD*	*M*	*SD*	*M*	*SD*
Condition	5.45	1.16	5.43	1.26	5.58	.78
No-Condition	5.74	1.05	5.68	1.10	5.96	.69

4.4 The Moderating Effect of Need for Touch (NFT)

Running model 1 (simple moderation model) of PROCESS we first looked at the model summary. We found it satisfactory at $F(3,81)= 40.00$, $p<.001$ and $R^2=.60$. As the model is significant in predicting the effect of touch-describing adjectives

on perceived physical control when moderated by NFT, we continued with the analysis of effects.

The analysis further revealed a significant direct effect of touch-describing adjectives on perceived physical control (β = 2.52, p=.009). In addition, the results showed that NFT had a significant direct effect on perceived physical control (β = 1.12, p<.001). Further, the analysis revealed the interaction effect to be significant (β = -.44, p=.009) between touch-describing adjectives and NFT (Figure 2), finding support for H2a.

Figure 2
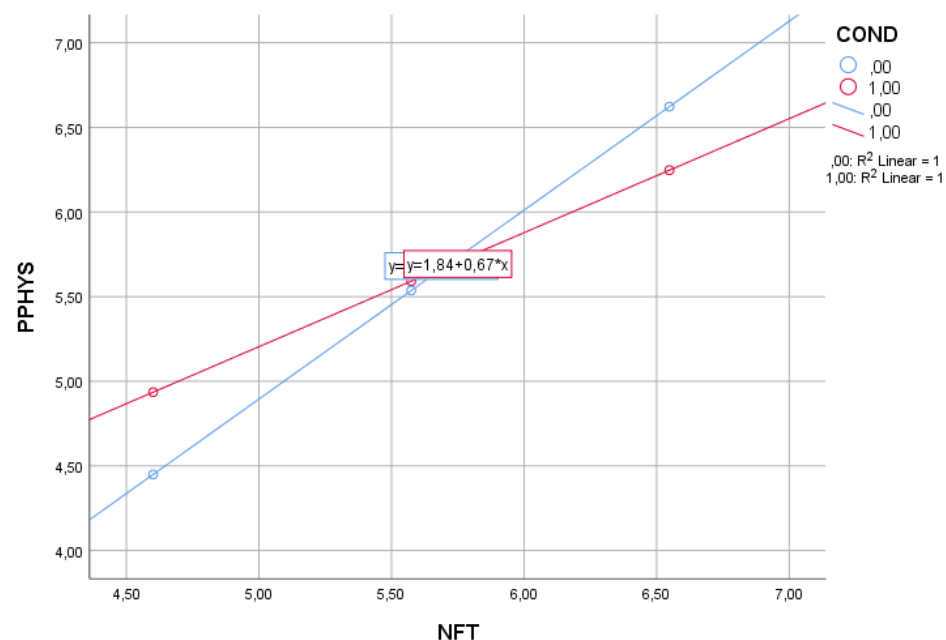
Figure 2: Visualization of the Interaction Effect Between Perceived Physical Control and NFT.

The output also revealed that the moderating effect is true for individuals with low NFT (p=.037), however, for individuals with high NFT, touch-describing adjectives will not have an effect as there is an insignificant effect (p>.05) (Table 3). High NFT shows directional evidence, as it would be significant at 90% CI [-.749, -.002], p =.098.

Table 3

Summary of Results from the Conditional Effects of the Focal Predictor at Values of the Moderator(s) as Shown in the PROCESS Output

NFT	Effect	se	t	p	LLCI	ULCI
4.60	.49	.23	2.12	.037	.03	.94
5.57	.06	.16	.35	.729	-.26	.37
6.55	-.38	.22	-1.67	.098	-.82	.07

When analysing the means for different levels of autotelic NFT, we found that the means for perceived physical control for individuals with low autotelic NFT was higher ($M = 5.86$, $SD = 0.58$) than high autotelic NFT ($M = 3.06$, $SD = 1.14$) (Table 4). Running a one-way ANOVA, we found that the difference in means was significant at $F(1,84) = 5.56$, $p=0.05$. According to the presented statistical findings, we found support for H2b.

Table 4

Means and Standard Deviations for Perceived Physical Control, Perceived Ownership and Purchase Intention

	Perceived Physical Control		Perceived Ownership		Purchase Intention	
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*
High ANFT	3.06	1.14	4.73	1.43	5.26	.62
Low ANFT	5.86	0.58	5.77	1.02	5.90	.73

Looking at the means for perceived physical control for the high instrumental NFT group ($M = 6.35$, $SD =.80$), we found this to be higher than the mean for the low instrumental NFT group ($M = 3.4$, $SD = 1.43$). A one-way ANOVA showed that this difference in means are significant at $F(2,82) = 35.47$, $p < .001$. As such, we found support H2c.

4.5 Testing the Conceptual Model

4.5.1 Direct Effect on Purchase Intention

Examining the output from model 84 (moderated serial mediation) of PROCESS, we first identified a satisfactory model summary at $F(3,81)= 25,90$ $p<.001$ and $R^{2}=.49$. The output also revealed that the main effect of touch-describing adjectives on purchase intention is significantly negative ($\beta = -.26$, $p=.032$). As the direct effect is negative, we found no support for H3.

4.5.2 Mediating Effects: Perceived Physical Control and Perceived Ownership
Pearson correlation coefficients revealed a positive relationship between perceived physical control and perceived ownership, $r = .830$, in addition, perceived ownership is also positively correlated with purchase intention, $r = .641$. We found that there is a positive correlation between perceived physical control and purchase intention, $r = .634$ (Appendix 6). All correlations are significant at $p = .01$ (2-tailed). However, it is important to keep in mind that it does not confirm that it is the causing factor. These results give support to previous research by Peck et al., (2013), whom find a one-directional positive relationship between the elements in the suggested model.

To check for mediation effects of perceived physical control and perceived ownership in our suggested model (Figure 1), we looked at the PROCESS output from the section above. We found that both perceived physical control (indirect effect on perceived ownership ($\beta = .68$, $p<.001$) and perceived ownership (indirect effect on purchase intention ($\beta = .30$, $p=.002$) significantly mediated the effect of touch-describing adjectives on purchase intention, thus, revealing support for H4.

Finally, we calculated the indirect effect at 4.19 of touch describing adjectives on purchase intention by summing up the beta coefficients of the mediating paths in the conceptual model (Figure 3). Further, we used this result to calculate the total effect at 3.93 (direct effect + indirect effect).

5.0 Post Hoc Exploratory Analysis

The results showed that the means for perceived physical control, perceived ownership and purchase intention were higher for the no-condition group (although insignificant). Different levels of NFT can partially explain these findings, however, we still wanted to explore further and see if we may discover any other significant relationships in the data. This was done by adding new variables that classified the adjectives according to word classification dimensions.

First, we created two new variables in our dataset representing the dimensions we had to some degree controlled for earlier, frequency and valence. Further, we conducted some additional research to find other dimensions of adjectives that may influence consumer behaviour. We decided to test for arousal and concreteness as literature revealed they have effects on information processing.

In the following section, we will present the theoretical background for testing these variables, as well as the analysis of their effect.

5.1 Frequency

Frequency can affect how people process information by, for example, the more experience one has with the presented word the quicker the person will process the given information, rather than the words one has less experience with (Van Heuven et al., 2014). To our interest, this became relevant to investigate. The manipulated adjectives differed in ratings of frequency (Appendix 2), giving an indication, that it could be influencing our model.

To analyse the effect of frequency, we added a new variable in the dataset that included the ratings of the different adjectives which had been used in the manipulated stimuli (Appendix 5). Though, we tried to control for this variable previous to the study, by including only high frequency used adjectives and compatible describing adjectives to the product, the adjectives used in the stimuli still differentiated themselves from each other. Looking at the means for frequency, we observed that the mean for the no-condition group ($M = 5.00$, $SD = .72$) was higher than the condition group ($M = 3.80$, $SD = .56$). Running a one-way ANOVA at 95% CI, we found this observed difference significant at $F(1,84) = 75.98$ and p $< .001$.

The result gave us reason to believe that perhaps even small differences in frequency in the adjectives could have a positive indirect effect on purchase intention, and consequently act as an enforcer of the communication. Digging deeper, we then analysed two scenarios holding frequency constant (*frequency = 4.26*) for a condition scenario (variable A5) and a no-condition scenario (variable B1). We then compared the differences in means of perceived physical control, perceived ownership and purchase intention (Table 5). Running a one-way ANOVA, we found that when holding the frequency constant, the means for perceived physical control was higher for the conditional group ($M = 6$, $SD = .71$), than the no-condition group ($M = 5.75$, $SD = .89$), however, this result was insignificant $F(1,16) = .39$ and $p = .54$.

On the other hand, we discovered that the no-condition group had higher means for perceived ownership and purchase intention (Table 5). Conducting a one-way ANOVA, these results were also insignificant at $F(1,16) = .01$, $p = .922$ and $F(1.16) = 4.02$ and $p = .065$.

Table 5

Means and Standard Deviations for Perceived Physical Control and for Perceived Ownership for Variable A5 (Smooth) and B1 (Modern)

Condition	Perceived Physical Control		Perceived Ownership		Purchase Intention	
	M	*SD*	*M*	*SD*	*M*	*SD*
Condition (A5)	6.00	.71	5.92	.75	5.68	.65
No-Condition (B1)	5.75	0.89	5.96	.92	6.31	.59

As the differences in means in the analysis performed above are insignificant when holding frequency constant, it suggests that the effect of frequency does not moderate the effect of touch-describing adjectives on perceived physical control, perceived ownership or purchase intention.

5.2 Arousal

A stream of research has investigated the emotional processing of words. Particularly how arousal: "*the intensity of emotion provoked by a stimulus*" (Warriner, Kuperman, & Brysbaert, 2013, p.1191) affect the way information is interpreted and the effect of this dimension on the message (Kuperman, Estes, Brysbaert & Warriner, 2014). For further analysis, we decided to take this into account and started investigating if arousal could influence the conceptual framework.

To the best of our knowledge, the Warriner's et al., (2013), affective rating scale, is to date the most extensive scale to measure arousal. Therefore, we decided to go further using this rating scale and created a new variable; *Arousal* (Appendix 2).

Looking at the means for arousal, we found that the mean for the no-condition group is larger ($M = 3.39$, $SD = .44$), than the condition group ($M = 4.05$, $SD = .69$). Moreover, running a one-way ANOVA, we found a significant difference in means with $F(1,84) = 27.05$, $p < .001$. These statistical findings suggest that arousal perhaps could influence the results.

5.3 Concreteness

The authors Brysbaert, Warriner and Kuperman (2014, p.904) define concreteness as following: *"Concreteness evaluates the degree to which the concept denoted by a word refers to a perceptible entity"*. According to research, the more concrete the words are, the easier it is to remember them, as opposed to abstract words (Brysbaert et al., 2014). Associated to the context in which perhaps the word is used, where abstract words are harder to put in a memory context, and therefore harder to process (Brysbaert et al., 2014). They also reported that concrete words are easier to remember, as they activate perceptual codes, as opposed to an abstract word. Furthermore, the authors developed a concreteness rating compilation. By conducting over 4.000 participants from Internet crowdsourcing, 37,058 English words were reported by means of a norming study (Brysbaert et al., 2014).

We found the ratings of the concreteness relevant for our study to check for any differences between the conditions we used. However, there is early criticism on the ratings that have been previously raised. For example, the authors Reilly and

Desai (2017) argued that the words included in the scale are either defined as concrete or abstract and that these two variables may not reflect the whole experience the participants go through. Instead, singly showing different characteristics of the words (Reilly & Desai, 2017). Despite these arguments, to the best of our knowledge, the scale by Brysbaert et al., (2014) is the most acknowledge rating of concreteness, and therefore, we decided to go further with the tool.

The rating of concreteness for each adjective was included in our dataset as a new variable. Conducting a one-way ANOVA, we found that the mean for concreteness for the condition group ($M = 3.95$, $SD = .11$) is significantly larger, $F(1,84) = 206,66$ and $p<.001$, than the no-condition group ($M = 2.54$, $SD = .61$). This result suggests that more concrete adjectives might influence the outcome of our study, as there is a difference in the means between groups.

5.4 Testing for Moderating Effects by Frequency, Valence, Arousal and Concreteness

Seeing that we found significant differences in means in the post hoc variables (concreteness and arousal), we wanted to add these to our model as covariates and investigate if they might be making a significant effect to our model. Despite insignificant differences in means, we included frequency to verify this result. Lastly, we included valence.

We ran model 84 in PROCESS by adding all variables to the covariate section. The model summary revealed an improvement compared to the model without covariates ($R^2=.49$) at $F(7,77)= 18,31$ $p<.001$ and $R^2=.62$, and proceeded to inspect the effects of the variables in the model.

Upon further inspection of the output, we found no significant effects of the covariates on neither the direct nor indirect effects in the model. All values at $p > 0.05$ (Appendix 7).

Additionally, we decided to explore whether we could discover any moderating effects. We used Model 2 (double moderated model) in PROCESS, as we wanted the model to capture potential moderating effects together with NFT. The results revealed that there were no significant main effects ($\beta = .14$, $p=.349$) or interaction

effects (β = .08, *p*=.738) when testing for frequency as a moderator. Further, the analysis revealed no significant main effects (β = .20, *p*=.443) or interaction effects (β = .02, *p*=.965), when testing for valence as a moderator. In addition, we saw no significant main effects (β = -.16, *p*=.278) or interaction effects when adding arousal as a moderator (β = -.54, *p*=.068). However, the interaction effect suggests directional evidence, as it would be significant at 90% CI. Lastly, we found no significant main effects (β = .09, *p*=.602) or interaction effects (β = -1.67, *p*=.123) when testing for concreteness as a moderator.

6.0 Summary of Results

Our study aimed to find support for the previous research conducted by Peck et al., (2013). Due to insignificant results, we found no support H1a, H1b and H3. On the other hand, we found support for H2a, H2b, H2c and H4 as the analysis yielded significant results (Table 6). Our post hoc analysis gave us no indication that different levels of frequency, valence or concreteness influence our model. However, we do observe directional evidence from arousal, as it is significant at 90% CI. We will discuss the implications of this observation in our discussion section.

Table 6

Summary of the Results

Hypotheses	Variables	Results
H1a	Digital advertisement containing a touch-describing adjective will have a positive effect on consumers' perceived physical control.	Not supported
H1b	Consumers presented with a digital advertisement containing a touch-describing adjective will feel a higher sense of perceived physical control than consumers who are presented with the same advertisement containing a non-touch-describing adjective.	Not supported
H2a	NFT moderates the effect of touch-describing adjectives on perceived physical control	Supported

H2b	Individuals with higher autotelic NFT will feel less physical control than those with lower autotelic NFT when presented with a digital ad containing a touch-describing adjective.	Supported
H2c	Individuals with higher instrumental NFT will feel more physical control than those with lower instrumental NFT when presented with a digital ad containing a touch-describing adjective.	Supported
H3	Touch-describing adjectives in a digital advertisement will have a positive direct effect on consumers purchase intention.	Not Supported
H4	Perceived physical control and perceived ownership mediate the effect of touch-describing adjectives on purchase intention.	Supported

6.1 Cancellation of Study 2

For study two, we originally intended to test for the effect of positively versus negatively valenced adjectives (H5a & H5b). However, in our first study, we applied only positively valenced adjectives. In addition, we found no significant differences when controlling it as a covariate nor testing it for moderation effects. We, therefore, argue that a second study would not add value to our current conceptual model and decide not to proceed further with Study 2.

Based on findings from our research, we updated our original conceptual framework (Figure 1) to an accurate representation of the results demonstrated throughout our analysis (Figure 3).
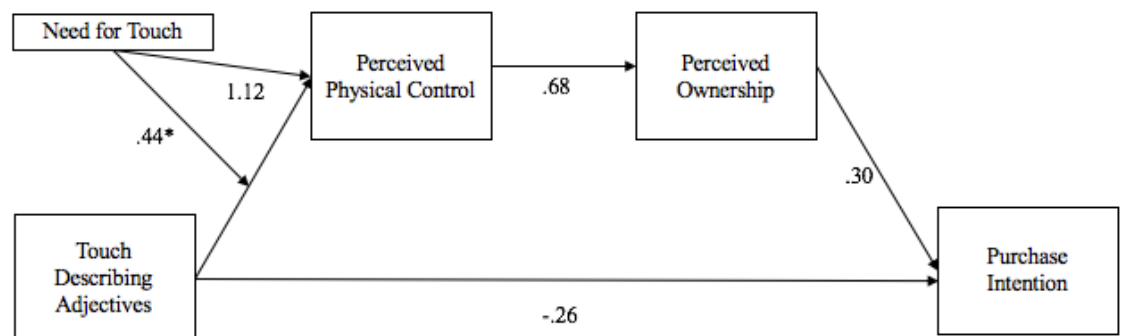
Figure 3

*Figure 3: Conceptual Framework 2.0. *High = -.38(p = .098). Low = .49*

7.0 General Discussion

As mentioned in the introduction, marketers have realized the power in unconscious stimulus and have embraced sensory marketing tactics appealing to all five senses (Harvard Business Review, 2018). However, with the rise of digital marketing, in particular, using tactics appealing to the sense touch seems like a difficult task (Peck et al., 2013). With this in mind, the purpose of our thesis was to investigate if there is a way marketers can stimulate the feeling of touching a product physically through digital advertisement, as it's shown that touching a product increases the consumers purchase intention, which is a strong indicator of buying behaviour (Citrin et al., 2003).

We researched through the existing academic literature and found evidence suggesting that describing a product using touch-describing adjectives, in a digital advertisement, could trigger this feeling (Peck et al., 2013; Spence & Gallace, 2011; González et al., 2006). Leading us to develop the following research question:

Is it possible to use touch-describing adjectives to evoke touch-related sensations that trigger purchase intentions from a digital advertisement?

To answer this question, we investigated if individual differences on the NFT scale (Peck & Childers, 2003) could moderate the relationship between touch-describing adjectives and perceived physical control. Furthermore, if this would lead to perceived ownership and increased purchase intention. We then tested these hypotheses with an online survey distributed to 100 participants on MTurk.

7.1 Overall Findings

We first suggested that similar to how adjectives related to smell trigger cognitive areas related to the olfactory sense (González et al., 2006), touch-describing adjectives would trigger haptic sensations, particularly perceived physical control (H1a). During our analysis, we could not find enough evidence to support this claim as the results showed that the direct effect was, on the contrary, negative ($\beta = -.29$). Further, based on expectations for H1a, we hypothesized through H1b that consumers exposed to touch-describing adjectives would feel a higher level of perceived physical control than a group exposed to non-touch-describing

adjectives. It was, therefore, no surprise to not find support for H1b. The negative results of H1a and H1b support the research that claims that using descriptive haptic texts do not affect consumers purchase behaviour (Hemel, 2015; McCabe & Nowlis, 2003).

Analysing H2a, were we hypothesized that NFT moderates the relationship between touch-describing adjectives and perceived physical control, we found to an extent some explanation for why our results for H1a and H1b were negative. First, as predicted, based on findings by Peck and Childers (2003), different levels of NFT moderate the effect of touch-describing adjectives on perceived physical control. Secondly, there is a positive interaction effect when respondents report lower levels of NFT. Additionally, for medium levels of NFT, there is no significant difference in perceived physical control compared to a non-touch scenario. Finally, for high levels of NFT, we found directional evidence that touch-describing adjectives negatively affects perceived physical control. Although the size of the effects was quite small, it comes through that NFT shows both positive and negative influences on perceived physical control, depending on its level. As such, when looking at the variable as a whole and not controlling for it, the positive and negative effects would not reveal the differences within the moderator. We argue that this could to an extent, explain why we found no significant effects in H1a and H1b.

Analysing H2b, we found support that consumers with low autotelic NFT are positively affected by touch-describing adjectives, as opposed to consumers with high autotelic NFT, who are negatively affected. One reasoning could be that the consumers who have a high need for autotelic touch, have an emotional need for the experience of physical contact (Peck & Childers, 2003). When using a digital channel, there is no physical contact; therefore, this physical interaction will not occur and not fulfil the need for physical contact between the consumer and the product advertised (Peck & Childers, 2003).

Moreover, the results of the study revealed that for individuals with high instrumental NFT, touch-describing adjectives had a more positive effect on perceived physical control than for individuals with lower instrumental NFT (H2c). This result is consistent with the underlying assumptions that consumers with higher levels of instrumental NFT only touch products to seek haptic information

about the product. As this information is more likely to be present in the description of the product, these customers will then have less of a need to inspect the product physically to retrieve that information (Peck & Childers, 2003).

Furthermore, we hypothesized that touch-describing adjectives would have a positive direct effect on purchase intention (H3). On the contrary, our analysis revealed a marginal negative direct effect of touch-describing adjectives on purchase intention. In other words, a person exposed to a touch-describing adjective will report a .26 lower purchase intention (on a scale from 1-7). Although the statistical value is low, it is still an indicator that the respondents' purchase intention was less influenced by the condition scenario, than the no-condition scenario. One reasoning could be that the touch-describing adjectives reinforce the haptic properties of the blanket, while the consumer is looking for a different haptic quality than those presented. The lack of desired properties then leads to a lower purchase intention.

Finally, testing for hypothesis (H4), we confirmed the findings by Peck et al., (2013), where perceived physical control is an antecedent to perceived ownership. Which indicates, that perceived ownership has a positive effect on purchase intention, as the results showed an increase in the participants' intentions to buy the product. The results also revealed a positive total effect of touch describing adjectives of purchase intention, which will be discussed in the implication section.

7.1.2 Unpredicted Findings

After testing all the elements of our model, we conducted post hoc exploratory analysis to discover other potential underlying mechanisms that could add explanatory power to our model. In addition, we were also interested in finding out why our non-touch-describing adjectives showed such high means for the measured variables. We decided to use the collected data and tested for four adjective properties shown to have an impact on information processing (Van Heuven et al., 2014; Warriner et al., 2013; Brysbaert et al., 2014); (1) frequency, (2) valence, (3) arousal and (4) concreteness.

Our analysis revealed that there were significant differences for frequency between the touch and the non-touch-describing adjectives. We conducted the same

procedure for valence, arousal and concreteness. Testing them as covariates and as potential moderators, we found in general that the variables had no significant influence on the outcome of our model. However, there was one exception. The interaction effect between arousal and the effect of touch-describing adjectives on perceived physical control was significant at 90% CI, suggesting that perhaps arousal has an effect and opens possibilities for further research.

An alternative explanation for why the means of perceived physical control are higher for the non-touch scenario could be the use of both the word and the image of a blanket, which already sends haptic signals. According to Lynott and Connell (2013), blanket scores 4.24/5 on their modality exclusive norms (sense describing words) scale, which is high (Lynott & Connell, 2013). Under this assumption, we argue, that a reason could be that the non-haptic adjectives add additional value to the message. Moreover, this additional value, in turn, has a positive effect on their perceived physical control and consequently perceived ownership and purchase intention.

In conclusion, we answer our research question and find that touch-describing adjectives used in digital advertisements can positively influence consumers' purchase intention. In particular, when consumers have a lower level of NFT.

7.2 Theoretical Implications

Prior studies in the field of sensory marketing have focused on the effect of haptic imagery on perceived physical control and perceived ownership (Peck et al., 2013). Through our findings, we have expanded this framework by connecting it to purchase intention. Further, Krishna (2012), requested for more research into the implications of NFT on consumer behaviour. We respond to this request by showing that different levels of NFT, also have implications for the consumers processing when being exposed to a digital advertisement. In more detail, we find an indication that touch-describing adjectives can have a positive total effect on purchase intention - and the strength of this effect is moderated by the level of NFT.

7.3 Managerial Implications

Our results provide marketers with evidence that using touch-describing adjectives to influence consumers is a tactic worth exploring. Particularly, within the field of

digital marketing due to the increasing consumer demand to buy products online (Mostowyk, 2017). Further, with increasing demands from customers, companies currently invest great efforts into becoming customer-centric. In other words, putting the customers first and catering to their needs (KPMG, 2016). Our study highlights that consumers have different needs when it comes to touching products and that these needs have a significant effect on their purchasing intentions. Especially for consumers with lower levels of NFT. This implication suggests that managers who are selling consumer products should consider new segments and be aware that these consumers perhaps prefer to physically inspect the products, rather than trust singly on the digital advertising presenting the touch-describing adjective.

We acknowledge that segmenting customers based on their NFT might be challenging, however, with the rise of machine learning technologies, we are a step closer as this technology is already in use. For example, Netflix has used it to segment their audience based on their movie watching behaviour (Rodriguez, 2017). Similarly, looking at patterns of adjectives that consumers react to, machine learning technologies could help identify consumers who are more open to touch-describing adjectives, and those who are not (Fain, 2018).

8.0 Limitations and Further Research

Throughout this study, there are limitations we would like to emphasize. These limitations might restrict the generalizability of our main findings and are important to acknowledge as they may influence future research on to the right path.

First, due to resource limitations, we conducted a study on a smaller number (N=100) of participants than the calculated sample size from the software program GPower (N=176). For future research, it could be of interest to conduct the study with an expanded sample size to increase the generalizability (Malhotra, 2010).

Secondly, the product used in the digital advertisement limits the generalizability of the findings due to its restricted product category. The product itself might limit the participants' associations with the manipulation for several reasons; (1) the usage of the product, (2) the minimalistic design of the product and (3) the lack of not having a visual brand logo (Keller, 2013). In addition, the consumers' image of the product might lack trustworthiness due to the absence of brand recognition,

resulting in a decrease in their purchase intention (Keller, 2013). Therefore, for future research, we recommend investigating if touch-describing adjectives affect purchase intention differently depending on the product category.

Further, our study does not include the agenda of the participants and their personality characteristics, only their demographics of gender and age. The reason for increased or decreased purchase intention could be influenced by the consumers' current situation when taking the survey. For example; (1) factors such as whether the product would be chosen for oneself, (2) for a friend, (3) or as a gift (Orth, 2005). For future research, we recommend clarifying the current situation the participants are in and their intent of purchasing. Clarifying these scenarios could be a further direction to control the potential influence.

Finally, previous research shows that a persons' attitude change to a more positively line of thought when being exposed to a stimulus multiple times (Moreland & Topolinski, 2010). This idea, could also be of interest to explore for future research; would the effects of the haptic stimuli on purchase intention be stronger if they saw the ad repeated times?

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Appendices

Appendix 1: Product Image Retrieved from Amazon

Amazon, 2019.

Appendix 2: Non-Touch-Describing Adjectives and Touch-Describing Adjectives

Variable	Non-Touch Adjective	Number of Letters	Syllable	Frequency (Van Heuven et al., 2014)	Valence Means (Warriner et al., 2013)	Arousal Means (Warriner et al., 2013)	Concreteness (Brysbaert, et al., 2014)
MB5	Unique	6	2	4,14	7.32	4.00	1.89
MB4	Cool	4	1	5,29	6.82	3.43	3.54
MB3	Real	4	2	5,65	7.09	4.05	2.5
MB2	Nice	4	1	5,81	6.95	3.53	2.18
MB1	Modern	6	2	4,26	6.05	5.40	2.31
MA5	Smooth	6	1	4,26	6.42	2.76	3.81
MA4	Fluffy	6	2	3,56	7.11	3.45	3.96
MA3	Silky	5	2	2,9	7.00	3.73	4.12
MA2	Fuzzy	5	2	3,77	6.53	3.95	3.96
MA1	Soft	4	1	4,5	7.13	3.04	3.88

Appendix 3A: Screenshot of the Pretest

(Survey)

Start of Block: Pre-test

Q1
Dear participant,

Thank you for your participation in this study, which will take approximately 1 minute.

With this study, we aim to achieve understanding the effect of digital advertisement and consumers perception of touch describing adjectives.

All participants will remain anonymous and the data will be treated confidentially. In addition, participating in this study is voluntary, and you have the right to withdraw at any time.

By participating in this study, you give us your consent that we have provided enough information and taken an ethical way of conducting, processing and maintaining the participant's privacy.

We highly appreciate your honest opinion during this study.

○ I consent (1)

○ I do not consent (2)

End of Block: Pre-test

Start of Block: Block 1

Q2 Describe this picture with touch describing adjectives

End of Block: Block 1

Appendix 3B: Results from the Pretest for the Touch-Describing Adjectives

Touch-Describing Adjective	N	Non-Touch-Describing Adjectives	N
Soft	19/21	Cuddly	2/21
Fluffy	6/21	Comfortable	2/21
Smooth	4/21	Synthetic	2/21
Warm	5/21	Cozy	1/21
Silky	2/21	Cosy	1/21
Fuzzy	1/21	Pleasure	1/21

Appendix 3B: Results from the Pretest for the Touch-Describing Adjectives

Appendix 4A: Stimuli 1 - Manipulation of the Non-Touch-Describing Adjectives in the Digital Advertisement.

Appendix 4B: Stimuli 2 - Manipulation of the Touch-Describing Adjectives in the Digital Advertisement.

Appendix 5: Study 1 Survey downloaded in PDF-format from Qualtrics

Consent form

Dear participant,

Thank you for your participation in this study, which will take approximately 4 minutes.

This study aims to understand the effect of digital advertisement and consumers perception of touch-describing adjectives on future purchase intention.

All participants will remain anonymous and the data will be treated confidentially. In addition, participating in this study is voluntary, and you have the right to withdraw at any time.

By participating in this study, you give us your consent that we have provided enough information and taken an ethical way of conducting, processing and maintaining the participant's privacy.

We highly appreciate your honest opinion during this study.

- o   I do consent
- o   I do not consent

Warm up

Gender

- o   Male
- o   Female

Age group

- o   18-34
- o   35-49
- o   49 +

Need for Touch Scale

When walking through stores, I can't help touching all kinds of products

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

Touching products can be fun

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I place more trust in products that can be touched before purchase

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I feel more comfortable purchasing a product after physically examining it

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

When browsing in stores, it is more important for me to handle all kinds of products

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

If I cannot touch a product in the store, I am reluctant to purchase the product

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I feel more comfortable purchasing a product after physically examining it

I like to touch products even if I have no intention of buying them

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I feel more confident making a purchase after touching a product

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

When browsing in stores, I like to touch lots of products

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

The only way to make sure a product is worth buying is to actually touch it

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

There are many products that I would only buy if I could handle them before purchase

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I find myself touching all kinds of products in the store

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

Information

In the following section, you will be presented with an advertisement.

The advertisement will be followed by a few more questions.

Manipulation A1

Manipulation A2

Manipulation A3

Manipulation A4

Manipulation A5

Manipulation B1

Manipulation B2

Manipulation B3

Manipulation B4

Manipulation B5

When evaluating the product advertised, I felt as though I could move it

- ○ Strongly Disagree

- ○ Disagree

- ○ Somewhat Disagree

- ○ Neither disagree nor agree

- ○ Somewhat Agree

- ○ Agree

- ○ Strongly Agree

When evaluating the product advertised, I felt as though I had physical control over it

- ○ Strongly Disagree

- ○ Disagree

- ○ Somewhat Disagree

- ○ Neither disagree nor agree

- ○ Somewhat Agree

- ○ Agree

- ○ Strongly Agree

Perceived Ownership

I feel like this is my blanket

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I feel a personal ownership of the blanket

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

I feel I own this blanket

- ○ Strongly Disagree
- ○ Disagree
- ○ Somewhat Disagree
- ○ Neither disagree nor agree
- ○ Somewhat Agree
- ○ Agree
- ○ Strongly Agree

Purchase Intention

If you needed a blanket, would you buy this product?

- ○ Extremely Unlikely

- ○ Moderately Unlikely

- ○ Slightly Unlikely

- ○ Neither Likely nor Unlikely

- ○ Slightly Likely

- ○ Moderately Likely

- ○ Extremely Likely

Please describe your overall feeling about the blanket

- ○ Definitely do not intend to buy

- ○ Intend not to buy

- ○ Somewhat do not intend to buy

- ○ No preference

- ○ Somewhat intend to buy

- ○ Intend to buy

- ○ Definitely intend to buy

Appendix 6: Pearson Correlation Matrix for Purchase Intention (PI), Perceived ownership (POWN), Perceived Physical Control (PPHYS)

	PI	POWN	PPHYS	ANFT	INFT	NFT
PI	1	.667**	.627**	.552**	.462**	.539**
POWN	.667**	1	.841**	.748**	.662**	.746**
PPHYS	.627**	.841**	1	.762**	.650**	.749**

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 7: Effects on Perceived Physical Control Testing for Frequency, Valence, Arousal and Concreteness as Covariates (PROCESS Model 84)

	Coeff	se	t	p	LLCI	ULCI
Constant	1.75	3.29	.53	.598	-3.74	7.23
Condition	2.37	1.03	2.30	.024	.65	4.09
NFT	1.11	.12	8.68	.000	.90	1.33
Int_1	-.44	.17	-2.67	.009	-.72	-.17
Valence	-.08	.27	-.32	.752	-.53	.36
Frequency	-.02	.16	-.14	.891	-.30	.25
Arousal	-.37	.22	-1.70	.093	-.73	-.01
Concreteness	-.09	.19	-.47	.64	-.40	.22