



FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

Attracted to Attractiveness? The Effect of Attraction and Luxury on Consumers' Mind, Attitudes and Values

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2013

Dissertation submitted to the Faculty of Economics and Business Administration, Ghent University, in fulfillment of the requirements for the degree of Doctor in Applied Economic Sciences

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ACKNOWLEDGEMENTS

Het is zover, na 4 jaar sta ik hier dan, op de verdediging van mijn eigen doctoraat! Vaak was ik gedurende de voorbije 4 jaar als doctoraatsstudent toeschouwer in deze zaal en dacht ik soms “zal ik daar ook echt staan binnen zoveel tijd?”, “zal dit me ooit wel lukken?” Maar je verschiet soms van je eigen kunnen. Uiteraard kan je iets dergelijks als een doctoraat niet in je eentje verwezenlijken. Ook al lijkt een doctoraat iets individueels, dat is het helemaal niet. Er zijn heel wat mensen waaraan ik dit doctoraat te danken heb en die ik dan ook graag in de bloemetjes zou willen zetten voor hun hulp, steun en toeverlaat.

Laat mij alvast beginnen met mijn promotor. Mario, zonder jou had ik dit proefschrift nooit kunnen realiseren. Jij hebt me niet alleen de kans gegeven om te starten met dit doctoraat, maar je hebt me bovenal zeer veel kennis bijgebracht gedurende deze voorbije 4 jaar. De kwaliteit van mijn papers heb ik meer dan ooit te danken aan jouw aanwijzingen, ideeën en correcties. Het is bewonderenswaardig hoe jij alles naar een hoger niveau weet te tillen en hoe je niet alleen mij, maar ook de andere collega's, steeds weet te motiveren door jouw enthousiasme voor onderzoek. Na 4 jaar met jou samengewerkt te hebben, zou ik jou het beste kunnen omschrijven als een ideeënmachine. Het is ongelooflijk hoe opgeladen ik steeds buiten kwam na een meeting met jou: boordevol nieuwe ideeën en energie om er weer in te vliegen. Verder was je soms ook een echte typische verstrooide professor, maar dan wel eentje die ook graag veel plezier maakt. Hierbij denk ik dan vooral aan jouw enthousiasme op congres. Zelfs direct na het toekomen van een lange vlucht en de bijhorende jetlag, wanneer iedereen uitgeput in de lobby lag, wist je ons direct te overhalen om al snel een eerste cocktail te gaan drinken of om ons kennis te laten maken met één van de restaurants in de buurt die je op voorhand al had opgezocht en afgeprint. Ik ben ervan overtuigd dat je niet vaak een promotor tegenkomt die ook altijd in de mood is voor een partijtje pool of pingpong, al is dat laatste er niet meer van gekomen en weten we dus niet wie er de sterkste zou geweest zijn. Alleszins, Mario, bedankt om in mij te geloven en me alle kansen te geven. Ik vond het zeker en vast een eer om jou als promotor te hebben.

Ook de andere leden van mijn doctoraatsjury zou ik graag willen bedanken voor hun interesse in mijn werk en voor de tijd die ze investeerden in het kritisch nalezen ervan. Prof. dr. Maggie Geuens, Prof. dr. Tina Lowrey, Prof. dr. Vanessa Patrick en Prof. dr. Patrick Van Kenhove, bedankt voor jullie constructieve feedback en waardevolle suggesties die jullie met

me deelden tijdens de interne verdediging. Ik heb er veel van bijgeleerd en jullie inzichten stelden mij in staat om dit doctoraat verder te optimaliseren. Maggie en Patrick, bedankt voor jullie feedback bij o.a. de verschillende research seminars of voorstellingen van congres papers. Jullie tillen onderzoeksideeën en de uitwerking ervan steeds naar een hoger niveau. Patrick, eigenlijk heb ik mijn academische carrière ook wat aan jou te danken. Meer dan 4 jaar geleden mocht ik onder jouw vleugels mijn thesis uitwerken tijdens mijn opleiding TEW. Jouw enthousiasme voor onderzoek en de positieve samenwerking hebben er mede voor gezorgd dat ik mijn thesis steeds zeer graag gedaan heb. Meer nog, mijn masterproef heeft me destijds getriggerd om meer te weten te komen over wetenschappelijk onderzoek en kijk waar ik nu beland ben. Tina and Vanessa, thank you for the time invested and your interest in my PhD, and for your comments and suggestions, which have been very beneficial to improve this work. Tina, I would also like to thank you for being here today and for your presence at my internal defence as well. It was very nice talking to you about my research.

Ik moet het toegeven, ondertussen ben ik weer 4 jaar ouder, maar wat zijn die jaren hier voorbij gevlogen! Ik heb echt fantastische tijden beleefd aan deze vakgroep. Sommigen onder jullie kunnen misschien denken: “doctoraatsstudenten, dat moet toch een bende nerds bij elkaar zijn?” Wel, ik kan jullie met veel zekerheid zeggen dat deze bende van aanpakken weet. Ik kan het aantal feestjes, traktaties, vakgroepactiviteiten, terrasjes, girls nights, after work drinks en momenten van plezier niet meer bijhouden. De sfeer en gezelligheid op de vakgroep marketing is eigenlijk geweldig, en dit zou er nooit geweest zijn zonder de aanwezigheid van een bende fantastische collega’s en ex-collega’s waarmee ik enorm fijne herinneringen deel. Patrick, Maggie, Mario, Dirk, Iris, Dries, Michel, Willem, Dauwe, Bill, Nanouk, Elke H., Christophe La., Charlotte, Saar, Begüm, Goedele, Andrey, Jeroen, Michiel, Annelies, Hendrik, Elke C., Griet, Tine, Maarten, Philippe, Koen en (ex-) collega’s van HoGent, bedankt voor de fantastische tijden samen!

Ook Karin verdient een speciaal woordje van dank. Wat zou de vakgroep toch zijn zonder haar aanwezigheid? Jouw inzet en hulp zijn echt onmisbaar. Hoe jij altijd klaar staat voor alles en iedereen, en dat steeds met de glimlach, verdient meer dan gewoon een dankjewel! Bart, Sofie en Jonas, mijn initiële bureaugenoten, bedankt om me 4 jaar geleden zo goed op te vangen. Ik voelde me onmiddellijk thuis bij jullie. Stefanie, Julie en Caroline, mijn huidige bureaugenoten, ik ben er zeker van dat jullie de capaciteiten bezitten om een sterk doctoraat neer te leggen. Geloof maar in jullie zelf, jullie komen er zeker en vast!

Geniet nog van de komende jaren op de vakgroep en bedankt voor al jullie lieve aanmoedigingen, jullie taarten en verwennerijen, en jullie enthousiasme op onze bureau. Tess en Anneleen, ik kwam altijd graag eens een klapke doen in jullie bureau omdat ik met jullie vaak kon lachen en plezier maken, superaangename gesprekken kon voeren over van alles en nog wat, en soms ook een traan kon delen. Jullie pepten me op wanneer nodig en gaven me steun tijdens de eindfase van mijn doctoraat. Doorheen de jaren zijn we meer dan gewoon collega's geworden en ik ben ervan overtuigd dat we elkaar nog vaak gaan zien.

Tina en Christophe Le., mijn twee collega's en maatjes waarmee ik indertijd samen gestart ben, hoe kan ik jullie toch ooit bedanken en omschrijven? Ik had nooit gedacht dat ik met mijn collega's zo goed zou overeen komen en zo een speciale band zou kweken. Ik kan jullie eigenlijk zeer moeilijk bedanken, gewoon omdat er zoveel te bedanken valt. Christophe, bedankt voor onze aangename gesprekken over onderzoek en privé, voor het spelen van online spelletjes om even te pauzeren en dan je meerdere te erkennen, voor me te doen lachen met je moppen op Christophe tof dag en daarbuiten, voor je te mogen plagen met Lierse, voor het maken van plezier zelfs tot in ons volleybalteam (eerder dan het echt te beoefenen), voor mijn raadgever te zijn, voor het beleven van fijne citytrips gekoppeld aan een congres en het volgen van zoveel seminaries samen, voor mijn facebook te spammen samen met je partner in crime Jonas indertijd, en voor zoveel andere herinneringen, teveel om op te noemen. Bedankt om zo een fijne collega en vriend te zijn, of zoals Stefanie het zou zeggen: Je bent een specialeke, maar we kunnen je niet missen!

Tina, wat hebben wij toch lief en leed met elkaar gedeeld de voorbije jaren. Niet enkel op het werk maar ook daarbuiten. Het klikte eigenlijk onmiddellijk tussen ons, al vanaf het eerste seminarie waar we bijna heel de nacht door hebben gebabbeld tot het gelijktijdig neerleggen van ons doctoraat, waar we zoveel steun aan elkaar hebben gehad. We hebben zoveel meegemaakt, plezier gemaakt en ontzettend veel gelachen. We hebben geshopt en gereisd, gesport, uitgeweest, altijd samen een kamer gedeeld op congres, mekaar opgepept, tranen gedeeld, mooie momenten gevierd en genoten van de kleine dingen. Zonder jou waren deze voorbije jaren nooit hetzelfde geweest. Ik ben er zeker van dat we elkaar nog vaak gaan zien, want je bent niet zomaar gewoon een collega, je bent veel meer dan dat!

Daarnaast wil ik ook heel graag mijn familie en mijn vrienden bedanken, die me vaak een hart onder de riem staken en steeds geïnteresseerd waren in hoe het ging met mijn doctoraat, die me vaak ontspannende momenten bezorgd hebben en waarvan ik veel

directe en indirecte steun heb gekregen. Ook al hebben jullie zich waarschijnlijk de voorbije jaren vaak afgevraagd waar ik nu juist mee bezig was, toch hadden jullie steeds een geïnteresseerd en luisterend oor. Ook mijn schoonfamilie, waar ik me van dag één steeds thuis en welkom heb gevoeld, zou ik graag willen bedanken. Niet alleen voor hun steun en interesse die ze toonden in mijn doctoraat, maar ook omdat ze me altijd met open armen ontvangen.

Koen, mijn grote broer, ook al woon je nu duizenden kilometers ver, jij betekende altijd het goede voorbeeld voor mij. Mama en papa, jullie kan ik eigenlijk niet genoeg bedanken. In feite heb ik gewoonweg alles aan jullie te danken. Jullie hebben me gevormd tot de persoon wie ik nu ben. Jullie hebben Koen en mezelf altijd alle kansen gegeven om ons te ontplooien op alle vlak, en dit zonder moeite. Alsof het allemaal vanzelfsprekend lijkt. Jullie hebben ons in totaal 13 jaar lang laten studeren en examenstress mee beleefd, en dan heb ik mijn doctoraat hier nog niet eens bij geteld. Jullie hebben mij er steeds door gesleurd wanneer ik het moeilijk had, mij gesteund in alles wat ik deed, en jullie waren altijd zo fier op ons. Voortdurend kunnen wij op jullie rekenen. Ik zou me echt geen betere ouders kunnen voorstellen en ik prijs mezelf enorm gelukkig te weten dat ik zulke ouders achter mij heb staan. Hoe ouder ik word, hoe meer ik besef en bewonder wat jullie allemaal al voor ons gedaan hebben. Bedankt mama en papa, voor alle kansen, steun en liefde die jullie ons al gegeven hebben en nog zullen geven in de toekomst!

Mathieu, snoetie, jij bent echt ongelooflijk! Iedereen kan een puntje zuigen aan jouw enthousiasme, vechtlust en positivisme. Ik hou zeer veel van jou, en dat heeft dit doctoraat nog maar eens duidelijk gemaakt. Hoe jij in mij kan geloven en mij kan steunen, hoe jij mij kan doen lachen, me oppeppen en stimuleren als ik triest ben, hoe jij de voorbije jaren geduld hebt uitgeoefend en alles kan relativeren, dat kan er geen één. Jij bent echt mijn allerbeste maatje waarmee ik alles kan delen. We zijn nu al meer dan 7 jaar samen, maar het lijkt nog steeds alsof we nog maar net samen zijn. De manier waarop wij plezier kunnen maken als geen ander, elkaar missen en genieten van elkaars gezelschap bevestigen dit alleen maar. Ik zou mij echt geen leven kunnen voorstellen zonder jou en ik kijk enorm uit naar onze toekomst samen. Ik wil je graag voor alles bedanken, om er altijd te zijn voor mij en om te zijn wie je bent, want jij bent uniek! Ik ben enorm fier op jou, in alles wat je doet!

Katrien Meert, 19 september 2013

TABLE OF CONTENTS

Acknowledgements	5
Table of Contents	9
List of Tables	13
List of Figures	14
Summary of Dissertation	17
Nederlandstalige Samenvatting	21
Chapter I: Introduction	25
1. Attracted to Attractiveness: The Effect of Attraction and Luxury on Human-Related Preferences	29
1.1 Innate Preference for Attractive Appearances	29
1.2 What is Beautiful is Good	30
1.3 Attractiveness and Luxury	32
2. Attracted to Attractiveness: The Effect of Attraction and Luxury on Product-Related Preferences	33
2.1 The Relevance of Product Aesthetics	33
2.2 Emotions Behind Aesthetically Appealing Objects	35
3. Overview of Dissertation	36
3.1 Introduction to Essay 1: The Effect of Attraction on Consumers' Mind	37
3.2 Introduction to Essay 2: The Effect of Attraction on Consumers' Attitudes	40
3.3 Introduction to Essay 3: The Effect of Luxury on Consumers' Values	41
Chapter II: Taking a Shine to It: How the Preference for Glossy stems from an Innate Need for Water	43
1. Theoretical Background	48
1.1 Water as a Resource	48
1.2 Understanding the Preference for Glossy	49
2. Overview of the Empirical Investigation	51
3. Study 1A: Establishing the Preference for Glossy in Adults	51

3.1 Participants and Procedure	51
3.2 Results and Discussion	52
4. Study 1B: Young Children Also Prefer Glossy	52
4.1 Participants and Procedure	52
4.2 Results and Discussion	53
5. Study 2: Systematic Preference for Glossy	54
5.1 Participants and Procedure	54
5.2 Results and Discussion	55
6. Study 3: Does the Preference for Glossy stem from an Innate Need for Water as a resource?	58
6.1 Participants and Procedure	58
6.2 Results and Discussion	59
7. Study 4: Glossy = Pretty? Does the Preference for Glossy stem from Visual Appeal?	59
7.1 Participants and Procedure	59
7.2 Results and Discussion	60
8. Study 5: Thirsty Participants show an Enhanced Liking for Glossy	61
8.1 Participants and Procedure	61
8.2 Results and Discussion	63
9. General Discussion	67
10. Appendices	72
Chapter III: The Impact of Touch On the One Hand Versus the Force of Attraction On the Other Hand ... : The Effect of Tangibility on Desire	77
1. Introduction	80
2. The Role of the Sense of Touch in Consumer Behavior: Impact and Consequences	81
2.1 Product Characteristics	83
2.2 Individual Difference Characteristics	84
2.3 Situational Characteristics	86
3. The Role of Desire in Consumer Behavior: Concept and Triggers	87
4. Research Proposition: Touch Versus Desire	90
5. Overview of the Empirical Investigation	91

6. Study 1	91
6.1 Participants and Procedure	93
6.2 Results and Discussion	96
7. Study 2	102
7.1 Participants and Procedure	102
7.2 Results and Discussion	103
8. Study 3	108
8.1 Participants and Procedure	111
8.2 Results and Discussion	112
9. General Discussion	119
10. Appendices	125
Chapter IV: Exposure to Unattainable Luxury: Boomerang Effects on	
Materialistic Goal Pursuit	129
1. Materialism: Causes and Consequences	132
2. Goal Commitment and (Un)Attainability	135
3. Overview of the Empirical Investigation	138
4. Pilot Study: Investigating Common Assumptions	138
5. Study 1: Investigating the Effect of Unattainable Luxury on Materialism	140
5.1 Participants and Procedure	140
5.2 Results and Discussion	141
6. Study 2: Investigating the Effect of Unattainable Luxury on Prosocial Behavior	141
6.1 Participants and Procedure	142
6.2 Results and Discussion	142
7. Study 3: Moderating Role of Attainability Through Mental Imagery	144
7.1 Participants and Procedure	144
7.2 Results and Discussion	145
8. Study 4: Moderating Role of Tightwad-Spendthrift Disposition	147
8.1 Participants and Procedure	147
8.2 Results and Discussion	148
9. General Discussion	150
10. Appendices	156

Chapter V: Conclusions, Contributions and Future Research	169
1. Findings and Theoretical Contributions	171
2. Practical Contributions	175
3. Limitations and Suggestions for Future Research	176
References	181

LIST OF TABLES

Chapter I: Introduction

Chapter II: Taking a Shine to It: How the Preference for Glossy stems from an Innate Need for Water

Table 1. Mean values and standard deviations for the preference rankings and liking scores of both the glossy and non-glossy pictures	57
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Chapter III: The Impact of Touch On the One Hand Versus the Force of Attraction On the Other Hand ... : The Effect of Tangibility on Desire

Table 1. Need-for-Touch scale	96
Table 2. Summary of the final exploratory factor analysis results (study 1)	97
Table 3. Mean values, standard deviations and significant differences with respect to the target dependent variables (study 1)	101
Table 4. Summary of the final exploratory factor analysis results (study 2)	104
Table 5. Mean values, standard deviations and significant differences with respect to the target dependent variables (study 3)	118

Chapter IV: Exposure to Unattainable Luxury: Boomerang Effects on Materialistic Goal Pursuit

Table 1. Multinomial logistic regression model	139
Table 2. Observed frequencies	140

Chapter V: Conclusions, Contributions and Future Research

LIST OF FIGURES

Chapter I: Introduction

Figure 1. Examples of aesthetically appealing product designs 34

Chapter II: Taking a Shine to It: How the Preference for Glossy stems from an Innate Need for Water

Figure 1. Respondents' mean rankings for the glossy pictures 65

Figure 2. Respondents' mean scores for the non-glossy pictures 66

Chapter III: The Impact of Touch On the One Hand Versus the Force of Attraction On the Other Hand ... : The Effect of Tangibility on Desire

Figure 1. General attitude towards the product: Interaction between tangibility and type of product 99

Figure 2. Level of desire towards the product: Interaction between tangibility and type of product (study 1) 99

Figure 3. Confidence in completed evaluations: Interaction between tangibility and type of product 100

Figure 4. Willingness-to-pay for the product: Interaction between tangibility and type of product 105

Figure 5. Level of desire towards the product: Interaction between tangibility and type of product (study 2) 107

Figure 6A. Product price perception: Interaction between tangibility and physical distance 114

Figure 6B. Willingness-to-pay for the product: Interaction between tangibility and physical distance 114

Figure 7. Level of desire towards the product: Interaction between tangibility and physical distance 116

Figure 8. Level of desire towards the product: One-way ANOVA of condition 117

Chapter IV: Exposure to Unattainable Luxury: Boomerang Effects on Materialistic Goal Pursuit

Figure 1. Prosocial (nonmaterialistic) behavior 143

Figure 2. Endorsement of materialistic values: Interaction between

simulation and type of home 146

Figure 3. Endorsement of materialistic values: Interaction between
pain of paying and type of exposure 149

Chapter V: Conclusions, Contributions and Future Research

SUMMARY OF DISSERTATION

Beauty and attractiveness have always fascinated people. In fact, the existence and importance of aesthetics and beauty is omnipresent from ancient Egypt to today's modern times. For instance, nowadays, visual aesthetics are even applied to products which are not inherently related to beauty, such as lawn-mowers or computers.

Given the general importance of beauty and attractiveness for mankind, it is not surprising that attractiveness has played an important part in various consumer preferences, choices and behavior. For instance, good-looking individuals benefit from various types of positive discrimination: they are more likely to be hired or better paid than unattractive individuals (e.g., Dipboye, Arvey, & Terpstra, 1977; Frieze, Olson, & Russell, 1991; Marlowe, Schneider, & Nelson, 1996), they are readily associated with desirable characteristics (Jones, Hansson, & Phillips, 1987; Miller, 1970; Unger, Hilderbrand, & Madar, 1982), and are judged more intellectually competent, interesting, and popular. This phenomenon has been defined as the "what is beautiful is good" hypothesis (Dion et al., 1972): a tendency to connect beauty with goodness. This hypothesis also affects products: aesthetically appealing products have been linked to higher purchase intentions (Bloch, Brunel, & Arnold, 2003), are more likely to be purchased impulsively (Norman, 2002), and they can be priced higher (Hassenzahl, 2008). Consumers are even more likely to prefer an aesthetically appealing product which is less useful than a predominantly useful, although less beautiful product (Diefenbach & Hassenzahl, 2009).

The findings above are merely some examples of the ample research that has been conducted in the domain of attraction and its consequences. This dissertation contributes to this domain of attraction by focusing on rather unexplored aspects. Besides the introductory chapter (i.e., chapter 1) and the general discussion (i.e., chapter 5), this dissertation contains 3 empirical chapters that touch upon the influence of attraction on consumer behavior by integrating a different point of view in each chapter.

The first empirical chapter (i.e., chapter II) investigates *why* people exhibit favorable preferences to glossy objects. Prior research discovered that the preference for aesthetics is a human universal (Dutton, 2002) and that our aesthetic preferences have strong biological underpinnings. Indeed, research with children has shown that 2- to 3-month-old babies discriminate between attractive and unattractive female faces, exhibiting a visual preference

for the attractive faces (Langlois et al., 1987). Similarly, very young children also exhibit a liking for shiny objects (Danko-McGhee, 2006), which shows that these initial stages of preferences for pleasant appearances may be innate or present in infancy. Keeping this in mind, this chapter relies on an evolutionary psychology framework and suggests that the preference for glossy might be innate and stems from an innate need for water as a valuable resource. In fact, prior research has shown that glossy surface textures connote wetness (Coss & Moore, 1990), and that infants' mouthing activities increase when presenting glossy (vs. dull) objects (Coss, Ruff, & Simms, 2003). Six studies shed light on the idea that the preference for glossy is innate and is associated with the human need for water. In particular, study 1A confirms the general preference effect for glossy as adults indeed significantly favor glossy (versus non-glossy). Study 2 consolidates this preference effect and demonstrates that adults' preference for glossy is powerful and has a systematic bias. Even after focusing participants' attention on the illustration on the paper rather than on the type of paper the illustration was printed on, and even after reminding participants of their initial choices, participants switch and favor the illustrations on glossy paper at all times. In addition to this clear preference effect amongst adults, study 1B demonstrates that very young children favor glossy as well, hence suggesting that the preference for glossy is partly innate and not just learned through gradual exposure to pleasant appearances over time. In order to test the main hypothesis that preference for glossy stems from an innate need for water, study 4 turns down the more superficial opinion that preference for glossy is caused by a visual effect (i.e., the pleasant appearance associated with glossy) by means of an experimental investigation amongst blindfolded participants. Moreover, study 3 demonstrates that people indeed associate glossy (and not matte) with wetness or water as aquatic landscapes are perceived as significantly glossy, while desert landscapes are perceived as significantly matte. Finally, study 5 empirically tests that part of this glossy appeal is due to an association with water as a resource. In fact, when participants lack water and are thirsty, they show an enhanced preference for glossy and a lower preference for matte. Interestingly, being primed with water seems to generate similar results.

The second empirical chapter (i.e., chapter III) examines the potential consequences of exposure to covered products (e.g., by means of a glass case). Prior research discovered that appealing products attract consumers' attention (Bloch, 1995), but has never investigated whether exposures to covered products influence consumers' attitudes towards

those products. In fact, on the one hand, literature documents more favorable attitudes, higher purchase intentions and impulse purchases when consumers have the possibility to touch a product (McCabe & Nowlis, 2003, Citrin et al., 2003). However, on the other hand, prior research discovered that individuals especially long for those things that they cannot readily have (Belk et al., 2003). This chapter reconciles both streams of literature and reflects on the concept of tangibility in combination with consumers' desire towards (covered) products. Therefore, study 1 investigates whether a product underneath a plexiglass cover could enhance consumers' desire for that product, even though touch is impossible. Results reveal that a product cover seems to be successful, but only for those products one does not have to touch to investigate its characteristics (i.e., geometric products). Accordingly, the type of product plays a crucial role in the effect of tangibility on desire, as the effect disappears when touching a product is important (i.e., material products). Study 2 provides further support and demonstrates somewhat similar results when using a display window—in retail another frequently applied type of barrier. Finally, study 3 examines a possible boundary condition by introducing the concept of construal level. This study in particular investigates whether the effect of tangibility on desire alters when changing the spatial distance between a geometric product and the customer. As a matter of fact, results show that consumers' desire towards a geometric product is intensified when it is covered (versus revealed), but this is only the case when the product is located close to the consumer.

The prior chapter associated 'desire' with 'unattainability' by means of, for instance, a barrier. However, as a general rule, barriers are not supposed to be insurmountable to ensure people's level of desire (Belk et al., 2003). The third empirical chapter (i.e., chapter IV) refers to this latter idea. In fact, prior research has widely demonstrated that people are generally attracted to good-looking products and objects, but has never examined the potential consequences of being exposed to attractive, but unattainable objects. Luxury products are often associated with good-looking and attractive. In addition, research has demonstrated that particularly materialistic people are inclined to consume luxury products (Belk & Pollay, 1985). Hence, this chapter investigates whether exposure to (unattainable) luxury might influence one's endorsement of materialistic values. In contrast to common intuition, four studies show that exposure to luxury not always enhances materialism. In fact, this chapter reveals that exposure to luxury might produce very different effects depending on whether a person feels that he/she is able or unable to afford the exposed

luxuries. In particular, being able to attain the luxuries to which one is exposed to may indeed increase levels of materialistic goal pursuit, while viewing unattainable luxury may, in fact, decrease this. More specifically, study 1 reveals that the importance attached to materialistic values is significantly lower after exposure to an unattainable villa than after exposure to an average house. Study 2 replicates this finding by focusing on behaviors, rather than filling out a questionnaire. In particular, results demonstrate that participants are more likely to donate a higher amount of money to a good cause after exposure to images of extreme luxury than after exposure to images of functional products. They are also more generous compared to the control condition. Studies 3 and 4 additionally examine feelings of attainability (through imagination and through suspension of cost consideration, respectively), showing moderations of the obtained results.

NEDERLANDSTALIGE SAMENVATTING

Mensen zijn al jaren aangetrokken en gefascineerd door schoonheid en aantrekkelijkheid. Denk maar aan het oude Egypte, waar men consistent lichamen afbeeldde die perfect symmetrisch waren, of waar het gebruik van verschillende oliën en cosmetica een belangrijke rol speelde. Vandaag de dag wordt esthetica nog steeds hoog in het vaandel gedragen. Ook tijdens het ontwikkelen van producten wordt er bijvoorbeeld meer en meer aandacht geschonken aan het design of uiterlijk van de producten. Zelfs grasmaaiers en computers, die eigenlijk niets te maken hebben met schoonheid, worden ontwikkeld met aandacht voor het visuele aspect.

Gezien het algemene belang en de aandacht voor schoonheid, is het niet verrassend dat aantrekking de voorbije decennia een belangrijke rol heeft gespeeld in verscheidene consumentenbeslissingen, keuzes, en gedragingen. Zo worden aantrekkelijke personen bijvoorbeeld vaker positief gediscrimineerd op basis van hun uiterlijk: ze worden sneller aangenomen voor een job en worden beter betaald dan onaantrekkelijke individuen (Dipboye, Arvey, & Terpstra, 1977; Frieze, Olson, & Russell, 1991; Marlowe, Schneider, & Nelson, 1996), ze worden vaker geassocieerd met felbegeerde karaktertrekken (Jones, Hansson, & Phillips, 1987; Miller, 1970; Unger, Hilderbrand, & Madar, 1982), en worden beoordeeld als intellectueel competent, interessant en populair. Dit fenomeen wordt gedefinieerd als de “what is beautiful is good” hypothese (Dion et al., 1972): een tendens om alles wat mooi is als beter te beschouwen. Deze hypothese geldt ook voor producten: attractief ogende producten worden vaker gekocht (Bloch, Brunel, & Arnold, 2003), impulsiever gekocht (Norman, 2002), en worden hoger geprijsd (Hassenzahl, 2008). Consumenten hebben zelfs de neiging om eerder te grijpen naar een visueel aantrekkelijk, echter minder functioneel product dan een dominant functioneel, maar minder bekoorlijk product (Diefenbach & Hassenzahl, 2009).

Bovenstaande voorbeelden zijn slechts een greep uit het talrijke onderzoek dat reeds verricht werd in het domein van aantrekking en diens gevolgen. Dit proefschrift draagt bij aan dit domein van aantrekking door een focus te leggen op onverkende aspecten. Zo omvat dit proefschrift naast de algemene inleiding (d.i., hoofdstuk 1) en de algemene discussie (d.i., hoofdstuk 5) 3 empirische hoofdstukken die dieper ingaan op de invloed van aantrekking op consumentengedrag door telkens een andere invalshoek te integreren.

In het eerste empirische hoofdstuk wordt dieper ingegaan op het feit *waarom* consumenten aangetrokken zijn tot mooie objecten, zoals glossy. Dit hoofdstuk probeert de dieperliggende motivaties en redenen te achterhalen waarom individuen een voorkeur vertonen voor glanzende objecten. Vorig onderzoek heeft reeds aangetoond dat consumenten een aangeboren voorkeur hebben voor mooie verschijningen. Onderzoek bij baby's toonde bijvoorbeeld aan dat 2- tot 3-maand oude kinderen langer naar aantrekkelijke (versus onaantrekkelijke) gezichten keken en hier een voorkeur voor hadden (Langlois et al., 1987). Analooq werd aangetoond dat jonge kinderen glanzende objecten verkiezen (Danko-McGhee, 2006), wat wijst op een aangeboren voorkeur voor esthetica in het algemeen, en glanzende voorwerpen specifiek. Gezien deze bevindingen, baseren we ons in dit hoofdstuk op de beginselen van evolutionaire psychologie en suggereren we dat de voorkeur voor glossy aangeboren kan zijn en voortkomt uit een aangeboren voorkeur voor water, daar water een belangrijke bron is om te overleven. Bovendien heeft vorig onderzoek aangetoond dat glossy oppervlakken geassocieerd worden met water (Coss & Moore, 1990) en dat kinderen de neiging hebben om te likken aan glanzende objecten (Coss, Ruff, & Simms, 2003). In dit hoofdstuk wordt door middel van zes studies getest dat de voorkeur voor glossy aangeboren blijkt te zijn en deels voortkomt uit een aangeboren voorkeur voor water.

In het tweede empirische hoofdstuk bestuderen we de potentiële consequenties van blootstelling aan afgeschermdde producten (bijvoorbeeld door middel van een stolp). Eerder onderzoek heeft onder andere aangetoond dat attractieve producten de aandacht trekken (Bloch, 1995), maar heeft nog niet getest of dergelijke uitstallingen een invloed uitoefenen op de attitudes van de consument ten aanzien van het afgeschermdde product. Langs de ene kant toont literatuur namelijk aan dat consumenten positievere attitudes, hogere aankoopintenties en impulsaankopen vertonen wanneer ze de mogelijkheid hebben om een product aan te raken (McCabe & Nowlis, 2003, Citrin et al., 2003). Echter, langs de andere kant bewijst eerder onderzoek dat individuen een hoger verlangen vertonen naar iets onbereikbaar, met andere woorden, iets dat niet onmiddellijk binnen handbereik ligt door middel van een barrière (Belk et al., 2003). Dit hoofdstuk verzoent deze twee tegengestelde literatuurstromingen en onderzoekt door middel van drie studies of een barrière (zoals een glazen stolp of een vitrinekast) iemands verlangen naar het afgeschermdde product verhoogt of verlaagt, daar men het product niet kan aanraken.

In het vorige hoofdstuk werd 'verlangen' geassocieerd met 'onbereikbaar', bijvoorbeeld door middel van een barrière. Echter, als algemene regel geldt dat deze barrière niet onoverbrugbaar mag zijn opdat het verlangen kan blijven bestaan (Belk et al., 2003). Dit derde empirische hoofdstuk verwijst naar dit laatste idee. Immers, vorig onderzoek heeft reeds vaak aangetoond dat mensen aangetrokken zijn tot aantrekkelijke objecten, maar heeft nog niet de potentiële gevolgen in kaart gebracht van blootstelling aan mooie, maar onbereikbare objecten. Luxeproducten worden vaak geassocieerd met mooi en aantrekkelijk. Bovendien heeft onderzoek bewezen dat voornamelijk materialistisch ingestelde personen geneigd zijn om over te gaan tot luxeconsumptie (Belk & Pollay, 1985). Dit hoofdstuk onderzoekt of blootstelling aan onbereikbare luxe een effect kan veroorzaken op het belang dat iemand hecht aan materialistische waarden en doelen. Meer specifiek toont dit hoofdstuk aan de hand van vier studies aan dat blootstelling aan luxe niet altijd leidt tot een verhoogd materialisme, zoals vaak wordt gedacht. Integendeel, dit hoofdstuk bewijst dat er verschillende effecten kunnen ontstaan naargelang iemand zich deze luxe al dan niet kan veroorloven.

CHAPTER I: INTRODUCTION

CHAPTER I: INTRODUCTION

"Beauty is everywhere a welcome guest"

Johann Wolfgang von Goethe

Beauty and attractiveness have always fascinated people. Already in ancient times, references to the importance of beauty and aesthetics can be found. Egyptians portrayed bodies in which symmetry was an essential component. They also favored the use of cosmetics, such as oils, perfumes, and makeup. Likewise, the ancient Greeks were obsessed with aesthetics. In fact, the word 'aesthetics' comes from the Greek verb 'aesthanesthai' and the Greek word 'aisthētikos', meaning 'to perceive' and 'sensory perception'. In the eighteenth century, the meaning of 'aesthetics' has been changed into 'sensuous delight' or 'gratification of the senses' (Hekkert, 2007), and in today's dictionaries, aesthetics is defined as "a set of principles concerned with the nature and appreciation of beauty" (Oxford Dictionaries), or "pleasing in appearance" (Merriam-Webster Dictionary).

The existence and importance of aesthetics and beauty is omnipresent from ancient Egypt and Greece to today's modern times. In fact, visual aesthetics are even applied to products which are not inherently related to beauty, such as lawn-mowers or computers. This omnipresence of aesthetics and superior design can simply be explained: visual appearance helps consumers to differentiate between competing products, leading to an improvement of a company's success on the market (e.g., Bloch, 1995; Dumaine, 1991).

Essentially, research has shown that visual attractiveness is generally a good predictor for consumers' overall user satisfaction (e.g., Lavie & Tractinsky, 2004; Schenkman & Jönsson, 2000). In one case, individuals were asked to rate a certain amount of Web pages on several characteristics. They perceived beauty as the component which nearly reflected their overall impression with the Web pages (Schenkman & Jönsson, 2000). As such, people's perception of attractiveness appears to show high correlations with their overall impression regarding a product or service, illustrating that beauty is of high importance.

Knowing this, it is not surprising that a company's success is to a great extent influenced by its aesthetically appealing or good-looking products (e.g., Berkowitz, 1987; Bloch, 1995; Cooper & Kleinschmidt, 1987; Kotler & Rath, 1984; Veryzer, 1995). A clear example of this is the multinational corporation Apple Inc., who's success has grown

considerably, not only because of the customer-friendliness and the ease of use of their products, but also because of their unique and superior product designs. In fact, a product's appearance is the first thing consumers generally notice; it increases their attention (Berkowitz, 1987; Bloch, 1995; Dumaine, 1991), helps them to differentiate between competing products (Bloch, 1995, Dumaine, 1991) and to establish a relationship with the product or brand (Bloch, Brunel, & Arnold, 2003). Obviously, this differentiation might help companies to gain competitive advantage in today's cluttered business (e.g., Kotler & Rath, 1984; Nussbaum, 1997).

Undoubtedly, luxury products are associated with beauty and aesthetics as these types of products reflect sensory pleasure (Hirschman & Holbrook, 1982). Products such as a Rolls Royce, beautiful jewelry, or a delicious wine will presumably gratify one's senses. Indeed, as Kapferer (1997, p.253) quoted: "Luxury defines beauty; it is art applied to functional items ... Luxury items provide extra pleasure and flatter all senses at once" In reality, luxury consumption provides hedonic pleasure (Dubois & Paternault, 1995), which is associated with fun, delight and excitement (Hirschman & Holbrook, 1982). Accordingly, luxury can be defined as "a promise of pleasure" (Hagtvedt & Patrick, 2009).

Given the fact that consumers are generally encouraged to pursue products that provide emotional advantages, it is not surprising that luxury business has grown considerably (e.g., Dubois, Czellar, & Laurent, 2005; Dubois & Duquesne, 1993; Nueno & Quelch, 1998; Vickers & Renand, 2003). In addition, this business is no longer restricted to diamonds, private jets or exclusive cars (Silverstein & Fiske, 2003; Wiedmann, Hennigs, & Siebels, 2009), and does not only include members of the richest social class anymore (Dubois & Laurent, 1995; Nueno & Quelch, 1988; Yeoman & McMahon-Beattie 2006). Actually, consumers tend to consider different types of products as luxurious when it provides them emotional pleasure (for example rich body washes) (Hagtvedt & Patrick, 2009). Moreover, the business of physical adornment (e.g., fashion clothes, perfume and jewelry) has been prosperous: American women spend more than 13 billion dollars in retail cosmetics departments (Bloch & Richins, 1992)—which illustrates the importance of beauty.

Overall, from ancient Egypt or Greece to today's modern times, one might acknowledge the importance of beauty and attractiveness for mankind. Keeping this in mind, it is not surprising that attractiveness has played an imported part in various consumer preferences, choices and behavior. On the following pages, I will provide a survey and an

explanation of the behavioral consequences of this universal attraction effect as well as state the factors that might influence whether or not such attraction effects occur. In fact, it is necessary to gain a better understanding of the proven impact of appeal and luxury on human-related as well as product-related preferences before properly looking at interesting research questions that remain unanswered within this domain.

1. ATTRACTED TO ATTRACTIVENESS: THE EFFECT OF ATTRACTION AND LUXURY ON HUMAN-RELATED PREFERENCES

“Beauty is the wonder of wonders. It is only the shallow people who do not judge by appearance”
Oscar Wilde

1.1 Innate Preference for Attractive Appearances

Cross-cultural data (Gangestad & Buss, 1993; Gangestad, Haselton, & Buss, 2006) discovered that people living in environments with relatively high (versus low) disease threats, put more (less) emphasis on a potential mate’s physical attractiveness. In fact, physical attractiveness has generally been associated with youthfulness or facial symmetry—characteristics referring to the possession of ‘good genes’, hence, the ability to withstand and resist various diseases during development (Gangestad & Thornhill, 1997; Grammer, Fink, Moller, & Thornhill, 2003; Shackelford & Larsen, 1997; Watson & Thornhill, 1994). Consequently, even in cultures with no familiar standards of beauty, attractiveness is preferred—suggesting an innate preference for pleasant appearances.

Moreover, prior research which has tried to determine features of products that are related to aesthetic pleasure, suggested innate preferences for visual organization, such as unity (i.e., congruent measures), harmony, proportion, and symmetry (Hekkert, 1995; Muller, 2001; Veryzer, 1993; Veryzer & Hutchinson, 1998). In addition, neurological research has shown that aesthetics is innately appreciated given the observed affirmative attraction effects when presented with beautiful faces (Aharon et al., 2001), fine-looking geometric shapes (Jacobsen, Schubotz, Höfel, & Cramon, 2006) and aesthetics in general (Kirk, Skov,

Christensen, & Nygaard, 2009). Given the findings above, it seems evident that the preference for aesthetics is a universal human given (Dutton, 2002).

Indeed, research with children has shown that 2- to 3-month-old babies discriminate between attractive and unattractive female faces, exhibiting a visual preference for the attractive faces (Langlois et al., 1987; Slater et al., 1998). Hence, it is not surprising that nursery school children perceive unattractive children to be less popular, and consequently less preferable classmates (e.g., Dion, 1973; Dion & Berscheid, 1974; Langlois, Roggman, & Rieser-Danner, 1990). Not only children have been found to discriminate in favor of attractive appearances at school. In fact, teachers also expect attractive children to be more intelligent than their fellow-pupils (e.g., Clifford & Walster, 1973)—suggesting a general belief that “what is beautiful is good.”

1.2 What is Beautiful is Good

“Appearances are not held to be a clue to the truth. But we seem to have no other”

Ivy Compton-Burnett

Physical attractiveness has been detected to influence consumers’ opinions in several ways. As someone’s physical appearance is one of the most evident and visible characteristics (Caballero & Solomon, 1984; Dion, Berscheid, & Walster, 1972; Reingen, Ronkainen, & Gresham, 1981), it is not surprising that consumers may get ideas based on physical attractiveness, and hence, make assumptions about others. In fact, the human brain is rationally limited, and so individuals often rely on certain cues or heuristics to jump to conclusions.

Indeed, the “what is beautiful is good” hypothesis (Dion et al., 1972) can be categorized as a mental shortcut in which people tend to make a connection between beauty and goodness. Therefore, people are more likely to jump to conclusions and use a stereotype in which physically attractive individuals are believed to ‘be better’. In fact, according to Aronson (1972, p.216), “we like beautiful and handsome people better than homely people, and we attribute all kinds of good characteristics to them.”

Abundant research has demonstrated several effects concerning this phenomenon and has shown that attractive individuals benefit from various types of positive

discrimination. For instance, good-looking individuals are readily associated with desirable characteristics, while less attractive people are assumed to possess negative personality traits (Jones, Hansson, & Phillips, 1987; Miller, 1970; Unger, Hilderbrand, & Madar, 1982). Accordingly, attractive individuals are judged more socially pleasing and intellectually competent (e.g., Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Hope & Mindell, 1994; Langlois et al., 2000; Lorenzo, Biesanz, & Human, 2010; Mobius & Rosenblat, 2006), more interesting, strong, popular and responsive (Dion et al., 1972), and are even judged less likely to be guilty, and therefore, receive less severe punishments than unattractive people (e.g., Efran, 1974; Sigall & Ostrove, 1975).

Given that socially desirable personality traits are commonly associated with good-looking individuals, it is not surprising that those individuals benefit from an enhanced professional life. Consequently, attractive individuals are more likely to be hired or better paid (e.g., Dipboye, Arvey, & Terpstra, 1977; Frieze, Olson, & Russell, 1991; Marlowe, Schneider, & Nelson, 1996). Moreover, the perceived physical attractiveness of salespeople can create a significant impact on their sales performance (Ahearne, Gruen, & Jarvis, 1999; Deshields, Kara, & Kaynak, 1996; Reingen & Kernan, 1993), as attractive (versus unattractive) spokespersons are found to be more persuasive when presenting a message (Chaiken, 1979), and are more likely to be agreed with (Horai, Naccari, & Fatoullah, 1974; Snyder & Rothbart, 1971). Given the findings above, it is not surprising that attractive models are repeatedly employed for advertisements as they evoke more favorable opinions about the advertisement (Baker & Churchill, 1977; Caballero & Pride, 1984), which in turn, renders increased purchase intentions and leads to behavioral changes (e.g., Caballero & Pride, 1984; Petrosius & Crocker, 1989). However, a large number of studies provide support for the “match-up hypothesis” (e.g., Kamins, 1990; Lynch & Schuler, 1994; Solomon, Ashmore, & Longo, 1992) which suggests the idea of a fit or congruence between the endorser and the product. Specifically, attractive and beautiful models are especially effective when promoting beauty-related products (i.e., products used to enhance one’s attractiveness) and less so for other products.

1.3 Attractiveness and Luxury

“Clothes and manners do not make the man; but, when he is made, they greatly improve his appearance”

Henry Ward Beecher

Given that luxury is associated with beauty and attraction (Hirschman & Holbrook, 1982; Kapferer, 1997), it seems obvious to assume that exposure to luxurious products might also influence consumers' evaluations. Indeed, Tzioti (2010) demonstrated that decision makers are more likely to take advice from wealthy than from non-wealthy people (i.e., advisors driving luxurious cars or wearing expensive clothes), as well as from an advisor who has just won the lottery than from an advisor who did not. In fact, consumers associate money with good, valuable and attractive (Tang, 1992). Hence, classy suits, expensive watches and luxurious cars may positively add to a spokesperson's persuasiveness in addition to the physical attractiveness already mentioned (Chaiken, 1979). Obviously, these effects might alter or even reverse depending on the situation (e.g., alternative settings or in case of environmentalists).

Actually, the consumption of luxury goods might enhance one's attractiveness (Dunn & Searle, 2010; Shuler & McCord, 2010). In particular, one research stated that women rate men to be more attractive when seated in a prestigious car (i.e., Silver Bentley Continental GT) than seated in a neutral car (i.e., Red Ford Fiesta ST). In a similar vein, Shuler and McCord (2010) showed a positive linear association between a men's attractiveness and his resources (i.e., the car he is standing next to). More specifically, the more luxurious the car next to the men, the more attractive these men were perceived by women.

Accordingly, people ascribe a higher social status to individuals wearing luxurious or brand-labelled clothes (as opposed to individuals wearing regular clothes without a brand label). Hence, social interactions seem to benefit of luxurious or brand-labelled clothes as people are more compliant with and generous to individuals who display luxury, and they are even willing to pay a price to affiliate with them (Nelissen & Meijers, 2011). Keeping this in mind, it is not surprising that people consume luxuries in order to feel good (Hudders & Pandelaere, 2012; Kapferer & Bastien, 2009; Sivanathan & Pettit, 2010), or to belong to a certain part of society (Dholakia & Talukdar, 2004).

2. ATTRACTED TO ATTRACTIVENESS: THE EFFECT OF ATTRACTION AND LUXURY ON PRODUCT-RELATED PREFERENCES

2.1 The Relevance of Product Aesthetics

Similar to the notion that good-looking individuals might benefit from various types of positive evaluations, prior research has demonstrated the importance and impact of attractiveness and aesthetics on consumer choices in a product-related context (e.g., Bloch, 1995; Garber, 1995; Raghurir & Greenleaf, 2006; Veryzer, 1995). Indeed, aesthetically appealing products have been linked to more favorable attitudes and higher purchase intentions (e.g., Bloch, Brunel, & Arnold, 2003), are more likely to be purchased impulsively (Bayley & Nancarrow, 1998; Bloch, 1995; Norman, 2002), and they can be priced higher (Bloch et al., 2003; Hassenzahl, 2008; Townsend & Sood, 2012).

When consumers are given the opportunity to justify their choice, they are even more likely to prefer an aesthetically appealing mobile phone which is less useful than a predominantly useful, although less beautiful phone (Diefenbach & Hassenzahl, 2009). In fact, consumers exhibit a tendency to choose a more aesthetically appealing product even at the expense of the product's functionality (Creusen & Schoormans, 2005). A straightforward example of this is Alessi, an Italian kitchenware company with products which do not always excel in functionality (e.g., cat food bowl or lemon squeezer; see figure 1), but do stand out in their unique and beautiful design. As a result, people like to exhibit those types of products as a piece of decoration in their homes (Reimann, Zaichkowsky, Neuhaus, Bender, & Weber, 2010).

However, Chitturi, Raghunathan, and Mahajan (2007) highlight the emotional and behavioral consequences of making such trade-offs between functionality and aesthetics. In fact, the authors discovered that trading functionality for hedonics generates feelings of guilt, while trading hedonics for functionality generates feelings of sadness. As a result, these findings imply that designers should consider the optimal or acceptable level of functionality when designing products, such that the most favorable combination of hedonic and functional attributes could be created in order to minimize feelings of guilt and sadness (compared to product alternatives). In addition, designers should be aware of a negative aesthetics effect (Hoegg, Alba, & Dahl, 2010), that is, a preference for the unattractive

product when aesthetics clash with functionality or performance. As a result, the unattractive product might become advantageous in some situations.



Figure 1. Examples of aesthetically appealing product designs

In general, if products are similar in function and price (Creusen & Schoormans, 2005; Kotler & Rath, 1984), even as regards industrial (Yamamoto & Lambert, 1994) or financial products (Townsend & Shu, 2010) (where aesthetics are of less importance), people exhibit a preference for visually appealing products. One example of this is that good-looking financial and investment documents have been found to positively influence stock evaluation and investment behavior, leading to a higher value perception of this company (Townsend & Shu, 2010).

Truly, product aesthetics or good-looking designs create a competitive advantage in business (e.g., Berkowitz, 1987; Cooper & Kleinschmidt, 1987; Goodrich, 1994; Kotler & Rath, 1984; Nussbaum & Treece, 1991; Roy, 1994; Veryzer, 1995; Walker, 2009). A survey among senior marketing managers even revealed that 60% of the managers believed that design is the most crucial aspect in the performance of a new product, whereas only 17% of the participants considered a product's price as its most important feature (Bruce & Whitehead, 1988). In fact, focusing on a product's design is a smart method to gain consumers' attention (e.g., Berkowitz, 1987; Dumaine, 1991). Consequently, it is not surprising that these days, business consists of various appealing profiles and designs in almost every product category, from mobile phones and cars to even coffee makers and toothbrushes.

Empirical studies have illustrated the ‘what is beautiful is good’ halo effect on consumer goods as well. In particular, aesthetically appealing products (in whatever product category) might benefit from positive discrimination, creating the impression or belief that they ‘work better’ than they actually do (Bloch, 1995; Chaiken & Maheswaran, 1994; Norman 2002). Indeed, Sonderegger and Sauer (2010) demonstrated the impact of visual appearance on perceived functionality. In particular, the authors indicated that appealing products were perceived as being more usable than unappealing ones, though the objective quality and functionality were identical.

Aesthetically appealing products appear to be quite comparable with luxury and prestigious products and they are frequently classified in the same category. Hence, it seems obvious to assume that those type of products also benefit from positive evaluations. Truly, Amar et al. (2011) showed that prestigious brands might actually improve an individual’s performance on product-related tasks. Put differently, given that prestigious products are generally perceived and expected to be better, and promote quality, the authors conclude that products that are expected to be better are actually perceived as better and as exhibiting improved performance on product-related tasks. For instance, wearing luxurious sunglasses (e.g., sunglasses tagged Ray-Ban) seemed to improve reading performances (i.e., making fewer errors and reading more quickly), compared to wearing the identical pair of sunglasses of a non-luxury brand (e.g., sunglasses tagged Mango). Similarly, ear-muffs of a prestigious brand are perceived to block noise more effectively than their identical non-luxury equivalent. In a similar vein, prior research illustrated that brand-labelled beers were perceived to taste better than unlabelled beers, even though a general taste test revealed no taste differences between the different beers (Allison & Uhl, 1964). The findings above consequently contribute to the salient impact of attraction and luxury on consumers’ decision-making and evaluations.

2.2 Emotions Behind Aesthetically Appealing Objects

In trying to explain why attractive products are generally preferred, researchers propose that these products induce positive affect (e.g., Desmet & Hekkert, 2007; Erk, Spitzer, Wunderlich, Galley, & Walter, 2002; Hassenzahl, 2008; Hoegg & Alba, 2008; Norman, 2002; Page & Herr, 2002) and trigger strong emotional responses (e.g., Coates, 2003;

Dumaine, 1991). More specifically, prior research discovered that especially reward value plays an important role in the positive reception of aesthetic experiences (Reimann et al., 2010). Similar to the discovery that exposure to beautiful faces increases the activation of the brain area corresponding to reward values (Aharon et al., 2001; Kampe, Frith, Dolan, & Frith, 2001), neurological research has shown that exposure to beautiful (versus ugly) visual stimuli elicit a higher reward value (Kawabata & Zeki, 2004). As such, merely seeing an attractive sports car elicits the same reward-related activations in the brain as being exposed to attractive opposite-sex faces (Erk et al., 2002). Hence, it is not surprising that people describe their thoughts on the subject of aesthetically appealing objects as “sexy” and “seductive” (Norman, 2004), or as “passionate” and “lustful” (Csikszentmihalyi & Robinson, 1990).

Given the notion that attractive objects can make people feel good (Norman, 2002, 2004), it is not surprising that consumers exhibit an immediate desire to touch or examine beautiful objects more closely (Bloch, 1995; Joy & Sherry, 2003), to own them (Coates, 2003; Norman, 2004), and to show off and take care of these products after purchase (Bloch, 1995). As a result of the pleasure associated with the use of attractive products (Veryzer, 1993), frequent product usage and repurchase intentions have occurred (Jordan, 1998), as well as the appreciation and treasure of the attractive product long after its functional value is faded (Martin, 1998). Accordingly, people are more loyal to products they are attached to, in a way that they will more likely defend this product, in spite of its negative elements, or they forgive the product company in case of accidents (Park & MacInnis, 2006).

3. OVERVIEW OF DISSERTATION

Although substantial research has tackled the topic of appeal and luxury and its relevance and consequences in the past, the various studies in this doctoral dissertation aim to contribute to the domain of appeal and luxury by focusing on rather unexplored aspects. In fact, interesting new hypotheses may come up when perceiving this domain from a different point of view. For example, while we already know that individuals are attracted to good-looking people in general or appealing items in particular, it remains unclear *why* people exhibit favorable preferences regarding, for instance, glossy objects. As mentioned earlier, prior researchers declare that positive affect may be an explanation of why

consumers tend to prefer attractive appearances. However, we believe that the positive feelings evoked by attractiveness and beauty is not enough to explain why people prefer glossy. Instead, we rely on an evolutionary framework (essay 1). Moreover, literature remains silent about the potential consequences of exposures to covered products (essay 2), or exposures to unattainable luxuries (essay 3). Imagine yourself, for instance, standing in a shop, being confronted with a product that is covered by, for example, a display cover or a glass bell. Are similar exposures going to affect your attitudes and level of desire towards this product even though the possibility of touch is hindered? Or imagine yourself watching *MTV Cribs* on television, is the simple act of being exposed to very expensive and unattainable luxuries going to affect your values and goals?

The various studies in this doctoral dissertation provide an answer to the questions above and tackle the topic of appeal and luxury in three specific domains. Every chapter contributes to and touches upon a different aspect of the role of attraction and/or luxury: the effect of attraction on consumers' mind (essay 1), attitudes (essay 2), and values (essay 3). In the next section, I will study each of these topics and obviously integrate the impact of attraction into each specific part.

3.1 Introduction to Essay 1: The Effect of Attraction on Consumers' Mind

Many advertisements for high end products, fashion and beauty make use of glossy paper in magazines. Moreover, ads for luxury products are often found in glossies. This is not surprising as anecdotal evidence suggests that people tend to choose magazines and/or books with a shiny rather than a regular cover. The glossy cover catches the attention because it seems more beautiful and feels unintentionally more glamorous and classy. In fact, this observation corresponds to the literature previously mentioned and the knowledge regarding the relevance of appeal and its influence on consumers' evaluations and preferences.

In the beginning of this chapter, I describe that people exhibit an innate preference for beautiful appearances as even children tend to discriminate in favor of attractive faces (Langlois et al., 1987). This means that very young children also exhibit a liking for shiny objects (Danko-McGhee, 2006). Even evidence among animals support this statement. Particularly birds (especially ravens, crows and magpies) show a particular interest in shiny

objects, and are notorious for “stealing” and collecting these typical objects (MadSci Network, Wingert, 1999). The attraction to shiny things, such as jewelry, can even urge these species to enter a house in order to steal some items. Literature indicates that birds long for bright objects in order to attract and seduce mates (e.g., Borgia, 1995; Borgia & Gore, 1986). Shiny coins, spoons, aluminium foil and even a glass eye were reported to be stolen (The Public Broadcasting System; BBC Nature) in an effort to create the perfect romantic mood. Hence, knowing that preference for aesthetics is a human universal (Dutton, 2002) and that children as well as animals are attracted to beautiful and shiny objects, one might assume an innate preference for glossy.

While prior research has widely investigated the consequences of beauty and appeal in general, little or even no research has empirically investigated the underlying causes of the attraction effect of glossy in particular. Moreover, the investigation of whether humans’ preference for glossy has a systematic bias, has not yet received any attention in past literature. Based on an evolutionary psychology framework, we suggest and test the hypothesis that the preference for glossy stems from an innate preference for water as a valuable resource. In fact, prior research has shown that glossy surface textures connote wetness (Coss & Moore, 1990). To understand the source of this reasoning I will briefly touch upon the basics of evolutionary thinking.

Crucial to the philosophy of evolutionary psychology are the concepts of adaptation and natural selection. In fact, much of today’s human mind is shaped by mental mechanisms that have evolved as adaptive solutions to evolutionary relevant problems (e.g., Confer et al., 2010; Darwin, 1859; Tooby & Cosmides, 2005). For instance nowadays, humans generally exhibit a preference for sugar, salty, sweet or fat food instead of bitter. Consider, for instance, humans’ immediate detection of salt-free food, the success of the Coca-Cola brand, the growing business of fast food restaurants, but also the vital problem of overweight. According to evolutionary psychology, today’s preference for sweets and fat originates in our ancestors’ hunting behavior, as they ate certain food with a high nutritional value and avoided other food in order to survive (Buss, 1995). Fat, sweet and salty food provided higher concentrations of (respectively) calories (protein), nutrients, and minerals—all essential and necessary ingredients for adequate nutrition of the body. Therefore, only those species which preferred similar foods were more likely to survive and reproduce than others, which preferred bitter and rotten food. Likewise, today’s preferences for and avoidances of

certain kinds of food are those that consistently solved long-term problems during the species' evolution in order to survive and reproduce (Tooby & Cosmides, 1992). Accordingly, human beings who lived in an environment with fresh water nearby were more likely to survive than those who lived in a non-aquatic environment (Appleton, 1975). The consequences of such natural selection (Darwin, 1859) might be manifested today in a strong preference for water.

Evolutionary analyses have already presented new understandings of romantic aspirations (e.g., Buss, 1989), standards of physical attractiveness (e.g., Scheib, Gangestad, & Thornhill, 1999; Singh, 1993), workplace behavior (Browne, 2002), traditional theories on economics (e.g., Wang, 2002; Wilson & Daly, 2004), the value of sensational news (Davis & McLeod, 2003), statistical reasoning (Cosmides & Tooby, 1996), and many others (Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998; Durante, Giskevicius, Hill, Perilloux, & Li, 2011; Gangestad & Thornhill, 1998). An understanding of evolutionary motives might provide new insights in consumer preferences and decision processes (Saad, 2007; Saad & Gill, 2000). That is why this essay draws on an evolutionary framework in order to explain the innate preference for water as the underlying force that drives an individuals' preference for glossy. Consequently, this essay refers to the effect of attraction on *consumers' mind* (i.e., evolutionary motives and cognitive thoughts): by looking at the evolution of mankind, we examine the origin of our aesthetic response of being attracted to glossy.

In chapter II, *Taking a Shine to It: How the Preference for Glossy stems from an Innate Need for Water*, we first demonstrate the assumed preference for glossy amongst adults (study 1A) and young children (study 1B)—thus, ruling out the explanation that the preference for glossy is 'learned' over time (i.e., not innate). Furthermore, we show that this preference for glossy has a systematic bias (study 2) and that adults indeed associate aquatic landscapes with glossy, while dry landscapes are related with matte surfaces (study 3). Next, we turn down the account that the preference for glossy only stems from visual appeal (study 4) and finally we examine the association of glossy with the need for water by provoking thirst in participants (study 5).

3.2 Introduction to Essay 2: The Effect of Attraction on Consumers' Attitudes

Previous literature has widely investigated the impact of appeal on consumers' product preferences. For instance, it has been shown that appealing products or attractive product designs increase consumers' attention (Berkowitz, 1987; Dumaine, 1991) and help them to discriminate between competing products (Bloch, 1995). However, literature remains silent about the potential consequences of exposures to product covers, such as a glass display cover. In fact, it is unclear whether such exposures might influence consumers' attitudes and level of desire towards the covered product.

Actually, prior research has demonstrated that consumers perceive items particularly appealing when they have to overcome obstacles to obtain them, at least when these obstacles are not insurmountable (Belk, Ger, & Askegaard, 2003). In fact, people exhibit a general tendency to long for those things that they cannot immediately have. As a result, a distance or barrier might intensify consumers' pursuit of desire. Moreover, impulsive decisions consist of unplanned actions that are often caused by spontaneous stimuli (Baumeister, 2002), such as a desire. Hence, it seems obvious to assume that a barrier or product cover might positively influence consumers' evaluations towards the covered product.

However, paradoxically, other studies claim that the use of haptic information strongly influences consumers' preferences and judgments. Indeed, touching a product has been found to positively enhance product evaluations (e.g., Citrin, Stem, Spangenberg, & Clark, 2003; McCabe & Nowlis, 2003; Peck & Wiggins, 2006) and impulse purchases (e.g., Peck & Childers, 2006). Consequently, being able to touch a product might particularly be influential to consumers' decision making as well.

Hence, it is not certain whether barriers, such as display cases, may enhance or reduce a product's attractiveness and evaluation. We consider the investigation of this contradiction in literature as particularly important, given that lots of retailers make use of display cases or display windows. To properly give an answer to this question, this essay first reconciles the inconsistent findings in literature that suggest that tangibility can both increase and decrease desire. Moreover, we experimentally investigate whether exhibiting a product in a way that it cannot be touched, by means of a barrier (i.e., a retail display case and a display window), might enhance consumers' desire and evaluations concerning the

product, even if this precludes touching it. Thus, this essay refers to the investigation of *consumers' attitudes* towards covered versus uncovered products.

In chapter III, *The Impact of Touch On The One Hand, versus the Force of Attraction On The Other Hand ... : The Effect of Tangibility on Desire*, we investigate this effect of tangibility on desire. We first examine the moderating impact of the type of product (study 1), as various products need tactile input more than others. As a matter of fact, results reveal a heightened desire when displaying a product underneath a plexiglass case, but this is only true for products which do not have to be touched to investigate its characteristics. Subsequently, we validate our obtained results using another frequently employed type of barrier in the retail domain: a display window (study 2). Finally, we check whether the effect of tangibility on desire alters when changing the spatial distance between the product and the customer (study 3).

3.3 Introduction to Essay 3: The Effect of Luxury on Consumers' Values

As mentioned in the introduction to essay 2, consumers especially long for those things that they cannot immediately have (e.g., Worchel, Lee, & Adewole, 1975), or put differently, people view items particularly appealing when they are 'difficult to obtain' (Belk et al., 2003). However, as a general rule, barriers are not supposed to be insurmountable to ensure people's level of desire (Belk et al., 2003). The last research question in this dissertation refers to this latter idea.

In fact, while prior research has widely shown that consumers are generally attracted to beautiful objects, literature remains silent about the potential consequences of not being able to afford beautiful items to which one is exposed, such as luxuries. Nevertheless, people are very frequently confronted with similar exposures in everyday life; hence, we consider this research question as highly relevant. For instance, your friend's new exclusive car, or the beautiful villas you see, walking through elite neighborhoods. Do such exposures to beautiful, but unattainable luxuries influence your values and goals?

As we know since the beginning of this chapter, it is clear that consumers are generally attracted to and favor visually appealing objects and luxuries. Obviously, some people are more inclined to long for appealing products and luxuries than others. As a matter of fact, research has shown that highly materialistic consumers are fascinated by

status and attach more importance to status consumption, as they believe that such possessions lead to personal happiness (Richins & Dawson, 1992). Consequently, it is not surprising that materialists are more inclined to consume luxuries (Belk & Pollay, 1985). In fact, luxury products offer uniqueness and the ability to show off wealth and success (e.g., Caniato, Caridi, Castelli, & Golini, 2009; Kapferer & Bastien, 2009; Rucker & Galinsky, 2009).

Given this preference for luxury consumption amongst materialists, it seems obvious to assume that exposures to luxurious products (for instance, by means of advertising) might increase one's materialistic goal pursuit. Prior studies have attempted to support this link, however, not unambiguously (Paek & Pan, 2004). This essay suggests that this might be—at least partially—due to the fact that the influence of exposure to luxuries is more complex than is usually assumed. In fact, drawing on goal commitment research and in contrast to common sense, we argue that not all exposures to luxuries may increase materialism.

Given that materialism is fairly prominent in countries all over the world (e.g., Ger & Belk, 1996; Ryan et al., 1999; Schmuck, Kasser, & Ryan, 2000), and knowing that materialism is associated with a broad range of adverse effects (e.g., Burroughs & Rindfleisch, 2002; Chang & Arkin, 2002; Vansteenkiste et al. 2006), we believe the investigation of the causes of materialism as particularly appropriate. Accordingly, the final essay of this dissertation touches upon the effect of luxury on *consumers' values*, as materialism is widely viewed as an important life value (e.g., Fournier & Richins, 1991; Kasser & Ryan, 1993; Richins & Dawson, 1992).

In chapter IV, *Exposure to Unattainable Luxury: Boomerang Effects on Materialistic Goal Pursuit*, we show that exposure to luxuries may produce different effects depending on whether a person feels that (s)he is able or unable to attain these luxuries. In particular, being able to attain the luxuries to which one is exposed to may indeed increase levels of materialistic goal pursuit, while viewing unattainable luxury may, in fact, decrease this (study 1-3-4). Actually, we examine the prediction that people make inferences that they cannot attain the luxuries to which one they are exposed (study 3-4). Moreover, we even demonstrate that people are more inclined to donate money to charities (i.e., exhibiting nonmaterialistic behavior) when being confronted with unattainable luxuries (study 2).

CHAPTER II:

TAKING A SHINE TO IT: HOW THE PREFERENCE FOR GLOSSY STEMS

FROM AN INNATE NEED FOR WATER

**CHAPTER II: TAKING A SHINE TO IT:
HOW THE PREFERENCE FOR GLOSSY STEMS FROM AN INNATE NEED FOR WATER¹**

Human beings are attracted to glossy objects. However, the investigation of whether this preference for glossy is a systematic bias, and the rationale for why, has received little or no attention. Drawing on an evolutionary psychology framework, we propose and test the hypothesis that the preference for glossy stems from an innate preference for water as a valuable resource. In a set of six studies we demonstrate the preference for glossy amongst both adults and young children (studies 1A, 1B and 2) ruling out a socialization explanation, investigate the hypothesis that the preference for glossy stems from an innate need for water as a resource (studies 3 and 5) and, in addition, rule out the more superficial account of glossy = pretty (study 4). The interplay between the different perspectives, implications of the findings and future research directions are discussed.

¹ Chapter II is currently under review as “Meert, K., Pandelaere, M., and Patrick, V. M. (under review – 2nd round). Taking a Shine to It: How the Preference for Glossy stems from an Innate Need for Water. *Journal of Consumer Psychology*.”

Human beings are attracted to glossy objects. Shimmering lipsticks, gleaming cars, dazzling diamonds and sequined gowns conjure up images of the good life. This attraction to glossy can also be observed in everyday objects. According to the Newspaper Association of America, 65 percent of surveyed respondents prefer glossy paper stocks. Gelineau (1981) points out the powerful influence of a glossy surface finish in color preference. Consumer products, modern sculptures and architectural buildings often reflect this preference for shiny or glossy surfaces. Indeed, some recent research even suggests that the glossiness of the surface material of a store display (for e.g. glass versus wood) has a positive impact on the products displayed on it (Zhu & Meyers-Levy, 2009). There is some evidence that this preference for glossy has existed from prehistoric times. Centuries ago, prehistoric man polished bone tools to achieve a shiny gleam (Henshilwood, D'Errico, Marean, Milo, & Yates, 2001). Paleolithic people also used ivory, mother of pearl and soapstone to make shiny ornaments. Certain modern-day hunter-gatherer tribes, such as the Yolngu of northern Australia, equate the inner brilliance of such materials with spiritual power (Origins, Williams, 2012).

Why do people like glossy? Although these examples demonstrate a general appreciation for glossy, previous research has not empirically investigated whether this preference for glossy is a systematic bias or identified the mechanism underlying this preference. It is notable that little research exists that systematically investigates the rationale underlying the preferences for specific aesthetic elements such as "individual colors, color combinations, form, texture, and spatial composition" (Palmer, Schloss, & Sammartino, 2013, p. 101).

At first blush, it appears that gloss should be related to beauty or visual appeal (a glossy = pretty notion). According to the "what is beautiful is good" hypothesis (Dion, Berscheid, & Walster, 1972), attractive individuals benefit from various types of positive discrimination. For instance, they are more likely to be hired or better paid (e.g., Dipboye, Arvey, & Terpstra, 1977; Frieze, Olson, & Russell, 1991; Marlowe, Schneider, & Nelson, 1996), and are judged more socially pleasing and intellectually competent (e.g., Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Hope & Mindell, 1994; Langlois et al., 2000; Lorenzo, Biesanz, & Human, 2010; Mobius & Rosenblat, 2006). Similarly, aesthetically appealing products have been linked to more favorable attitudes and higher purchase intentions (e.g., Bloch, Brunel, & Arnold, 2003), are more likely to be impulsively purchased

(Bayley & Nancarrow, 1998; Norman, 2002), and garner higher prices (Bloch et al., 2003; Hassenzahl, 2008; Townsend & Sood, 2012).

To explain why attractive products are generally preferred, researchers propose that attractive products induce positive affect (e.g., Desmet & Hekkert, 2007; Erk, Spitzer, Wunderlich, Galley, & Walter, 2002; Hassenzahl, 2008; Hoegg & Alba, 2008; Holbrook & Zirlin, 1985; Norman, 2002) and trigger strong emotional responses (e.g., Coates, 2003; Dumaine, 1991). While ample research has investigated the consequences of beauty and attractiveness in general, it is less clear why people are attracted to shiny and glossy objects in particular—the current paper addresses this question.

We believe that the positive feelings evoked by attractiveness and beauty is not enough to explain why people tend to prefer glossy. In the current work, we aim to delve deeper to understand a more fundamental reason underlying our preference for glossy. To do so, we begin by recognizing that the preference for aesthetics is a human universal (Dutton, 2002) and that previous research suggests that our aesthetic preferences have strong biological underpinnings (Lacey et al., 2011; Ramachandran & Hirstein, 1999; Reimann, Zaichkowsky, Neuhaus, Bender, & Weber, 2010). Drawing on this notion, in the current research we rely on an evolutionary framework to propose and test the hypothesis that the preference for glossy stems from an innate preference for water as a resource.

The remainder of the paper is as follows. We first present a brief background of the evolutionary psychology framework under which we make our arguments. Next, we present our theorizing to explain that people's preference for glossy is innate and stems from the human need for water as a resource. We present a series of six studies in which we demonstrate the preference for glossy amongst both adults and young children (studies 1A, 1B and 2) ruling out socialization as the explanation underlying the preference for glossy, investigate the hypothesis that the preference for glossy stems from an innate preference for water as a resource (studies 3 and 5) and rule out the more superficial account of glossy = pretty (study 4). We conclude with a discussion of the interplay between the different accounts underlying the preference for glossy and discuss implications and future research directions.

1. THEORETICAL BACKGROUND

Evolutionary psychology has been shown to be a valid and convincing framework when studying consumer behavior in general (Barkow, Cosmides, & Tooby, 1992; Buss, 2008; Cosmides & Tooby, 1994; Fuentes, 2009; Wright, 1995) and consumer preferences in particular (Bagozzi & Natarajan, 2000; Hantula, 2003; Lynn, Kampschroeder, & Pereira, 1999; Saad, 2004; 2007; Saad & Gill, 2000). An increasing number of researchers now study the interplay between evolutionary psychology and consumer behavior (e.g., Bagozzi & Natarajan, 2000; Colarelli & Dettmann, 2003; Griskevicius, Shiota, & Nowlis, 2010; Janssens et al., 2011; Miller, 2009; Saad, 2004), since an understanding of evolutionary motives can provide novel insights into consumer preferences and decision processes. The current research is similarly motivated and draws on the innate preference for water as the underlying force that drives an individuals' preference for glossy.

1.1 Water as a Resource

Human beings are drawn to nature (Wilson, 1984). Water, in particular has been implicated as an essential human resource. Ancient civilization such as the Indus Valley Civilization and the Sumerians, flourished in river valleys. Indeed, water-rich landmasses were, and still are, hubs for human growth and development (Solomon, 2010). Today, the presence of water has a relaxing and peaceful quality (e.g., Ulrich et al., 1991; Ulrich, 1993), which in turn, has a positive influence on people's level of restoration when feeling worried or stressed (Felsten, 2009; Korpela, Ylén, Tyrväinen, & Silvennoinen, 2010; Kweon, Ulrich, Walker, & Tassinary, 2008; Nordh, Hartig, Hagerhall, & Fry, 2009), and on people's emotional states in general (Ulrich, 1981; 1984; Ulrich, Altman, & Wohlwill, 1983; White et al., 2010).

From an evolutionary viewpoint the reverence for water makes sense. In fact, the role fresh water plays in our health is obvious – we can survive only a few days without it (Scientific American, Packer, 2002). Hence, detecting sources of water to prevent dehydration is an essential daily task (Newman, 1970), which has changed little over time for perhaps the last 5 million years. In fact, early humans who lived near environments with fresh water may have been more likely to survive than those who were living in non-aquatic environments (Appleton, 1975). Especially those environments containing clear and flowing

water (instead of stagnant water) were favored among humans (Herzog, 1985), because of the fewer potentially harmful bacteria (Kaplan, 1987; Orians & Heerwagen, 1992). The result of such natural selection (Darwin, 1859) might be manifested today in a strong preference for water. Crucial to this hypothesis is the concept of adaptation, which is an inherited characteristic that consistently solved long-term problems during the species' evolution in order to survive and reproduce (Tooby & Cosmides, 1992). Hence, much of today's human mind is shaped by mental mechanisms that have evolved as adaptive solutions to evolutionary relevant problems (Barkow et al., 1992; Buss, 2005; Confer et al., 2010; Cosmides & Tooby, 1987; Durrant & Ellis, 2003; Pinker, 2002; Tooby & Cosmides, 2005). The preference for water can be categorized as one of those evolved mental adaptations.

As it relates to aesthetic preferences in particular, we do have some initial indications that the presence of water plays a role in these as well. Individuals tend to possess a major liking for realistic paintings with water as one of the central elements (e.g., Balling & Falk, 1982; Han, 2007; Lyons, 1983; Nanda, Eisen, & Baladandayuthapani, 2008; Purcell, Peron, & Berto, 2001). Even young children like the aspect of water in paintings (Bernaldez, Gallardo, & Abello, 1987; Danko-McGhee, 2006; Zube, Pitt, & Evans, 1983). 'The art instinct' shows that respondents believe 40% of a landscape should have water in it (Dutton, 2009). Accordingly, people are prepared to pay significantly more for a house or a room with an aquatic view (Lange & Schaeffer, 2001; Luttik, 2000), choose water environments as a frequent aspect of their leisure destinations and favorite places (e.g., Kaplan & Kaplan, 1989; Korpela et al., 2010), and link positive memories of childhood activities with water (Waite, 2007).

1.2 Understanding the Preference for Glossy

The preference for glossy can be understood using at least three accounts that are not necessarily at odds with one another. Perhaps the most obvious explanation for the preference for glossy is socialization. Individuals get socialized and learn to associate a glossy appearance with high-end goods and luxurious items. This explanation would suggest that adults should consistently exhibit a preference for glossy but this would not manifest in young children who have not yet learned the positive associations with glossy. The "what is beautiful is good" perspective previously described best summarizes the next account. What

this suggests is that glossy is preferred due to its visual appeal. We call this the glossy = pretty hypothesis. This explanation would suggest that glossy surfaces would be rated as aesthetically pleasing only when seen and not when unseen. The third, and more fundamental perspective is one that suggests that the preference for glossy is innate and stems from a biological need for water as a resource. It is this last account that is the focus of our investigation.

Numerous aspects of an individual's aesthetic preferences have strong biological underpinnings (Lacey et al., 2010; Ramachandran & Hirstein, 1999; Reimann et al., 2010). Research with infants has shown that young children's aesthetic and visual choices already exist long before their verbal communication skills develop, for instance, when showing interest in colors, textures, shapes, and so on (e.g., Cohen & Gainer, 1995; Fantz, Fagan, & Miranda, 1975; McCall & Melson, 1970). Infant children (2- to 3-month-olds) have been shown to discriminate between and exhibit a visual preference for attractive (versus unattractive) female faces (Langlois et al., 1987; Slater et al., 1998). Accordingly, infants play significantly longer with an attractive (versus unattractive) doll (Langlois, Roggman, & Rieser-Danner, 1990), and young children prefer attractive versus unattractive friends and classmates (Dion, 1973; Dion & Berscheid, 1974). Moreover, attractive faces are recognized among children across gender, race, and age (Langlois & Stephan, 1977; Langlois, Ritter, Roggman, & Vaughn, 1991).

More specifically, children exhibit a liking for shiny objects. For instance, aesthetic artworks in a museum are favored among 2- to 6-year-old children, and especially those with shiny surfaces, and with gold and silver items, such as jewelry and people with golden hair (Danko-McGhee, 2006). Stokrocki (1984) showed that children were attracted to utilize foil in their creations of boxes, so that an extra visual stimulation was generated. These findings suggest that the preference for aesthetics manifests very early in life, long before any exposure to contemporary cultural stereotypes thus challenging the notion that children learn what is attractive via exposure to cultural standards of beauty.

Some explanation for the innate preference for glossy can be found in prior research, which has indicated that glossy surface textures connote wetness. In particular, adults perceive glossy surface finishes as much wetter and less dry than matte and sandy surface finishes (Coss & Moore, 1990). Moreover, Coss, Ruff, & Simms (2003) tested whether the glossiness of objects enhanced infants' mouthing activities (i.e., licking the objects). Indeed,

results showed significant increases in the percentage of mouthing when presenting glossy (vs. dull) plates or objects with a mirror finish. Moreover, observations among infants and toddlers showed behaviors highly resembling drinking activities when they were presented with glossy objects. Specifically, children were licking glossy objects on their hands and knees in a manner that humans also drink from rain pools to suck water in less urbanized countries. Based on the above theorizing we propose that the preference for glossy stems from an innate preference for water as a resource.

2. OVERVIEW OF THE EMPIRICAL INVESTIGATION

We present a set of six studies to test our hypothesis. First we demonstrate the assumed preference for glossy amongst adults (study 1A). Next, we demonstrate that young children similarly demonstrate a preference for glossy thereby ruling out the explanation that the preference for glossy is ‘learned’ over time (study 1B). Study 2 tests whether the preference for glossy has a systematic bias. Study 3 is an initial test of the hypothesis that the preference for glossy stems from an innate need for water as a resource. This study tests the proposed associations between glossy versus matte and wetness versus dryness. Study 4 extends these findings beyond the visual aspect to exclude the account that the preference for glossy stems from visual appeal. Finally, study 5 examines this association of glossy with the need for water more profoundly by inducing thirst in participants.

3. STUDY 1A: ESTABLISHING THE PREFERENCE FOR GLOSSY IN ADULTS

3.1 Participants and Procedure

Thirty-six respondents (19 women, 17 men) between the ages of 19 and 54 years ($M = 29.42$, $SD = 11.96$) received a random combination of four neutral dance leaflets (see Appendix A). A pretest including eight different dance leaflets had indicated that these four leaflets were evaluated as neutral and identical. Half of the leaflets was presented on glossy paper, whereas the other half was on non-glossy. The order and combination of leaflets was counterbalanced across participants. We instructed respondents to arrange the four leaflets according to their preference (1 = most preferred, 4 = least preferred). A mean ranking both

for the glossy and the non-glossy leaflets could be computed for each participant. We also asked respondents to evaluate each leaflet on a 5-point scale (1 = not attractive, 5 = very attractive).

3.2 Results and Discussion

As expected, a repeated measures GLM with both glossy and non-glossy rankings as dependent variables showed a significant effect of the type of paper on participants' choice ($F(1,35) = 68.10, p < .001$)². In particular, glossy leaflets were significantly more preferred ($M = 1.81, SD = .51$) to non-glossy leaflets ($M = 3.21, SD = .51$). Furthermore, glossy (vs. non-glossy) leaflets obtained a significantly higher attractiveness score ($F(1,35) = 48.68, p < .001; M_{\text{glossy}} = 4.00, SD = .71; M_{\text{non-glossy}} = 2.82, SD = .84$), also supporting the preference for glossy.

In the past, many researchers have assumed that year-long exposures to the media influenced children's standards, preferences and stereotypes with regard to attractiveness and beauty. However, Langlois et al. (1987, 1990) challenged this view and showed that standards of attractiveness are not learned through gradual exposure to current cultural standards of pleasant appearance. Rather, their findings suggest that these initial stages of preferences may be innate or present in infancy. Hence, in line with these results, we suggest an innate preference for glossy. Study 1B investigates this assumption.

4. STUDY 1B: YOUNG CHILDREN ALSO PREFER GLOSSY

4.1 Participants and Procedure

The goal of this study was to test the preference for glossy with young participants who would be capable to evaluate the stimuli presented. Children's ability to understand consumption and to interpret underlying thoughts seems to develop between the ages of 7 and 11 years (e.g., Belk, Bahn, & Mayer, 1982; John, 1999). Moreover, they become aware of the purpose of advertising between the ages of 5 and 8 (e.g., Boush, Friestad, & Rose, 1994;

² Given that rankings are in fact ordinal data, we additionally conducted a non-parametric (Wilcoxon) test. The analysis revealed similar findings: glossy leaflets were significantly more preferred to non-glossy leaflets ($z = -4.75, p < .001$).

John, 1999; Ward, 1974; Young, 2006). Keeping this in mind, we conducted our experiment with 4- and 5-year-old children, since a previous test with 3- to 4-year-olds revealed that the imposed tasks were too difficult.

Thirty-four children (19 girls, 15 boys; $M_{\text{age}} = 4.62$, $SD = .49$) at a local kindergarten participated in the study. Just before the experiment, we gave them a short introduction of what to expect. Each child did the assigned task individually, in order to eliminate possible influence of other children (e.g., Valkenburg & Buijzen, 2005). They received a random combination of four pictures of the local Santa Claus (see Appendix B). Half of the pictures was presented on glossy paper, whereas the other half was shown on non-glossy paper. The order was counterbalanced. A pretest with another sample of 4- to 5-year-old children ($N = 19$) had indicated that these four pictures were equally attractive. Each child was instructed to pick out their favorite, second favorite, and finally, their least favorite Santa Claus picture; hence, a ranking could be compiled. Next, we asked children to give each picture a number of stars ranging from 1 to 5 (the more stars, the more attractive) to indicate their liking of each of the pictures (e.g., Young, 2006).

4.2 Results and Discussion

Our results show that children significantly preferred the glossy images ($M = 2.26$, $SD = .63$) to the non-glossy ones ($M = 2.74$, $SD = .63$; $F(1,33) = 4.74$, $p = .04$)³, contradicting the possibility of a marked socialization effect. Moreover, more stars were allocated to the glossy ($M = 3.54$, $SD = .81$) than to the non-glossy pictures ($M = 3.19$, $SD = .91$), albeit not significantly ($F(1,33) = 1.95$, $p = .17$); possibly the young children did not fully understand this assignment. However, in general, these results dovetail with prior literature showing innate preferences for attractive appearances (Dion & Berscheid, 1974; Langlois et al., 1987, 1990, 1991; Slater et al., 1998).

Comparing the results of the adults (study 1 A) with that of the children (study 1B) suggests that the preference for glossy may not be simply innate, but also the result of socialization. Indeed, although one should exercise caution in comparing across studies, adults appear to prefer glossy pictures significantly more ($t(68) = 3.36$, $p = .001$) and non-glossy pictures significantly less ($t(68) = 3.45$, $p = .001$) than children do. Results concerning

³ We obtained similar findings using a non-parametric test ($z = -2.05$, $p = .04$).

the attractiveness/liking scores were however fairly similar ($t_{\text{glossy}(68)} = 2.51, p = .01; t_{\text{non-glossy}(68)} = 1.78, p = .08$).

Young 4- to 5-year-old children are in what experts call the observation phase (John, 1999) or pre-operational phase (Piaget & Inhelder, 1969), in which they observe and choose by means of just one dimension or characteristic. Hence, some children might have observed the type of paper, while others might have focused more on the picture itself—which could explain the lower preference for glossy among children. Second, young children are confronted daily with drawings to puzzle and color in kindergarten. Hence, the content of the picture may affect their preferences more than that of adults. Finally, people might ‘learn’ to associate glossy with luxuriousness over time. Hence, the intense attraction effect for glossy among adults might be the result of a socialization process in addition to the proposed innate effect. Study 2 tests whether adults’ strong preference for glossy has a systematic bias.

5. STUDY 2: SYSTEMATIC PREFERENCE FOR GLOSSY

5.1 Participants and Procedure

One hundred twelve respondents (74 women, 38 men; $M_{\text{age}} = 24.21, SD = 7.88$) were randomly assigned to one of three conditions of a lab experiment. More specifically, the study was set up similarly as the previous studies, however, we additionally manipulated the focus of participants’ attention to either the *content* of the picture (group 1), the *type of paper* (group 2) or *both* (group 3). All participants were exposed to a random combination of four target landscapes. Again, half of the pictures was presented on glossy paper, whereas the other half was presented on non-glossy paper. The order was counterbalanced across participants. A pretest ($N = 36$; different sample) had previously investigated the attractiveness of twenty landscapes on a 9-point scale. Consequently, four equivalent and equally attractive landscapes were selected for this study (see Appendix C).

Prior research has investigated the way in which people use information when answering questions and making judgments (e.g., Schwarz, Strack, & Mai, 1991; Strack, Martin, & Schwarz, 1988). Specifically, if people are asked a specific and a general question after each other – and when both questions are perceived as related, then the answer on

the general question will exclude the previously given information on the first specific question. However, if only one general question is asked, people will automatically include all relevant information when answering.

The instructions for our experiment were designed keeping this notion in mind. Specifically, we instructed a first group of respondents ($N = 36$) to indicate the *landscape* they preferred (i.e., a specific question), to rank the remaining options according to their preferences and then to evaluate the landscapes on a 5-point scale. A second group of respondents ($N = 39$) was instructed with the same tasks, however, referring to the *photo* instead (i.e., a more general question). Finally, we firstly asked a third group of respondents ($N = 37$) about the *landscape (A)*, and afterwards, about the *photo (B)*.

Finally, as an ultimate measure, we showed all participants the previously displayed pictures but we switched the non-glossy pictures into their glossy counterpart and vice versa. Next, we asked participants to indicate their preference again, to rank and evaluate the options on a 5-point scale. Within the second group of respondents – where a general focus was created, we expected to find a significant preference for glossy and therefore a switch in participants' preferences when we altered the type of paper for the pictures, while we did not expect to find this within the first group of respondents.

5.2 Results and Discussion

Interestingly, in contrast to our expectations, all respondents were guided by the type of paper. Even if a specific question was asked referring to the landscape itself (i.e., the first group of respondents), glossy was significantly more preferred to non-glossy (Group 1: $F(1,35) = 16.58, p < .001$; Group 2: $F(1,38) = 26.44, p < .001$; Group 3A: $F(1,36) = 10.04, p = .003$; Group 3B: $F(1,36) = 68.49, p < .001$)⁴. Furthermore, glossy (vs. non-glossy) pictures obtained a significant higher liking score in each condition (Group 1: $F(1,35) = 15.82, p < .001$; Group 2: $F(1,38) = 16.79, p < .001$; Group 3A: $F(1,36) = 3.77, p = .060$; Group 3B: $F(1,36) = 38.42, p < .001$).

⁴ Similar to studies 1A and 1B, non-parametric tests were conducted and revealed alike results. In particular, all respondents preferred glossy to non-glossy (Group 1: $z = -3.36, p = .001$; Group 2: $z = -3.96, p < .001$; Group 3A: $z = -2.76, p = .01$; Group 3B: $z = -4.90, p < .001$).

Additionally, all participants changed their preferences when we changed the type of paper. In particular, glossy was preferred to non-glossy again, irrespective of participants' previous choices – exhibited through better rankings for glossy than for non-glossy (Group 1: $F(1,35) = 21.85, p < .001$; Group 2: $F(1,38) = 26.44, p < .001$; Group 3: $F(1,36) = 37.10, p < .001$)⁵ as well as through better liking scores (Group 1: $F(1,35) = 21.18, p < .001$; Group 2: $F(1,38) = 34.97, p < .001$; Group 3: $F(1,36) = 34.38, p < .001$). Hence, these results suggest a clear and powerful preference for glossy photos.

Table 1 provides an overview of the mean values and standard deviations of both the rankings and the liking scores for glossy and non-glossy. In particular, the upper part of the table represents the descriptives for the original stimuli, while the lower part of the table presents the descriptives for the reversed stimuli.

⁵ Non-parametric tests revealed similar results (Group 1: $z = -3.53, p < .001$; Group 2: $z = -3.80, p < .001$; Group 3: $z = -4.14, p < .001$).

Table 1. Mean values and standard deviations for the preference rankings and liking scores of both the glossy and non-glossy pictures

Original stimuli								
	Preference rankings				Liking scores			
	<u>Glossy</u>		<u>Non-glossy</u>		<u>Glossy</u>		<u>Non-glossy</u>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Group 1	2.13	.55	2.88	.55	3.88	.69	3.28	.72
Group 2	2.09	.50	2.91	.50	3.79	.69	3.12	.73
Group 3A	2.20 ^a	.57	2.80 ^a	.57	3.64	.68	3.34 ^b	.62
Group 3B	1.84 ^a	.49	3.16 ^a	.49	3.93	.74	2.95 ^b	.67

Reversed stimuli								
	Preference rankings				Liking scores			
	<u>Glossy</u>		<u>Non-glossy</u>		<u>Glossy</u>		<u>Non-glossy</u>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Group 1	2.06	.57	2.94	.57	3.96	.58	3.22	.70
Group 2	1.99	.62	3.01	.62	4.05	.71	2.94	.87
Group 3	1.97	.53	3.03	.53	4.05	.65	2.96	.76

Note 1. Within each group, all mean differences are significant between glossy and non-glossy – both for the rankings as the scores

Note 2. Between groups, (marginally) significant differences are labeled with superscripts

^a $p = .02$ (Bonferroni test)

^b $p = .09$ (Bonferroni test)

While a part of our previous findings might suggest a socialization effect – due to the marked higher preference for glossy pictures among adults (cf. study 1A) as opposed to children (cf. study 1B), children’s preference for glossy pictures (cf. study 1B) still suggest it partly reflects an innate effect. We therefore test whether the attraction to glossy stems

from an innate preference for water. In particular, study 3 tests whether glossy would be associated with wetness or water, while matte should not yield such a connotation.

6. STUDY 3: DOES THE PREFERENCE FOR GLOSSY STEM FROM AN INNATE NEED FOR WATER AS A RESOURCE?

6.1 Participants and Procedure

We conducted an online pretest to find equally attractive pictures of both water or aquatic landscapes and dry or desert landscapes. Therefore, we randomly assigned 56 participants to one of two conditions of the between subjects study. Specifically, we asked participants to rate the attractiveness of either 20 water ($N = 28$) or 20 desert landscapes ($N = 28$) using a 9-point scale (1 = not attractive at all, 9 = very attractive). All pictures were randomly presented. Results revealed that seven aquatic as well as seven desert pictures (see Appendix D) were rated roughly equally. An independent samples t-test showed no significant differences between the mean attractiveness ratings of these target landscapes ($t(54) = .92, p = .36, M_{\text{aquatic}} = 6.87, SD = .98$ versus $M_{\text{desert}} = 6.65, SD = .73$).

Ninety-two respondents (different from the pretest; 61 women, 31 men; $M_{\text{age}} = 35.84, SD = 16.78$) participated in an online study. In order to explain the difference between glossy versus matte, we first showed participants a picture of a regular A4-paper and asked them to indicate on a slider ranging from 0 till 100 how glossy or matte they would rate the paper (0 = totally glossy, 100 = totally matte), and subsequently showed participants a picture of some glossy magazines and asked them the same question. Next, we randomly assigned participants to one of two conditions of the experiment, i.e., aquatic ($N = 47$) versus desert ($N = 45$). In both conditions, participants viewed 11 pictures, i.e., the seven pretested target pictures and four filler pictures. We asked participants to indicate how glossy or matte they perceived each picture, using the slider ranging from 0 (totally glossy) till 100 (totally matte). Hence, mean ratings for the aquatic and desert landscapes could be calculated.

6.2 Results and Discussion

Results illustrate that participants are able to discern the differences between glossy versus matte surfaces. Specifically, the regular A4-paper was rated as significantly more matte ($t(91) = 14.16, p < .001, M = 80.42, SD = 20.60$), while the glossy magazines were rated as significantly more glossy ($t(91) = 10.50, p < .001, M = 20.10, SD = 27.31$) than the neutral midpoint (i.e., 50).

More importantly, however, aquatic landscapes were rated as significantly more glossy ($M = 27.36, SD = 13.75$) than desert landscapes ($M = 55.41, SD = 10.58$), $t(90) = 10.93, p < .001$, supporting our hypothesis that the preference for glossy might stem from an innate preference for water as a resource. In addition, aquatic landscapes were perceived as significantly more glossy ($t(46) = 11.28, p < .001$) and desert landscapes as significantly more matte ($t(44) = 3.43, p = .001$) than the neutral midpoint (i.e., 50). So, while Coss and Moore (1990) showed that adults perceive glossy surface finishes as wetter than matte surface finishes, we find a reversed association prompting people to view aquatic landscapes as more glossy than desert landscapes. These results similarly support our hypothesis.

Despite this initial support for our hypothesis, we need to rule out the previously mentioned “what is beautiful is good” hypothesis (cf. introduction, Dion et al., 1972), specifically that individuals have a general tendency to prefer objects that have visual appeal. Hence, one might suggest that the preference for glossy could be caused by the visually appealing appearance associated with glossiness. In the next study, we test whether the attraction to glossy surfaces still remains when eliminating this visual aspect while garnering additional support for our “water as a resource” hypothesis.

7. STUDY 4: GLOSSY = PRETTY? DOES THE PREFERENCE FOR GLOSSY STEM FROM VISUAL APPEAL?

7.1 Participants and Procedure

Forty-six participants (24 women, 22 men; $M_{\text{age}} = 21.63, SD = 4.41$) were blindfolded and were randomly assigned to one of two conditions of this between-subjects lab experiment. We instructed them to answer some questions while touching the surface of

either a matte ($N = 23$) versus a glossy ($N = 23$) paper. A pretest ($N = 20$; different sample) using a 9-point scale (1 = rough; 9 = smooth) had indicated that participants perceived the surface of the glossy paper to be significantly more smooth ($M = 7.80$, $SD = .92$) than the surface of the non-glossy paper ($M = 4.10$, $SD = .99$; $t(18) = 8.64$, $p < .001$).

While touching the relevant paper, we asked participants about their perceptions concerning the quality of the paper on a 9-point scale ranging from 1 (= not good at all) to 9 (= very good), and subsequently, about the perceived attractiveness of the paper on a similar scale (1 = not attractive at all, 9 = very attractive). Next, we instructed them to imagine themselves picturing an advertisement for a certain product displayed on the relevant paper and to indicate their thoughts about the quality of that product on a 9-point scale (1 = not good at all, 9 = very good). Finally, we asked participants to imagine that the paper depicted a landscape and to indicate in percentages (while still blindfolded) the amount of water they imagined was depicted in the landscape; any effect of type of paper on estimated amount of water would substantiate the presumed connection between glossy and water presence.

7.2 Results and Discussion

Results for the blindfolded participants replicated our previous studies. Specifically, the blindfolded participants rated both the quality ($M = 7.83$, $SD = .83$) and the attractiveness ($M = 7.83$, $SD = .78$) of the glossy paper (smooth surface) higher than the quality ($M = 5.35$, $SD = 1.53$) and attractiveness ($M = 5.04$, $SD = 1.40$) of the non-glossy (rough surface) paper (respectively, $t(44) = 6.84$, $p < .001$; $t(44) = 8.35$, $p < .001$). In addition, blindfolded participants rated an advertised product as being higher quality when displayed on a glossy ($M = 6.74$, $SD = .96$) versus a non-glossy paper ($M = 4.87$, $SD = 1.25$; $t(44) = 5.67$, $p < .001$). Importantly, participants imagined a significantly higher amount of water depicted in the landscape when touching a glossy ($M = 51.91$, $SD = 15.44$) versus a non-glossy paper ($M = 35.65$, $SD = 16.12$; $t(44) = 3.49$, $p = .001$). Gender did not influence any of these results.

Finally, we tested whether respondents' imagined percentage of water depicted in the landscape mediated their perceptions toward the quality and attractiveness of the relevant paper. Interestingly, for both dependent variables (i.e., quality and attractiveness of the relevant paper), the indirect path through the imagined percentage of water was significant (respectively, $z = 2.09$, $p < .001$; $z = 2.45$, $p < .001$), but we also obtained a direct

effect of condition on the quality and attractiveness of the paper (respectively, $F(2,43) = 27.30, p < .001$; $F(2,43) = 38.85, p < .001$) – attesting to a significant partial mediation of imagined water percentage for both dependent variables. Sobel tests as well as bootstrap mediations confirmed these results. Hence, these findings suggest that part of the glossy appeal indeed is due to an association with water as a resource.

Since evolutionary psychological hypotheses can be empirically tested (Confer et al., 2010), the logic of such hypothesis testing is the same as hypothesis testing in all sciences (Ketelaar & Ellis, 2000). Hence, we suggest that when participants lack water i.e. are thirsty, they should show an enhanced liking for glossy, and respectively a lower liking for matte – this is the aim of Study 5.

8. STUDY 5: THIRSTY PARTICIPANTS SHOW AN ENHANCED LIKING FOR GLOSSY

8.1 Participants and Procedure

To test our hypotheses, we draw on neutral pictures to eliminate possible confounding associations with regard to the content of the pictures during the experiment. Therefore, forty respondents participated in an online pretest. We asked participants to indicate their attitude towards 10 pictures of planets on three Likert scales ranging from very negative (1) to very positive (9), bad (1) to good (9) and ugly (1) to pretty (9). The ratings were averaged for each picture. Results showed roughly equal ratings for eight pictures; hence, these were selected for the study (see Appendix E).

Two hundred participants (different from the pretest) were randomly assigned to one of the conditions of the 2 (Type of paper: glossy vs. non-glossy, within subjects) x 5 (Level of thirst: 1: control, 2: salty crackers, 3: salty crackers and water, 4: no thirsty fruit, and 5: thirsty fruit, between subjects) mixed design. We introduced participants to the lab experiment as an investigation of various preferences and choices. To hide the true purpose of the study, we first asked participants to make gustatory evaluations. We instructed them not to drink or eat anything they brought with them during the experiment.

In order to manipulate thirst, in the salty crackers condition ($N = 49$), we told participants that retailers were interested in the general preferences of the existing flavors regarding the brand TUC. We told participants that new flavors would be added in the

future, based on their existing observations. Participants read that their opinion would be greatly appreciated; hence, that it was very important to taste all five different flavors (bacon, cheese, paprika, salt & pepper, garlic & herbs) extensively. Moreover, we asked participants to rate each flavor on a slider ranging from 0 (not tasty at all) till 100 (very tasty) and to match the content of each cup with the right flavor. Altogether, participants ate about eight salty TUC crackers, without drinking anything.

By contrast, in the salty crackers and water condition ($N = 37$), we instructed participants with the same tasks regarding the TUC crackers, and additionally, with a similar task regarding five water flavors. In this way, we reduced participants' thirst. We expected this condition to be very similar to the control condition ($N = 43$), in which participants did not receive any instructions regarding gustatory evaluations. After this manipulation, we asked participants to indicate their level of thirst on a 9-point scale (1 = not thirsty at all, 9 = very thirsty). In addition, we instructed 71 participants to taste some fruit. In particular, we presented them with small pieces of banana, red currants, pear, mandarins and apple. We added this condition as an alternative control condition, because participants received something in the two experimental conditions (i.e., crackers, crackers and water) while in the control condition they did not—which might create a confound.

Subsequently, in a seemingly unrelated task, we asked all participants to make evaluations once again, this time regarding photographs of planets. Therefore, participants received a portfolio with eight target pictures. Half of the pictures was presented on glossy paper, whereas the other half was presented on non-glossy paper. Different portfolios were created in order to randomize the order of the pictures across participants. We instructed participants to take a look at the portfolio, and to rank the eight pictures according to their preferences (1 = most attractive, 8 = least attractive). Next, we asked participants to rate each picture on a 5-point scale (1 = not attractive, 5 = very attractive).

At the end of the experiment, we gave participants in the salty crackers condition the opportunity to drink some water. In the fruit condition, we asked participants to indicate on a 7-point scale to what extent they had experienced a need for water after they had tasted the fruit in the first part of the experiment (1 = no need for water, 7 = need for water). Hence, participants in the fruit condition could be distinguished into a fourth (i.e., no thirsty fruit condition; $N = 23$) and a fifth condition (i.e., thirsty fruit condition; $N = 43$), in which they, respectively, experienced no need for water (exhibited through lower scores than the

neutral midpoint on the 7-point scale) and a need for water (exhibited through higher scores than the neutral midpoint on the 7-point scale). Consequently, we expected the fourth condition to have roughly identical purposes as the control or salty crackers and water condition, whereas the fifth condition was expected to be roughly similar as the salty crackers condition. To finish, all participants were asked about the true purpose of the study, were thanked and debriefed.

8.2 Results and Discussion

None of the participants guessed the true purpose of the study. Furthermore, nine respondents indicated to be not thirsty after tasting the salty crackers (i.e., low scores on the 9-point scale), while eight respondents in the salty crackers and water condition indicated the opposite (i.e., high scores on the 9-point scale); hence, we removed these participants before conducting the analyses ($N_{\text{final sample}} = 178$).

As intended, results exhibit a successful manipulation. Specifically, participants' level of thirst (on the 9-point scale) after the manipulation differed significantly across the three conditions ($F(2,109) = 167.06, p < .001$). Particularly, a Bonferroni test revealed significant differences between all conditions (all p 's $< .001$; $M_{\text{control}} = 5.54, SD = 1.87$; $M_{\text{crackers}} = 7.53, SD = .72$; $M_{\text{crackers and water}} = 1.76, SD = .79$). In addition, respondents' need for water (on the 7-point scale) differed significantly across both fruit conditions ($t(64) = 20.19, p < .001$; $M_{\text{no thirsty fruit}} = 2.13, SD = .69$; $M_{\text{thirsty fruit}} = 5.30, SD = .56$).

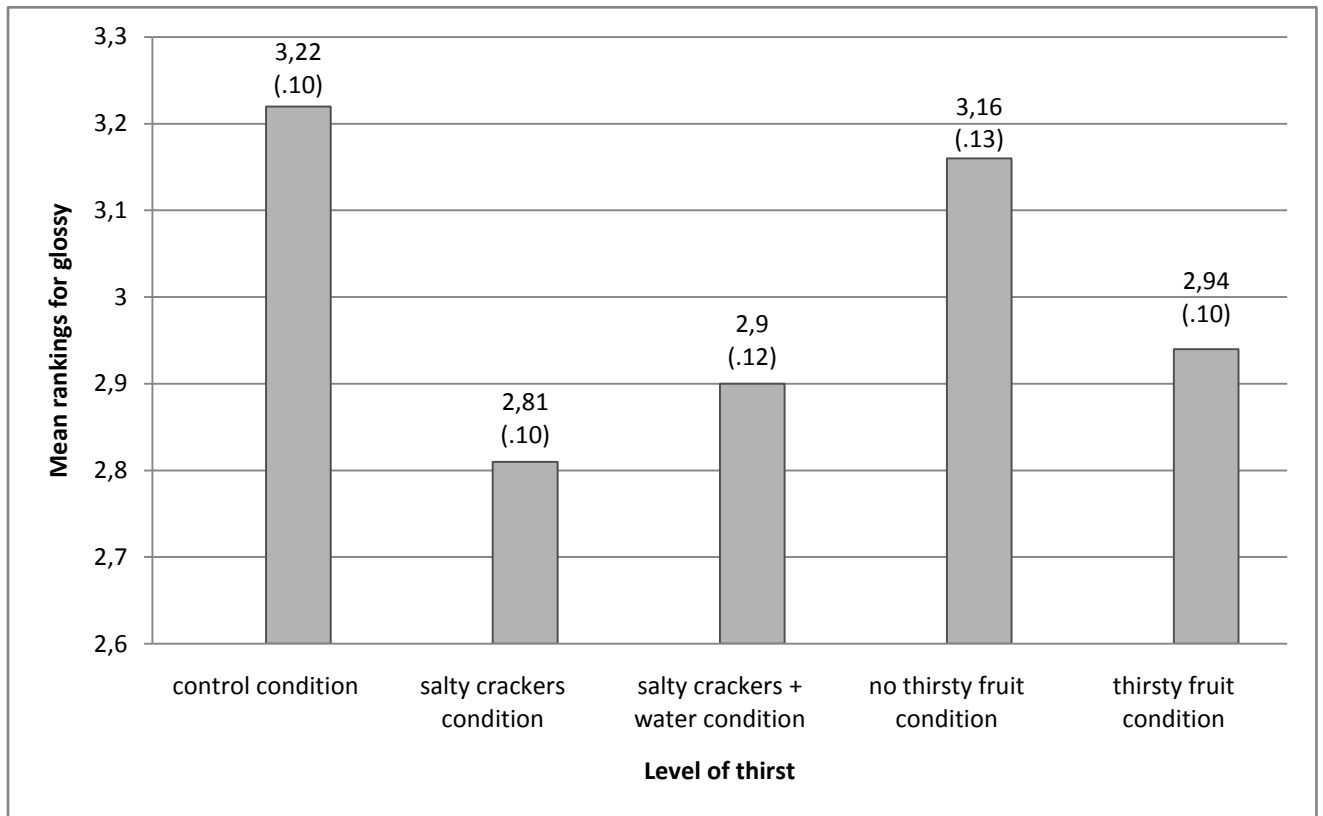
We performed a 2 (Type of paper: glossy vs. non glossy, within subjects) x 5 (Level of thirst: control, salty crackers, salty crackers and water, no thirsty fruit, thirsty fruit, between subjects) mixed ANOVA on respondents' mean rankings of the glossy and non-glossy pictures. As intended, a main effect of the type of paper ($F(1,173) = 943.90, p < .001$) showed better rankings for glossy ($M = 3.00, SE = .05$) than for non-glossy ($M = 6.00, SE = .05$). However, this main effect was qualified by a significant interaction between the type of paper and participants' level of thirst ($F(4,173) = 2.89, p = .02$). Figure 1 displays the mean rankings (1 = most attractive, 8 = least attractive) of the glossy pictures. Specifically, in the salty crackers condition, participants ranked the glossy pictures higher ($M = 2.81, SE = .10$) and the non-glossy pictures lower ($M = 6.19, SE = .10$) than participants in the control

condition ($M_{\text{glossy}} = 3.22, SE = .10; M_{\text{non-glossy}} = 5.79, SE = .10$). Planned contrasts show that these rankings are significantly different ($p = .004$).

Interestingly, however, participants' rankings in the salty crackers condition did not differ significantly from participants' rankings in the salty crackers and water condition ($M_{\text{glossy}} = 2.90, SE = .12, p = .53; M_{\text{non-glossy}} = 6.10, SE = .12, p = .53$). One interpretation of this might be that priming participants with water just before making evaluations regarding glossy versus non-glossy pictures renders the same result as priming participants with the opposite (i.e., thirst).

Moreover, we obtained interesting results regarding the fruit conditions; confirming our predictions. In particular, participants' rankings in the no thirsty fruit condition ($M_{\text{glossy}} = 3.16, SE = .13; M_{\text{non-glossy}} = 5.84, SE = .13$) appeared to be not significantly different from participants' rankings in the control condition ($p = .75$), while participants' rankings in the thirsty fruit condition ($M_{\text{glossy}} = 2.94, SE = .10; M_{\text{non-glossy}} = 6.06, SE = .10$) differed significantly from the control condition ($p = .04$). Moreover, participants' rankings in the thirsty fruit condition did not differ significantly from participants' rankings in the salty crackers condition ($p = .31$), while participants' rankings in the no thirsty fruit condition did not differ significantly from participants' rankings in the crackers and water condition ($p = .14$). Finally, results in the thirsty fruit condition show better rankings for the glossy pictures as opposed to results in the no thirsty fruit condition, albeit not significantly ($p = .17$).

Figure 1. Respondents' mean rankings for the glossy pictures



Note. Numbers in parentheses represent standard errors

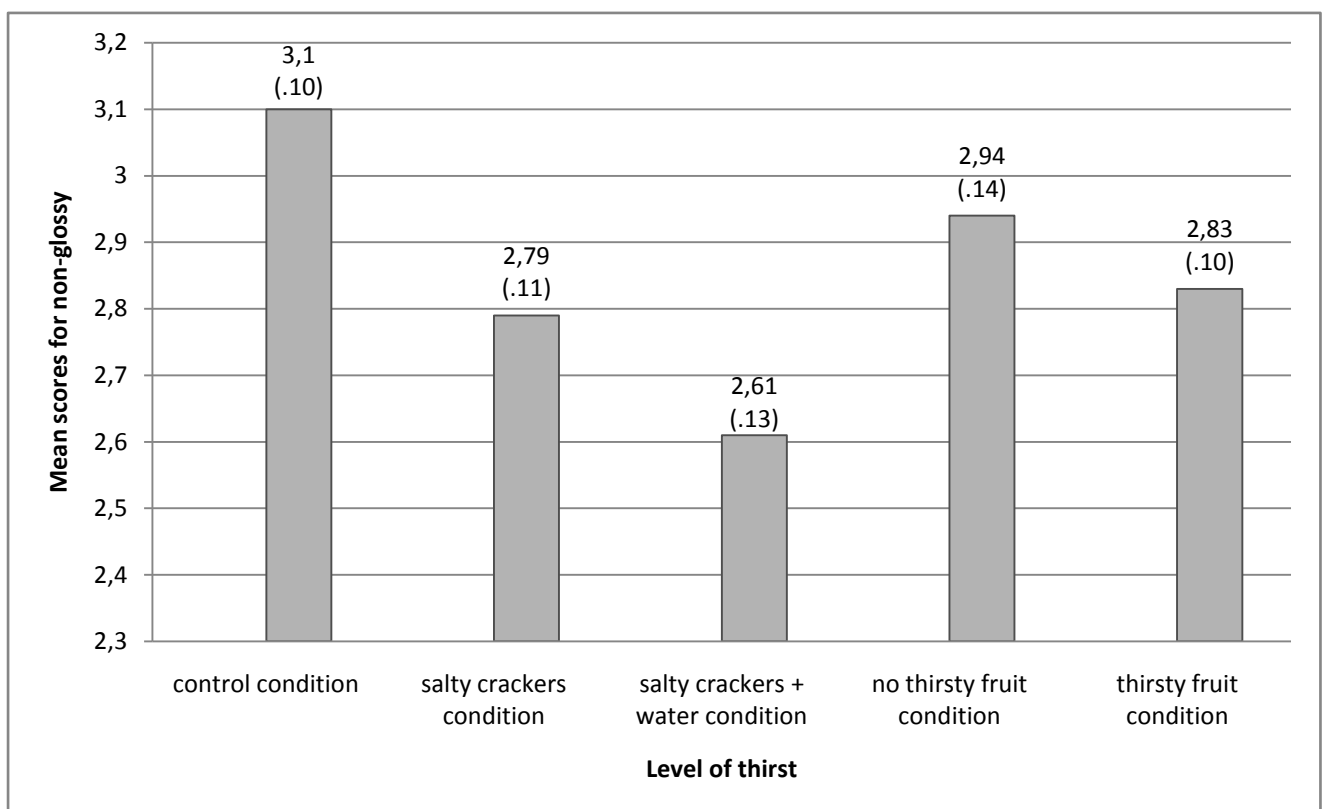
Likewise, we performed a 2 (Type of paper: glossy vs. non glossy, within subjects) x 5 (Level of thirst: control, salty crackers, salty crackers and water, no thirsty fruit, thirsty fruit, between subjects) mixed ANOVA on respondents' mean scores. Again, a main effect of the type of paper ($F(1,173) = 548.41, p < .001$) revealed significantly better scores for the glossy ($M = 4.22, SE = .04$) than for the non-glossy pictures ($M = 2.85, SE = .05$). More importantly, this main effect interacted marginally significant with participants' level of thirst ($F(4,173) = 1.98, p = .10$); however, we found a different data pattern compared to the rankings data.

Specifically, participants' scores regarding the glossy pictures were roughly identical in all conditions ($F(4,173) = .93, p = .45$). Planned contrasts revealed no significant differences between all conditions as opposed to the control condition ($M_{\text{control}} = 4.27, SE = .07$, reference category; $M_{\text{crackers}} = 4.26, SE = .08, p = .92$; $M_{\text{crackers and water}} = 4.16, SE = .09, p = .35$; $M_{\text{no thirsty fruit}} = 4.10, SE = .10, p = .16$; $M_{\text{thirsty fruit}} = 4.30, SE = .09, p = .78$). In other words, the overall marginal interaction is due to the differences in scores relating to the non-glossy pictures ($F(4,173) = 2.54, p = .04$; see Figure 2). In particular, participants' scores in the salty

crackers condition ($M_{\text{crackers}} = 2.79, SE = .11, p = .04$) as well as in the salty crackers and water condition ($M_{\text{cookies and water}} = 2.61, SE = .13, p = .003$) were significantly lower than participants' scores in the control condition ($M_{\text{control}} = 3.10, SE = .10$). Yet again, participants' scores in the salty crackers condition did not differ significantly from participants' scores in the salty crackers and water condition ($p = .29$).

In addition, planned contrasts revealed no significant difference between participants' scores in the no thirsty fruit condition ($M = 2.94, SE = .14$) and the control condition ($p = .35$), as well as no significant difference between participants' scores in the thirsty fruit condition ($M = 2.83, SE = .10$) and both the salty cracker condition ($p = .79$) and the salty crackers and water condition ($p = .21$). Moreover, participants' scores in the thirsty fruit condition appeared to be (marginally) significantly different from the control condition ($p = .06$), while this was not the case for participants' scores in the no thirsty fruit condition as opposed to participants' scores in the salty crackers and water condition ($p = .12$). However, results in both fruit conditions appeared to be not significantly different ($p = .57$); hence, partly confirming our hypotheses.

Figure 2. Respondents' mean scores for the non-glossy pictures



Note. Numbers in parentheses represent standard errors

Apparently, being thirsty as well as being primed with water results in more negative evaluations regarding the non-glossy items as opposed to the control and the no thirsty fruit condition. However, it seems that all participants are attracted to glossy pictures when reporting liking. This is not surprising given that all participants in study 2 significantly preferred glossy photos and switched contradictorily, even if the focus of the task was not referring to the type of paper. However, overall, one might notice the higher (lower) preferences for glossy (non-glossy) when being thirsty or primed with water. In addition, consistent with the previous studies, study 5 shows a general basic preference for glossy. In fact, all mean rankings (and liking scores for non-glossy) are below the midpoint (i.e., 4), even in the control condition.

9. GENERAL DISCUSSION

Prior research has examined the preference for attractiveness and beauty. However, little or no research has empirically investigated the mechanism underlying the preference for glossy in particular. One assumed link between glossy surface textures and wetness can be found in prior research (Coss & Moore, 1990). The current paper focuses on this account more deeply. Prior researchers posit that positive affect (e.g., Coates, 2003; Erk et al., 2002; Norman, 2002) or socialization (e.g., Langlois et al., 1991) may explain why consumers tend to prefer attractive appearances. However, drawing on an evolutionary psychology framework, we propose that the preference for glossy might stem from an innate preference for water. The results of six studies support this idea: Adults (studies 1A-2-4) as well as young children (study 1B) show a significant preference for glossy pictures. Furthermore, adults connect aquatic landscapes with glossy, while dry landscapes are related with matte (study 3). Study 5 further examines this association by inducing a need for water which, in turn, leads to a higher (lower) liking for glossy (non-glossy) photographs.

It is important to consider how these findings contribute to the challenge that the preference for pleasant appearances might be 'learned' over time. While our studies show that people's liking for glossy might stem from an innate preference for water, it does not imply that this behavior is genetically programmed and that it downplays the role of learning. Hence, learned and evolved are not competing accounts. To the contrary, evolutionary psychology assumes the interaction of human nature with the external

environment to present an interactionist framework (Colarelli & Dettmann, 2003; Confer et al., 2010). In other words, evolved psychological adaptations are required to enable and facilitate learning. Marketers increasingly link glossy with luxury, as a result of which our liking for glossy might be enhanced. Consequently, adults have a significant higher liking for glossy as opposed to children (cf. studies 1A-1B-2), and relate it to higher perceived quality (study 4).

Given the fact that marketers often display value and luxury goods by means of glossy advertisements, glossy might be perceived as an indicator for standing and rank. Hence, besides the proposed innate preference for water, one might argue that gloss can be related with status and prestige, which are psychological mechanisms identified within the evolutionary psychology literature as well (Colarelli & Dettmann, 2003). In particular, status is associated with rank, and hence, with greater survival (e.g., Pérusse, 1993), while prestige is valued because it is associated with skills that allow people to compete for resource acquisition (Barkow, 1989). As price also signals prestige, cultivating an image that a product is expensive can increase prestige appeal. However, we believe that associations with status and prestige do not cause the obtained effects for glossy, given the fact that very young children exhibit a liking for visually pleasing appearances as well.

Although the results of our studies generally support the idea that the preference for glossy stems from an innate preference for water, our studies contain some confounds and limitations that we will address in this section. First, while we carried out six studies, all of them use glossy versus non-glossy paper as stimuli. Hence, socialization might play a role as regards our findings, as glossy paper is usually used for special announcements (e.g., weddings, births, special occasion invitations) while non-glossy paper is used much more often in daily life. Accordingly, glossy might stimulate connotations of specialness and luxuriousness. In view of that, the use of other stimuli could have added to our current understanding of the general liking for glossy. As a matter of fact, it is unclear whether the preference effect for glossy applies to the majority of objects (such as construction elements or clothes). Second, study 2 should have included a manipulation check. In fact, it is unclear whether participants' attention was indeed focused on the landscape or on the type of paper when asking them a specific or a general question, respectively. Third, study 3 investigated whether glossiness evokes associations with water. However, pictures of water (aquatic landscapes) versus lack of water (desert landscapes) might have introduced a

confound. Perhaps, desert images are not neutral as they remind people of a non-smooth surface (i.e., sandy surface). Hence, it would have been interesting to show, for instance, neutral pictures (e.g., pictures of planets), presented in either a glossy or matte finish, and ask participants whether or not they believe the planets have water on their surface. Fourth, other aspects beside the water account should have been investigated in order to broaden our understanding regarding the preference for glossy. For instance, study 3 could have examined whether amongst several shiny pictures (e.g., lots of glass, a very bright sun) the aquatic pictures were liked best. Similarly, study 4 could have included other shiny aspects beside water (e.g., how much glass or plastic did participants imagine in the picture).

Our findings raise several interesting issues to be addressed in future research. First, it is possible that glossy may act as a costly signal, which in turn, might infer a higher preference among materialistic individuals. It is stated that materialists value luxury consumption (e.g., Richins, 1994; Wong, 1997), as luxury products offer uniqueness, exclusivity, and the ability to signal success (e.g., Kapferer & Bastien, 2009; Rucker & Galinsky, 2009). While our results from study 4 suggest that glossy might be perceived as a costly signal (due to a better perceived quality), more direct evidence is needed to support this proposition.

Second, as humans exhibit a general liking for cues such as mountains, flowers and nature sceneries with clear flowing water (Thornhill, 1998), it is not surprising that these evolved landscape preferences are commonly targeted in marketing practices to positively influence consumers (Colarelli & Dettmann, 2003) and to generate a favorable attitude toward the ad and the brand (Hartmann & Apaolaza-Ibáñez, 2010). Even products that can be damaging might generate positive evaluations due to smart associations with beautiful landscape scenes (Leiss, Kline, & Jhally, 1986), and hotel resorts and campings seduce potential consumers by showing off aquatic environments (Colarelli & Dettmann, 2003). Moreover, prior research has discussed the restorative functions of the presence of water (e.g., Korpela et al., 2010; Kweon et al., 2008). Hence, given the fact that water is valued as a necessary resource to survive, we suggest that its presence might indeed induce a positive feeling that in turn, can impact subsequent choices. In particular, priming participants with aquatic landscape scenes should positively influence them, due to a sense of owning lots of resources (i.e., water). Hence, this perception might influence subsequent choices, such as

taking more risks or giving more money away in, for instance, a dictator game (Hoffman, McCabe, Shachat, & Smith, 1994).

Third, research regarding processing fluency has indicated that any variable that facilitates fluent processing results in more positive affective reactions, more favorable judgments of preference and an increased liking (e.g., Reber, Schwarz, & Winkielman, 2004; Reber, Winkielman, & Schwarz, 1998; Winkielman & Cacioppo, 2001; Winkielman, Halberstadt, Fazendeiro, & Catty, 2006). Given the “what is beautiful is good” hypothesis (cf. introduction; Dion et al., 1972) and human’s innate preference for water (cf. introduction), it might be possible that glossy objects are perceived as easy to process which, in turn, adds to the found favorable evaluations.

Although our findings suggest a general liking for glossy paper, future research may also investigate some potential boundary conditions. First, from a functional perspective, the preference for glossy might be reduced as it interferes with readability. For instance, a survey of prescription label preferences among community pharmacy patrons revealed that a glossy surface is not recommended since it makes the label less legible (Luscombe, Jinks, & Duncan, 1992). Similarly, given the fact that gloss is the shiny surface appearance created when light is reflected from that surface (e.g., Hunter, 1975; Obein, Knoblauch, & Viénot, 2004; Smith, 1999), would a glossy surface finish still be preferred in conditions of under- or overexposure of light? Probably, an inverse U-shaped curve might exist between people’s preference for glossy and the amount of available ambient light.

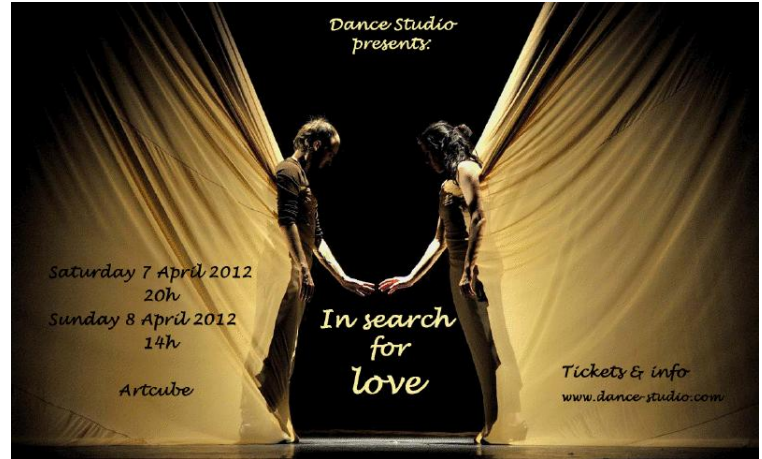
Second, we propose that individual differences could create variations in attraction to glossy. For instance, in the context of women handbags (and other accessories), mainstream luxury is dominated by glossy bags, while very high-end handbags in the portfolios of Chanel or Louis Vuitton are predominantly matte. Hence, we expect that people interested in mainstream luxury will prefer glossy because of an association with luxury, while people interested in high end luxury might relate glossy with being showy and conspicuous. This proposition dovetails with literature showing that wealthy people tend to engage in inconspicuous consumption and prefer subtle brand logos in order to differentiate them from the mainstream consumers (Berger & Ward, 2010). For this reason, high end luxury people might not show a marked preference for glossy. Essentially, if the preference for glossy additionally stems from a socialization effect, some individuals might be aware of

that, and hence, show counter-reactions (i.e., preferring matte) in order to distinguish themselves from the masses.

Still, our results show that the general consumer significantly prefers glossy. Moreover, while prior research has mainly focused on the consequences of attractiveness and beauty, this paper investigated the causes for human's preference for glossy. Drawing on an evolutionary psychology framework, we show that the general preference effect for glossy pictures is (partly) due to an association with human's innate preference for water.

10. APPENDICES

Appendix A. Study 1A. Establishing the Preference for Glossy in Adults



Appendix B. Study 1B. Young Children Also Prefer Glossy



Appendix C. Study 2. Systematic Preference for Glossy

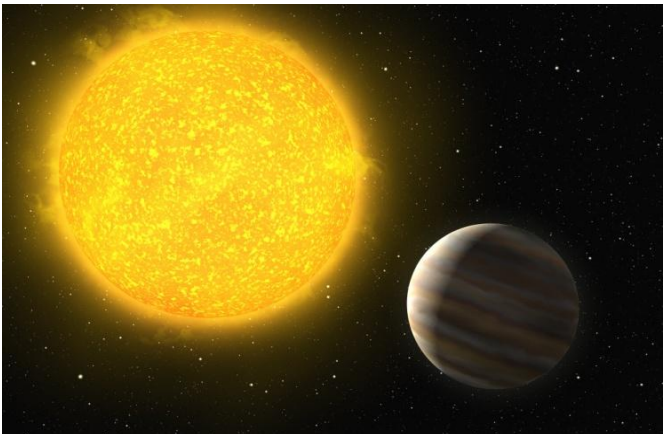
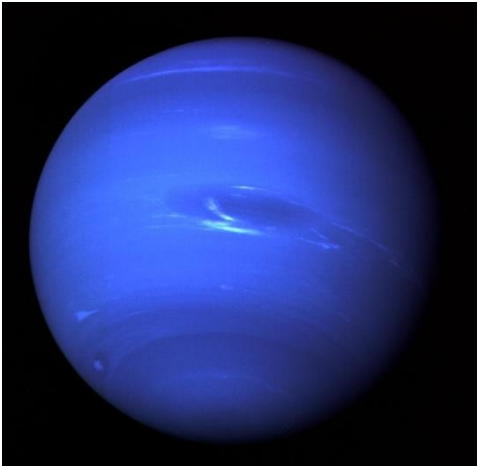
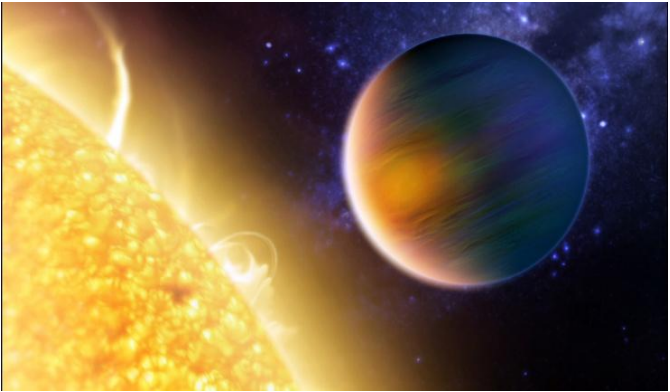
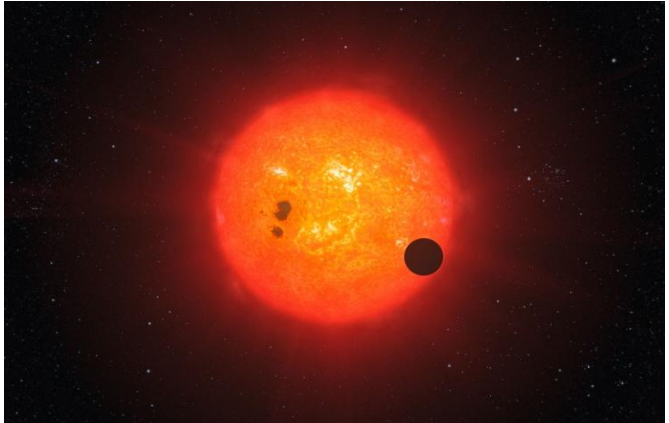
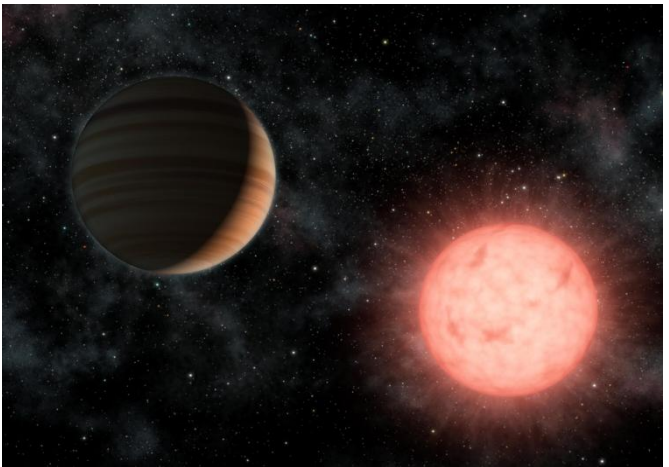
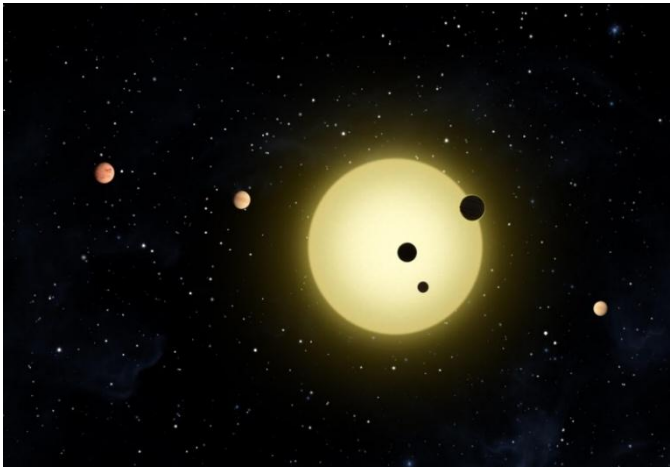


Appendix D. Study 3. Does the Preference for Glossy stem from an Innate Need for Water as a Resource?

Examples of both aquatic and desert landscapes



Appendix E. Study 5. Thirsty Participants show an Enhanced Liking for Glossy



CHAPTER III:
THE IMPACT OF TOUCH ON THE ONE HAND, VERSUS THE FORCE OF
ATTRACTION ON THE OTHER HAND ... : THE EFFECT OF TANGIBILITY
ON DESIRE

CHAPTER III: THE IMPACT OF TOUCH ON THE ONE HAND, VERSUS THE FORCE OF ATTRACTION ON THE OTHER HAND ... : THE EFFECT OF TANGIBILITY ON DESIRE

While prior research has particularly investigated the positive effects of a possibility of touch on product evaluations, it is less clear whether desirable non-touch situations might in fact enhance product evaluations as well. This paper investigates the effect of tangibility on desire. On the one hand, touching a product might be particularly influential with regard to consumers' decision making. Indeed, the use of haptic information has been found to positively enhance product evaluations and to increase impulse purchases. On the other hand, consumers view items particularly appealing when they have to overcome obstacles to obtain them. In fact, desire can be characterized as a state of enjoyable discomfort, in which people especially long for those things that they cannot readily have. As a result, a distance or barrier might intensify our pursuit of desire. Hence, the current paper investigates whether displaying a product in a way that it can nearly (but not quite) be touched (i.e., by means of a barrier) might enhance one's desire towards that product, albeit the sense of touch is hindered. In addition, we consider whether a different type of product and individual differences in need for touch might moderate the results.

Consumers exhibit a general tendency to touch and feel objects in everyday life. Imagine walking through a store—probably you have touched many products you cannot remember afterwards. Especially with the aim of purchase, you would presumably be more likely to haptically explore the object. Hence, it seems obvious to assume that a possibility to touch positively influences consumers' evaluations towards the touched objects. Indeed, previous literature confirms this assumption (e.g., Grohmann, Spangenberg, & Sprott, 2007). However, what if you are confronted with an object that can nearly (but not quite) be touched? For instance, visualize a bottle of liquor that is covered by a glass bell, or a new series of cell phones that cannot be touched and is protected behind a show case. Would this inability to touch decrease your product evaluations or, in contrast, enhance your desire to own them? This paper aims to answer this question.

1. INTRODUCTION

Consumers sometimes feel the urge to touch appealing artworks so they can be in close sensory proximity (Joy & Sherry, 2003). Hence, museums often need to display signs asking viewers not to touch the art (Coates, 2003). Furthermore, window shoppers often become store visitors in an attempt to examine attractive objects more closely (Bloch, 1995). Overall, consumers often seem to be attracted by objects that they cannot touch or feel instantly. In the current paper, we examine whether displaying a product in a way that it can just not be touched increases or decreases consumers' desire towards that product. The desire to obtain the product might be enhanced, because a barrier instigates a difficult-to-reach feeling (Belk, Ger, & Askegaard, 2003). Nevertheless, a sense of touch is prevented at the same time—which has been shown to decrease product evaluations (e.g., Grohmann et al., 2007). It is therefore unclear whether barriers, such as display cases, may enhance or reduce a product's attractiveness and evaluation.

Our conceptualization draws on two contradicting streams of research: the positive effects of touch on the one hand versus triggers of desire on the other hand. In fact, providing a possibility to touch a product (versus not providing this possibility) generally causes people to evaluate the product more (less) favorably (Grohmann et al., 2007). Moreover, touching (versus not touching) a product might result in higher (lower) impulse purchases (Peck & Childers, 2006). However, consumers may view items particularly

appealing when they have to overcome obstacles to obtain them, at least when the obstacles are not insurmountable (Belk et al., 2003). Hence, the first line of reasoning suggests that consumers like the opportunity to touch a product, which in turn, might enhance product evaluations, while the second line of reasoning suggests that one's desire towards a product might be enhanced as it becomes more difficult to attain the product. Consequently, we investigate whether displaying a product in a way that it cannot be touched, that is, by means of a physical but transparent barrier, enhances desire towards the product.

The remainder of the paper is as follows. We first present both streams of literature and discuss the contradictory implications for consumers' product evaluations. In fact, this paper reconciles the inconsistent findings in the literature that suggest that tangibility can both increase and decrease desire. We will start by outlining the relevance of touch and a number of interesting moderators, followed by the triggers of desire. Next, we will define our research proposition and present three studies in which we test the effect of tangibility on desire. First, we show that the effect is moderated by the type of product. Second, we check our results by means of a different, however, frequently used type of barrier in the retail sector. Finally, we examine the role of construal level and investigate whether the effect vanishes when displaying the product at a certain physical distance. We conclude with a discussion of the interplay between both streams of literature and discuss the implications and directions for future research.

2. THE ROLE OF THE SENSE OF TOUCH IN CONSUMER BEHAVIOR: IMPACT AND CONSEQUENCES

Within the past years, the power of sensational marketing has received growing attention (Johnson, 2007; Krishna, 2012). In fact, it becomes increasingly difficult for a company to distinguish from its competitors, partly because consumers get depleted through traditional advertising clutter and marketing appeals (Krishna, 2012). Consequently, triggering consumers' basic senses may be a more efficient way to engage consumers.

Each sense is specialized in the processing of a certain type of information (Krishna, 2012). The sense of touch, however, is the largest sensory organ (Gallace & Spence, 2010), as one can gather lots of information concerning an objects' texture, temperature, weight,

and hardness (Klatzky, Lederman, & Matula, 1993; Lederman & Klatzky, 1987). Moreover, people consider haptic information as particularly reliable, as it is the first sense developed in childhood (Krishna, 2012; Miodownik, 2005; Spence & Gallace, 2011). Accordingly, the importance of touch is widely reflected in language (Ackerman, 1990; Peck & Childers, 2003b). Consider, for instance, an affect related context (e.g., “how do you feel?”) or a framework associated with cognition (e.g., “did you catch the meaning?” and “can you handle the problem?”). Moreover, phrases such as “we will keep in touch”, and “on the one hand/on the other hand” are commonly used in language.

The perception of haptics, i.e., touch with the hands, has received growing attention in marketing (Jansson-Boyd, 2011; Krishna, 2012), as the role of the sense of touch has been shown to be particularly influential. For instance, with regard to interpersonal touch (i.e., people touching people), prior research has demonstrated several positive effects, such as waiters in a restaurant who received more tips when they briefly touched their customers (Crusco & Wetzel, 1984), or individuals who were more likely to comply by a requester in a supermarket (Hornik, 1992; Smith, Gier, & Willis, 1982), to sign a petition (Willis & Hamm, 1980), and to participate in intercept interviews in a mall (Hornik & Ellis, 1988) when they were temporarily touched. Even print advertisements have tried to make use of the sense of touch—e.g., Fortune magazine (1997) once inserted a paper with the message to rip the page in half. This seemed to be an impossible task, as the main message was to make propaganda for materials used in envelopes for long distance mailings.

The use of haptic information has been shown to exert powerful influences on consumers’ preferences and judgments during the buying decision process in several ways. In particular, allowing physical inspection is associated with higher confidence mind-sets in product judgment (McCabe & Nowlis, 2003), more impulse purchases (Peck & Childers, 2006), more favorable product evaluations, higher purchase intentions, and more positive attitudes towards the product that was touched (Citrin, Stem, Spangenberg, & Clark, 2003; Grohmann et al., 2007; McCabe & Nowlis, 2003; Peck & Childers, 2003a; Peck & Wiggins, 2006). Even when touch is non-indicative for product judgment, it might impact taste evaluations (Krishna & Morrin, 2008), or the persuasiveness of a message (Peck & Wiggins, 2006). In addition, purely touching a product actually enhances one’s feeling of perceived ownership of that product (Peck & Shu, 2009).

Consequently, the investigation of a lack of touch might be relevant for the debate on the effectiveness of e-commerce and mail order, but also for retailers not permitting their customers to touch products. Indeed, research has indicated that it should be advantageous for retailers to give consumers the opportunity to touch and to interact with the products offered (Grohmann et al., 2007), as consumers like to assess a retailers' product offering and gather information about them by means of tactile input (e.g., Holbrook, 1983; McCabe & Nowlis, 2003). Consequently, the availability of touch can positively enhance a products' evaluation and include significant implications for consumer behavior, as touch may be the overriding input to efficiently determine features that are part of the product itself (e.g., Wheatley, Chiu, & Goldman, 1981).

Interestingly, however, the extent to which consumers exhibit a probability or need to touch objects can differ significantly across products, consumers, and situations (Peck & Childers, 2007). In particular, different product characteristics, individual difference traits, and situational attributes all might affect one's motivation to haptically explore an object. We start by outlining how products differ in the extent to which they stimulate consumers' need to obtain haptic product information.

2.1 Product Characteristics

Products can be classified according to its characteristics in many different ways (McCabe & Nowlis, 2003). Classic distinctions are: digital versus nondigital (i.e., communicating product attributes by means of written descriptions or pictures versus displaying the product in a real environment; Lal & Sarvary, 1999), sensory versus nonsensory (i.e., determining product attributes by means of touch versus verbal descriptions; Degeratu, Rangaswamy, & Wu, 2000), hedonic versus utilitarian (i.e., primarily affective versus cognitive consumption-based patterns; e.g., Dhar & Wertenbroch, 2000), and search versus experience goods (i.e., the extent to which consumers can evaluate goods prior to purchase; Nelson, 1970).

In addition, while vision is best suited for assessing shape properties, or geometric attributes in general, tactile input might be necessary (or the only way) for certain products to evaluate its substance properties, such as texture, hardness, temperature, and weight (Lederman & Klatzky, 1987, 1993; Klatzky, Lederman, & Matula, 1991). Hence, some types of

products cannot be inspected by vision only, as its characteristics need to be haptically explored (Klatzky et al., 1991; Craig & Rollman, 1999), for instance, in the case of cell phones or clothes and textiles in general (Peck & Childers, 2003b). Indeed, according to a study conducted by Holbrook (1983), tactile cues were more influential than visual cues in consumers' evaluations and perceptions of sweaters. In fact, objects with enjoyable material properties are rather likely to be physically examined (e.g., Hoyer, 1984; Underhill, 1999)—especially those that come into close contact with our skin (e.g., pillows, clothes, bath towels; MacCabe & Nowlis, 2003).

Keeping this in mind, Klatzky et al. (1993) distinguished between geometric and material products. A geometric product's most central attributes are its shape or size, which can be visually inspected (e.g., cans of soda). In contrast, the evaluation of material products (e.g., clothing, toilet paper) involves assessing texture, hardness, weight, and/or temperature, which requires the sense of touch. Consequently, it is more apt at having material properties to be examined in an in-store retail setting, while geometric products might be inspected both offline as online (Chu, Arce-Urriza, Cebollada-Calvo, & Chintagunta, 2010; MacCabe & Nowlis, 2003).

Indeed, as touching a product with material characteristics provides additional information which is not available through vision only, the possibility to touch leads to more favorable product evaluations and greater confidence in these evaluations, especially of material products (Grohmann et al., 2007). Similarly, purchase intentions regarding material products are significantly higher when allowing consumers to haptically explore the product versus providing them with a picture or written description only. However, this is not the case for geometric products (MacCabe & Nowlis, 2003).

2.2 Individual Difference Characteristics

Similar to the notion that various products need tactile input more than others, the salience of haptic properties is likely to depend on the individual itself as well. Indeed, prior research has demonstrated that consumers differ in terms of their haptic orientation or motivation and preference to touch, which is called "need for touch" (i.e., NFT; Peck & Childers, 2003a, 2006; Peck & Wiggins, 2006). NFT can be defined as "a preference for the extraction and utilization of information obtained through the haptic system" (Peck &

Childers, 2003a, p. 431). In particular, some consumers simply touch products to put them in their shopping carts, while others like touching products in general and spend a lot of time to haptically explore the environment and its products before making product evaluations, and consequently, a purchase decision (Peck & Childers, 2003a). Hence, haptically motivated people, or those people high in NFT, use more haptic information for product evaluations than those people low in NFT (Peck & Childers, 2003b).

Consumers might use their sense of touch for two different reasons (Klatzky & Peck, 2012), namely to obtain important product-related information in order to better explore the product's attributes and to make better purchase decisions or just for enjoyment. In line with this distinction, the 12-item Need-for-Touch (NFT) scale (Peck & Childers, 2003a) assesses the two different motivations for touch in a retail context, namely shopping as work (Sherry, McGrath, & Levy, 1993) versus shopping as fun (Babin, Darden, & Griffin, 1994; Sherry, 1990). Specifically, a first sub-scale measures people's need for instrumental touch, which represents functionality and goal-directed touch while a second sub-scale measures an individual's general liking for haptic input from products, which is called the need for autotelic touch.

Consumers high in instrumental NFT use touch for a specific goal, generally, to buy the product and to make purchase-related judgments. They gather information in order to identify product-related properties that might affect the use of the product and which cannot be gathered by means of other senses, such as the texture or weight of the product (Peck & Childers, 2003b). One example of this sub-scale is the following: "The only way to make sure a product is worth buying is to actually touch it." The autotelic touch dimension symbolizes the emotional or hedonic factor of product touch, that is, touch for enjoyment and pleasure only. Put differently, consumers high in autotelic NFT do not necessarily have a purchase goal in mind. They rather like to explore the environment through the sense of touch (Peck & Wiggins, 2006). A typical question for this sub-scale is "Touching products can be fun."

Extant literature suggests that individuals' confidence in product judgments might be affected by whether or not they can use their sense of touch during product evaluation. In particular, for people who are motivated to touch products (i.e., those people high in NFT), barriers to touch can decrease confidence in their evaluations towards material products, and in addition, increase levels of frustration or disappointment (Citrin et al., 2003; Peck &

Childers, 2003b). In contrast, merely relying on visual cues in order to evaluate a product which is salient in haptic attributes seems to be sufficient for consumers low in NFT; hence, their confidence and level of frustration is not affected by whether touch is a component (or is not a component) of their evaluation (Peck & Childers 2003b).

Moreover, prior research has discovered that people high in autotelic NFT show a higher willingness to donate when a touch element (such as a feather) was attached in the brochure (versus not), while people low in autotelic NFT do not differentiate (Peck & Wiggins, 2006). In fact, people scoring high on NFT seem to appeal to their obtained haptic information for a longer time (memory), as a result from which the likelihood to use this information in a subsequent purchase decision increases (Lingle & Ostrom, 1979; Peck & Childers, 2003a).

2.3 Situational Characteristics

Environmental aspects can also influence consumers. For instance, a store's music, lighting, employees, scent, and layout may all affect consumers' judgments (Mattila & Wirtz, 2001; Soars, 2009). Consequently, many consumers exhibit a tendency to decide in-store as opposed to making decisions beforehand outside of the store. Hence, individuals' urge to haptically explore objects can be influenced by situational factors as well, for instance, by means of point-of-purchase signs (Peck & Childers, 2006), or tables displaying products—especially those that are salient in material properties—in order to stimulate touch and impulse purchases. In fact, consumers prefer those store environments or retailers who permit touch and allow physical inspection of products (Krishna & Morrin, 2008; McCabe & Nowlis, 2003).

However, in the current paper, we propose that not all non-touch situations might decrease product evaluations. In particular, we suggest that certain non-touch situational characteristics might enhance consumers' desire, although touch is not permitted. In fact, we believe that not having the possibility to touch an object may sometimes positively increase one's desire towards the object.

3. THE ROLE OF DESIRE IN CONSUMER BEHAVIOR: CONCEPT AND TRIGGERS

Desire has been found to be positively correlated with one's self-esteem and subjective happiness (Belk et al., 2003). However, the concept of desire is rather difficult to describe, given the broad range of perceptions associated with it. For instance, consumers connect desire with smoothness, silky, and fragrant, but also with red and hot. As a result, desire is often perceived as a passionate emotion, which is different from the rather unemotional fulfillment of wants and needs (Belk et al., 2003). In addition, researchers characterize desire as an urge, craving, or a hot flash (e.g., Loewenstein, 1996; Rook, 1987; Rook & Fisher, 1995), or as a subjective and motivating concept, for the reason that desires often lead to behavioral intentions (e.g., Bagozzi, Dholakia, & Basuroy, 2003; Loewenstein, 1996).

The experience of a sudden and intense desire has been shown to be related with impulse purchases (Dholakia, Gopinath, & Bagozzi, 2005; Loewenstein, 1996; McClure, Laibson, Loewenstein, & Cohen, 2004; O'Donoghue & Rabin, 2000; Rook, 1987; Rook & Hoch, 1985). In fact, impulsive decisions consist of unplanned actions that are often caused by spontaneous stimuli (Baumeister, 2002), such as a desire. For instance, being hungry, exhibiting sexual cravings or longing for drugs can be viewed as (rather extreme) examples of impulsive behaviors caused by a desire (e.g., Van den Bergh, Dewitte, & Warlop, 2008).

In a consumption context, consumers often experience a longing for certain consumer goods which might in fact mesmerize them. Hence, marketers and retailers try to cause or act upon these feelings in order to strengthen this process (Belk et al., 2003) by means of various marketing appeals and external impulses such as advertising, display cases, magazines, sales promotions, and so on (e.g., Belk, 2001; Dholakia, 2000; Wakefield, Germain, & Henriksen, 2007). As a result, consumers' desire towards the advertised product might be enhanced. Indeed, it has been found that in-store product displays boost sales of regular customer products (e.g., Chevalier, 1975; Curhan, 1974; Wilkinson, Mason, & Paksoy, 1982) and stimulate unplanned purchases (e.g., Inman, Winer, & Ferraro, 2009; Stille, Inman, & Wakefield, 2010; Underhill, 1999). For instance, merely viewing cigarette pack displays in a store stimulates purchases among smokers or enhances the urge to buy cigarettes among ex-smokers (Wakefield et al., 2007).

In general, three different characterizations of desire have been proposed (e.g., O'Shea, 2002). First, desire can be portrayed as a lack or a 'desire for' something, though, which can be fulfilled. For instance, one might long for a piece of jewelry and save for it. Hence, once the desire has been accomplished, the desirability regarding the object disappears and the value of the desire gets lost. A second characterization views desire as a feeling one continually strives for, that is a 'desire for desire'—for instance, being rich. Obviously, this kind of desire can never be satisfied. Finally, the third characterization integrates both previous characterizations. In fact, people have to 'desire for desire', as desiring makes people happy—which relates to the motivational power of desire. In addition, people have to 'desire for something', that is experiencing a lack, in order to maintain the level of desire—which involves the idea of unattainability. The current paper builds on the latter idea to propose that unattainability (by means of a barrier) may influence one's level of desire.

In fact, prior research stresses the importance between unattainability and desire. For instance, in 'The Envy Theory of Needs', Douglas & Isherwood (1971) explain that people desire those things what others have. In effect, people are social creatures and their desire gets determined mainly by the possessions of others. In addition, Belk et al. (2003) demonstrate that consumers perceive desire as something which is 'difficult to obtain'. Specifically, respondents depicted desire by means of a barrier, such as a mountain surrounding a desired object. However, they also stressed the importance that these barriers should not be insurmountable to ensure the level of desire. In other words, a certain amount of distance is perceived as encouraging but an object's desirability is reduced when the object is regarded as impossible to obtain or when there is no hope left to conquer the barrier of distance.

Indeed, these findings dovetail with the portrayal of desire as a state of enjoyable discomfort (Campbell, 1987). That is, people especially exhibit a tendency to desire those things that we cannot readily have, that is objects that are rather inaccessible or scarce (e.g., Worchel, Lee, & Adewole, 1975). In a similar vein, desire has often to do with the hunt for the forbidden (Belk, Ger, & Askegaard, 1996). Consider, for instance, perfumes such as Opium or Taboo. Crucially, a distance or barrier intensifies the pursuit of an object of desire, as it has been shown that one's desire might be enhanced when it becomes difficult or

improbable to reach the desired item (Belk et al., 2003). Hence, as a general rule, one might believe that the more difficult it is to obtain, the more desirable the object is.

Consider, for instance, situations of romantic love in which one will especially long for that specific romantic partner that is most out of reach; or collectors, who enjoy significantly more the desire and search for certain collector items than the actual possession itself (Belk, Wallendorf, Sherry, & Holbrook, 1991). Accordingly, the assumption that barriers might strengthen one's desire has been implemented in various real-life practices. For instance, marketing practices frequently use promotion strategies, sampling and scarcity strategies to create the assumption of barriers and to elicit desire. Specifically, objects that are used, owned, or distributed for a short period of time stimulate desire, and consequently, boosts in (subsequent) purchase intentions (e.g., Brehm, 1966; Catry, 2003; Gierl & Huettl, 2010; Jung & Kellaris, 2004; Stock & Balachander, 2005; Wadhwa, Shiv, & Nowlis, 2008).

The resulting consumer behavior of such (scarcity) strategies (i.e., perceiving the products as more attractive) can be interpreted as an outcome of a desire to recapture one's freedom (Clee & Wicklund, 1980). Indeed, according to reactance theory (i.e., a social psychological theory concerning people's reactions to threatened freedoms or situations in which one's freedom to choose is limited; Brehm, Stires, Sensenig, & Shaban, 1966), threats to freedom—by means of barriers—can increase the attractiveness of a restricted item. Put differently, when an individual's freedom to engage in a specific behavior is threatened, such as when one loses the possibility of attaining one of several choice alternatives, the threatened behavior becomes more attractive (i.e., his/her desire for that alternative increases). Specifically, in virtually every situation in which a choice option is partially or wholly blocked by means of a barrier (e.g., product scarcity, limitations, long waiting lines, physical distances, and so on) one's motivation to obtain that option may increase (Clee & Wicklund, 1980; Lessne & Notarantonio, 1988; Mazis, Settle, & Leslie, 1973).

However, as mentioned previously, barriers should not be insurmountable to ensure the level of desire (Belk et al., 2003). Indeed, when a barrier becomes too strong, this might result in decreased attraction effects—a so-called "sour grapes" effect (e.g., Clee & Wicklund, 1980; Elster, 1983; Hammock & Brehm, 1966). In particular, when desirable products or objects become unobtainable or only available in very minimal and limited quantities, individuals tend to downgrade those inaccessible options and derogate them by perceiving

them as less attractive (Lessne & Notarantonio, 1988). In fact, people bring their evaluations and preferences in line with their perceptions of likelihood of or expectations about attainability. Hence, both effects (i.e., reactance and sour grapes) are compensating powers. That is, barriers may increase levels of desire (a reactance effect), however, those barriers should not be too restricted, or else, it will result in diminished attraction effects and the initially desired item will lose value (a sour grapes effect).

4. RESEARCH PROPOSITION: TOUCH VERSUS DESIRE

In the current paper, we investigate whether exhibiting a product in a way that it cannot be touched, by means of a barrier (e.g., a retail display case), might enhance consumers' desire regarding the product, even if this precludes touch. It is unclear whether, for instance, glass covers may enhance or reduce a product's attractiveness and evaluation. On the one hand, barriers eliminate touch, which might, in turn, influence consumers' confidence in their judgments, resulting in less favorable product evaluations, increased levels of frustration, and lower impulse purchases (e.g., Grohmann, et al., 2007; Peck & Childers, 2003b, 2006). In fact, touching an object permits one to get to know the object more closely, and hence, increases one's perceived sense of owning the object (e.g., Pierce, Kostova, & Dirks, 2003).

On the other hand, consumers view items as particularly appealing when they have to overcome some obstacles to obtain them, at least when the obstacles are not insurmountable (e.g., Belk et al., 2003). Consequently, a display case that covers up a product might be perceived as something which makes it difficult to touch and obtain the relevant product, and consequently, might enhance the desire towards that product. Indeed, an enhanced desire may lead to higher purchase intentions, given the impulsive behavioral intentions caused by a desire (Dholakia et al., 2005). Moreover, even though a plastic cover acts as a barrier between the consumer and the product, it offers a bare view at the same time (Belk, 1996).

5. OVERVIEW OF THE EMPIRICAL INVESTIGATION

We present a set of three studies to investigate the effect of tangibility on desire. In addition, we first examine whether the effect is moderated by the type of product (study 1). Specifically, while material products require touch, consumers' desire towards geometric products might be heightened when those products can just not be touched—due to a barrier (i.e., a plexiglass display case). Furthermore, we check another frequently used type of barrier in the retail domain, that is a display window, and test whether the effect lingers (study 2). Finally, we examine the role of construal level, and more specifically, the effect of spatial distance on desire (study 3). In particular, we test whether the effect vanishes when displaying a product at a certain physical distance. To conclude, we include consumers' need-for-touch in all three studies.

6. STUDY 1

The purpose of study 1 is threefold. First, we investigate whether displaying a product in a way that precludes touch enhances or decreases the desire towards and evaluations of that product. Second, we additionally include two potential moderators: type of product and need for touch. In particular, prior literature distinguishes between two types of products for which the possibility to touch is unimportant versus important, geometric and material products, respectively (cf. intro; Klatzky et al., 1993). Given that consumers are more likely to prefer material products when they have the possibility to touch them (McCabe & Nowlis, 2003), we expect the type of product to play an important role in the effect of tangibility on desire.

Furthermore, consumers may differ in the degree to which they feel the need to touch products (NFT; Peck & Childers, 2003a). Moreover, the inability to touch might result in more negative product evaluations—due to a certain degree of frustration (Peck & Childers, 2003b), especially among consumers exhibiting a high tendency to haptically explore products (Grohmann et al., 2007).

Third, it seems that the two streams of literature (i.e. touch versus desire) conflict regarding the role of tangibility on perceptions of product quality. In particular, when evaluating products, consumers gather intrinsic as well as extrinsic product information. It

has been shown that tactile input might play an important role in consumers' perception of product quality, as touch enhances the gathering of intrinsic product cues (i.e., attributes that are part of the physical product itself; Citrin et al., 2003; Klatzky et al., 1991; Wheatley et al., 1981; Zeithaml, 1988). Indeed, intrinsic attributes exert a greater impact on product quality perceptions as opposed to extrinsic attributes (such as price, brand name, reputation, salesmen), especially regarding material products (e.g., Citrin et al., 2003; Sprott & Shimp, 2004; Wheatley et al., 1981; Zeithaml, 1988). For instance, consumers even perceive a low-priced pen higher in quality when touch is available than when placed in a package making intrinsic cues inaccessible (Pincus & Waters, 1975). In fact, the use of tactile input enables consumers to make accurate evaluations and to discriminate between levels of product quality (Grohmann et al., 2007).

In contrast, a display cover might possibly entail a 'prestigious' perception because the product cannot be touched (e.g., it must be a good product because it is covered). In fact, consumers are more likely to use such appearance cues as signals of product quality when objective quality is unknown or in the absence of other relevant product information (Dawar & Parker, 1994). As a result, the display case might play a more conscious role in the evaluation of the product, and "signal" quality, enhancing product evaluation. Indeed, if consumers perceive a product as exclusive, their desire towards the product increases and product evaluations are enhanced. Hence, we additionally investigate whether the presence of a display case might infer a perceived superior quality passed on to the product.

Importantly, our study contributes to prior research in several ways. First, prior literature on the topic of touch has mainly looked at product evaluations regarding material products (e.g., Grohmann et al., 2007). Geometric products were sometimes included in experimental designs, however, only within-subjects and merely with the purpose of investigating consumers' confidence and frustration levels (e.g., Peck & Childers, 2003b) or the likelihood of picking up the relevant product (e.g., McCabe & Nowlis, 2003). Second, while previous research has mainly focused on differences in product evaluations across environments—e.g., showing the actual product versus written product descriptions only (e.g., Degeratu et al., 2000; McCabe & Nowlis, 2003; Peck & Childers, 2003b), or exhibiting the actual product versus a picture of the product (e.g., Burke, Harlam, Kahn, & Lodish, 1992; Lemon & Nowlis, 2002; Peck & Childers, 2003b), little or even no research has integrated the concept of desire relative to touch.

6.1 Participants and Procedure

One hundred sixty-three participants between 17 and 55 years old ($M_{\text{age}} = 23.52$; $SD = 7.58$) were introduced to a lab experiment and were told to complete a variety of unrelated tasks. First, we told participants that they had to make some product evaluations. Therefore, we randomly assigned them to one of four conditions of the between-subjects experiment (Tangibility: no cover vs. plexiglass cover; Type of product: geometric vs. material). More specifically, we guided respondents to a separate cubicle in which the product was presented. We displayed the product either on a small table thus, permitting the consumer to touch the product (i.e., no cover condition), versus underneath a plexiglass display case—thus, creating a barrier. In both conditions, the product was presented at a distance of about 40cm from the right armrest of the participant’s chair. The plexiglass cover measured about 30cmx30cmx30cm and enclosed the product entirely.

Following the research of Klatzky et al. (1993), we distinguished between geometric and material products (Klatzky et al., 1993; Lederman & Klatzky, 1990), that is objects for which the sense of touch is unimportant versus important. In particular, participants were presented with either a regular bottle of apple juice (i.e., geometric product) or a set of bath towels (i.e., material product). According to prior research, types of beverages could be identified as geometric products (Grohmann et al., 2007; McCabe & Nowlis, 2003), whereas products that require touch (e.g., a sweater or bath towels) are recognized as material products (Grohmann et al., 2007; Peck & Childers, 2003b). In addition, we made sure no labels or names were visible on the product itself in order to exclude the influence of brand names (e.g., Amar, Ariely, Bar-Hillel, Carmon, & Ofir, 2011). Appendix A provides an overview of the manipulation used in this study.

Next, we asked participants to make evaluations regarding the relevant product on several scales. Moreover, in the no cover condition, we informed participants that they could touch the product if they wanted. Subsequently, we measured various dependent variables related to desire, as there exists no unambiguous scale to measure and characterize the concept of desire. As a result, we first asked respondents their willingness-to-pay for the product (WTP). Next, we examined respondents’ attitude towards the product by means of a 9-point scale and sets of brief, opposing, complete sentences ($\alpha = .89$). Items included “This is a bad (good) product”, “This product is ineffective (effective)”, “This

product is unpleasant (pleasant)", "I feel negative (positive) toward the product", "I dislike (like) the product", "I do not want (want) to possess this product", and "This product does not get (gets) one's money's worth". Furthermore, we asked participants whether the relevant product "would make them enthusiastic", "would enhance their desire", and "inspires them" ($\alpha = .82$; all 9-point scales), in order to cover a broader measure of desire.

In addition, Amar et al. (2011) showed that prestigious brands might actually improve the performance of individuals on product-related tasks. Put differently, given that prestigious products are generally perceived and expected to be better and signal quality, the authors demonstrated that products that are expected to be better actually are perceived as better and as exhibiting improved performance on product-related tasks. For instance, wearing luxurious sunglasses (e.g., sunglasses tagged Ray-Ban) improves reading performance (i.e., making fewer errors and reading more quickly) than wearing the identical pair of sunglasses of a non-luxury brand (e.g., sunglasses tagged Mango). Similarly, ear-muffs tagged with a luxury brand have been shown to block noise more effectively than their identical non-luxury counterpart. Hence, in the current study, we investigate whether the presence of a display case might confer a perceived superior quality to the product. Consequently, we asked participants about the perceived quality of the bottle of apple juice / set of bath towels, relative to other bottles of apple juice / sets of bath towels (on a 7-point scale). Moreover, we asked participants to indicate to what extent they perceived the apple juice to taste better / the set of bath towels to be softer, as opposed to other bottles of apple juice / sets of bath towels (on a 7-point scale).

At the end of the survey, participants were asked to leave the separate cubicle. In the nearby condition, we asked them whether they had touched the product during their evaluations. In the apple juice condition, we asked participants whether they like drinking apple juice in general, how often they drink apple juice in their daily lives, and how thirsty they were at the moment of the experiment (all 9-point scales). Moreover, even though we removed all identifiable brand labels, we asked participants whether they had bought the particular bottle of apple juice in the past. In fact, familiarity with the product might influence product and quality perceptions.

Finally, we administered participants' confidence in their evaluations regarding the product. Prior touch literature has often included participants' confidence in their product evaluations, however, only in relation to one's level of NFT (Peck & Childers, 2003b) or

merely regarding material products (Grohmann et al., 2007). As a result, whether or not one's confidence in evaluations might fluctuate between covered versus not covered (material or geometric) products has not been considered yet. Consequently, we asked participants to indicate their confidence in their completed evaluations by means of three items ($\alpha = .92$; all 9-point scales). Items included "I am (not) sure", "My product evaluations are (un)reliable", and "I am (not) convinced about my product evaluations".

At the end of the lab session, after a number of unrelated tasks, participants were asked to fill in the Need-for-Touch scale developed by Peck and Childers (2003a, $\alpha = .95$). This scale has been used widely and contains 12 items to measure individual differences in the motivation to acquire and use haptic information. The scale consists of two sub-scales—instrumental (i.e., functional) and autotelic (i.e., pleasure) NFT. Both dimensions have six questions each (see table 1), measured on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores on the scale represent greater levels of need-for-touch. In general, prior research has mainly employed the entire composite scale instead of one of the two subscales to measure individuals' NFT (e.g., Citrin et al., 2003; Peck & Wiggins, 2006), and has shown that the scale has been able to discern differences in judgments based on differences in NFT (e.g., Krishna & Morrin, 2008; Peck & Wiggins, 2006).

Table 1. Need-for-Touch scale

Autotelic NFT

Touching products can be fun.

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

When browsing in stores, I like to touch a lot of products.

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

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

I find myself touching all kinds of products in stores.

Instrumental NFT

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

I feel more comfortable purchasing a product after physically examining it.

I feel more confident making a purchase after touching a product.

If I can't touch a product in the store, I am reluctant to purchase the product.

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.

Note. The NFT scale is not influenced by tangibility and type of product

6.2 Results and Discussion

We first performed a principal component analysis (PCA) with varimax rotation on the 12 items that are in one way or another related to each other (i.e., attitude, desire and quality). We excluded 1 item because of ambiguous factor loadings after rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for this final analysis, KMO = .88, and all KMO values for individual items were > .80 (which is well above the acceptable limit of .50). Bartlett's test of sphericity, $\chi^2(55) = 896.52, p < .001$, indicated that correlations between items were sufficiently large for PCA. The analysis yielded eigenvalues for each component in the data. Two components had eigenvalues over Kaiser's criterion of 1 and in combination explained 61.67% of the variance. The items that cluster on the same components suggest that component 1 represents a general attitude towards the product, while component 2 corresponds to the desire towards the product. Both the general

attitude subscale as the desire subscale have high reliabilities. Table 2 shows the factor loadings after rotation for the ultimate 11 items.

Table 2. Summary of the final exploratory factor analysis results (study 1)

Item	Rotated Factor Loadings	
	General attitude	Desire
This is a bad (good) product	.82	.07
I feel negative (positive) towards the product	.79	.26
This product does not gets (gets) one's money's worth	.73	.16
This product is ineffective (effective)	.72	.16
Perception of better taste/softer	.71	.21
I dislike (like) the product	.70	.28
This product is unpleasant (pleasant)	.69	.38
Perceived quality of the product, relative to other	.55	.19
The product inspires me	.09	.87
The product makes me enthusiastic	.31	.84
The product enhances my desire	.28	.76
Eigenvalues	5.37	1.41
% of variance	48.85	12.82
Cronbach's α	.89	.82

Note. r (general attitude, desire) = .53, $p < .001$

Subsequently, we calculated a Mahalanobis distance measure for each participant to detect multivariate outliers. This generalized distance measure is based on the correlations between the different dependent variables on which the analysis is based (i.e., WTP, general attitude, desire, confidence). The Mahalanobis distance follows a chi-square distribution, in this case with four degrees of freedom. Only those participants were considered outliers with a threshold higher than the .995 fractile. As a result, 154 participants remained in the analysis.

We performed an ANOVA of tangibility (no cover vs. plexiglass cover) and type of product (geometric vs. material) on each of the four target dependent variables. The analysis did not reveal a significant interaction between tangibility and type of product on respondents' WTP ($F(1,150) = .19, p = .67$). However, we obtained a significant interaction of both independent variables on respondents' general attitude towards the product ($F(1,150) = 8.18, p = .01$; see Figure 1) and their level of desire ($F(1,150) = 5.29, p = .02$; see Figure 2). In particular, participants' general attitude towards the material product (i.e., bath towels) was higher when touch was available (i.e., in the no cover versus cover condition), albeit not significantly ($F(1,150) = 2.20, p = .14$), however, results were reverse for the geometric product (i.e., bottle of apple juice; $F(1,150) = 6.59, p = .01$). In a similar vein, participants' desire towards the material product was significantly higher when permitted to touch ($F(1,150) = 5.78, p = .02$), however, an opposite, albeit not-significant pattern was obtained for the geometric product ($F(1,150) = .71, p = .40$).

Interestingly, these two obtained data patterns show some unexpected differences. In particular, participants' level of desire is significantly higher towards a covered geometric (versus a covered material) product, while this is not the case regarding participants' general attitude. The opposite pattern, however, could be observed in the no cover condition: participants' general attitude towards material versus geometric products significantly differs, while this effect cannot be observed as regards participants' level of desire (see Table 3 for mean values, standard deviations and significant differences). Possibly, general attitude might go hand in hand with a cognitive mind-set, while one's level of desire fits an affective reasoning—which might explain these differences in data patterns. In fact, the sense of touch or the display cover might play a key role when exhibiting a cognitive versus affective mind-set, respectively.

Figure 1. General attitude towards the product: Interaction between tangibility and type of product

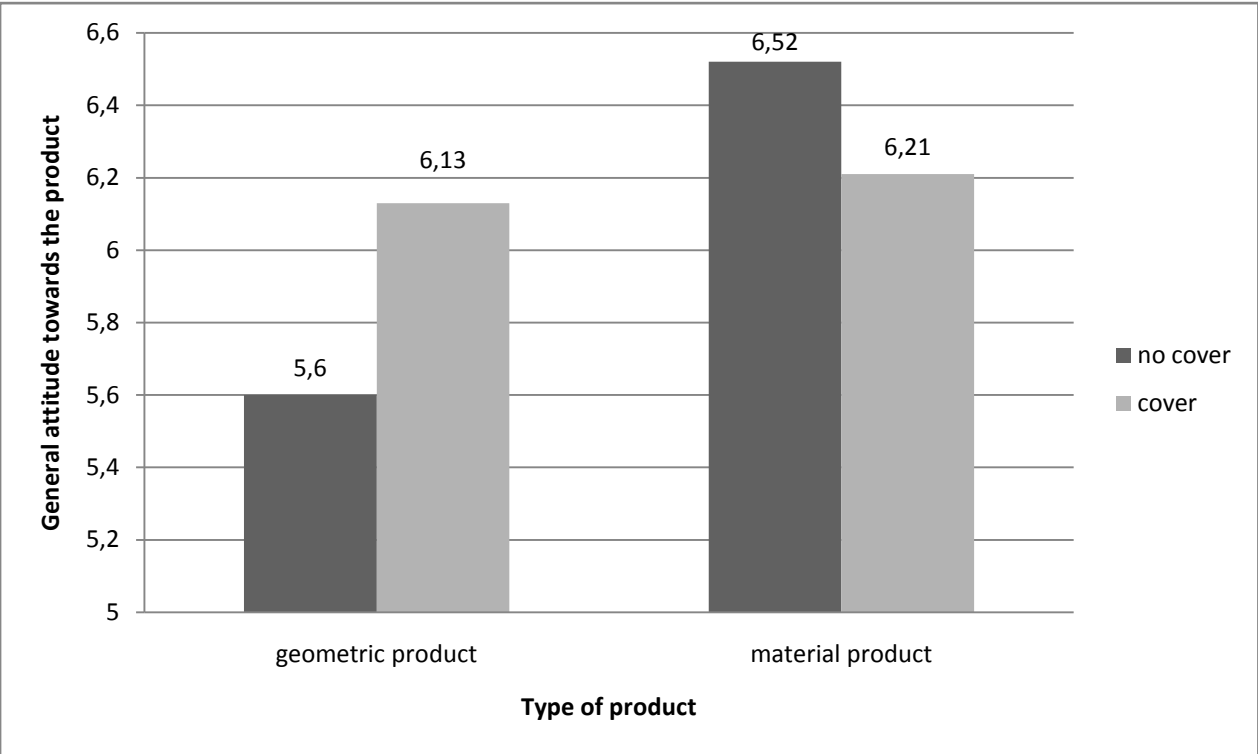
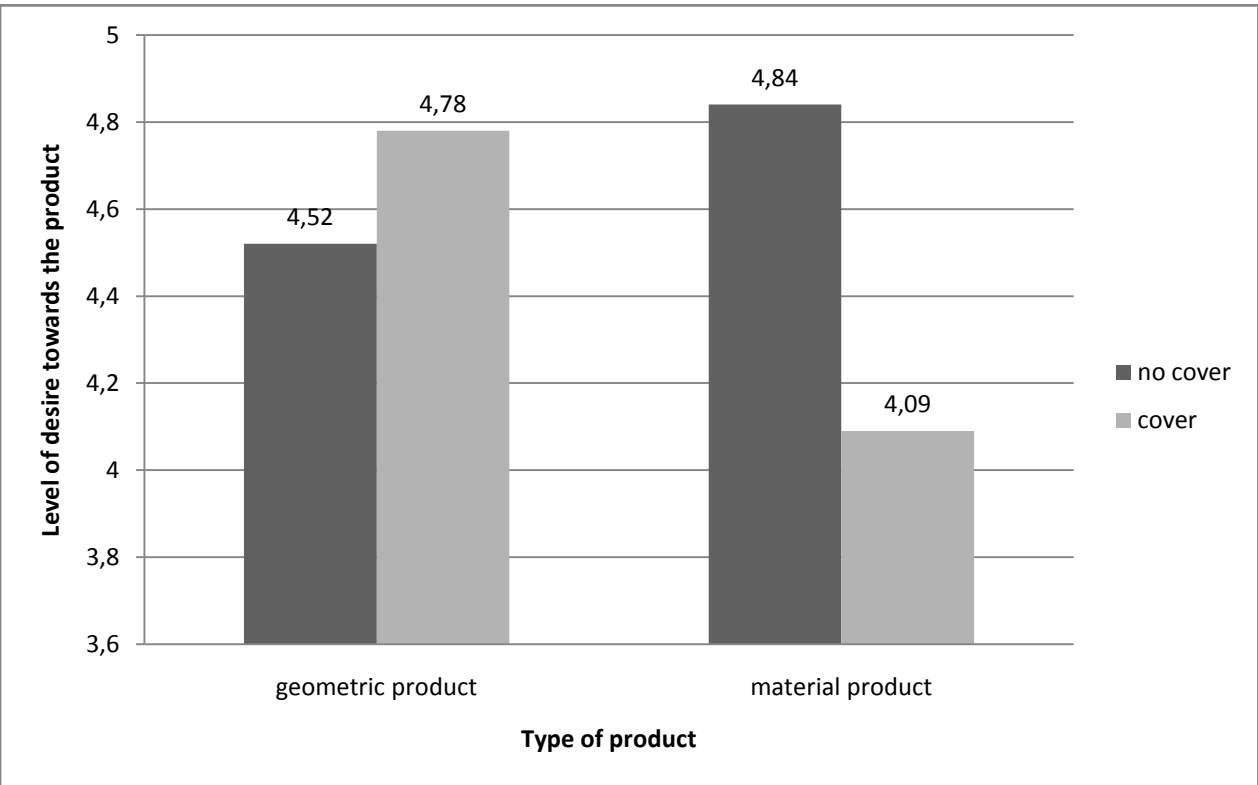
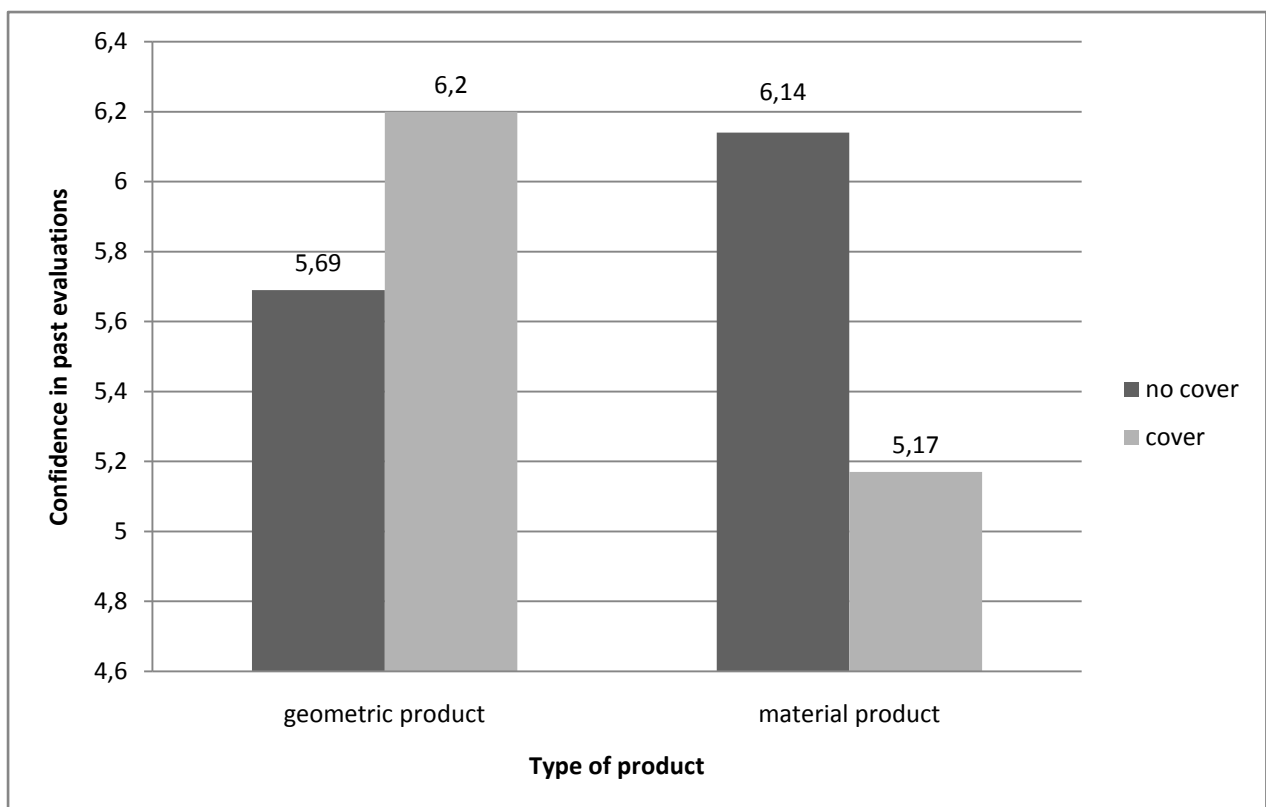


Figure 2. Level of desire towards the product: Interaction between tangibility and type of product



In addition, results revealed a significant interaction between tangibility and type of product on respondents' confidence in their completed evaluations ($F(1,150) = 8.48, p = .004$; see Figure 3). In particular, participants indicated to experience a significant higher level of confidence in their evaluations of the material product when touch was permitted versus when the product was displayed underneath the plexiglass cover ($F(1,150) = 7.22, p = .01$), however, results altered (albeit not significantly) regarding the geometric product ($F(1,150) = 2.03, p = .16$).

Figure 3. Confidence in completed evaluations: Interaction between tangibility and type of product



Finally, we tested a mediated moderation model (Morgan-Lopez & MacKinnon, 2006) that examines whether confidence can explain the interaction between tangibility and type of product on both participants' general attitude and desire towards the product. Indeed, the indirect path through confidence was significant, both regarding attitude and desire, as the confidence interval excludes zero (LLCI = -.64, ULCI = -.11 and LLCI = -.68, ULCI = -.07, respectively).

To conclude, gender did not influence any of the results, as well as none of the covariates (i.e., the extent to which participants like to drink apple juice in general, how frequently they consume apple juice, their level of thirst and the amount of participants that have touched the product). Furthermore, individual differences in need for touch (NFT) did not moderate any of the results, neither autotelic nor instrumental NFT. Table 3 shows the mean values, standard deviations, and significant differences with respect to the target dependent variables.

Table 3. Mean values, standard deviations and significant differences with respect to the target dependent variables (study 1)

	Geometric product (apple juice)				Material product (bath towels)			
	No cover		Cover		No cover		Cover	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attitude	5.60 ^a	1.04	6.13 ^b	.76	6.52 ^c	.92	6.21 ^{bc}	.93
Desire	4.52 ^b	1.30	4.78 ^b	1.25	4.84 ^b	1.29	4.09 ^a	1.54
Confidence	5.69 ^b	1.32	6.20 ^b	1.63	6.14 ^b	1.25	5.17 ^a	1.94

Note. Different letters for mean values of variables between conditions indicate significant differences at the $p = .05$ level

Overall, our results suggest that a barrier (e.g., a plexiglass cover) in order to enhance desire towards a product is likely to be successful, however, only with regard to geometric products. Accordingly, the type of product significantly moderated the effect of tangibility on desire, as the effect disappeared for the material product. In fact, these results contradict prior research suggesting that the inability to touch might decrease all product evaluations (e.g., Grohmann et al., 2007; Peck & Childers, 2003b). In sum, consumers seem to be more likely to desire a material product when touch is permitted versus when it is covered, while this is not the case with regard to geometric products. In contrast, results suggest that a

geometric product might provoke a (slightly) higher desire and a more positive attitude when it is covered (versus when it is not covered).

7. STUDY 2

In a consumption context, consumers often try to seek out information about a product, for instance, in the case of window shopping, where they might become store visitors so they can actually examine the object more closely (Bloch, 1995). Hence, the next study examines whether another frequently used type of display, i.e., a display window, might exert similar outcomes with regard to tangibility and desire.

7.1 Participants and Procedure

One hundred seventy-five participants between the ages of 19 and 48 years ($M_{\text{age}} = 21.06$, $SD = 2.48$) were invited to a lab experiment. Again, we told participants to make some product evaluations, similar to study 1. Consequently, we randomly assigned participants to one of six conditions of the between-subjects experiment (Tangibility: shelf vs. open display window vs. closed display window; Type of product: geometric vs. material). More specifically, we manipulated the type of product in the same way as in the previous study. Hence, we selected the bottle of apple juice as a geometric product and bath towels to serve as a material product. In addition, we guided respondents to a separate cubicle in which the product was presented. In particular, we presented the product either on a shelf or in an open versus closed display window. We expect the shelf condition to resemble the no cover condition in study 1, while the closed display window is expected to be similar to the previous cover condition. The open display window, however, might serve as a nuanced 'barrier'. In fact, on the one hand, participants are permitted to touch the product, however, on the other hand, the product is still 'surrounded' by a barrier. Hence, the effect of the open display window is currently unclear. In contrast, the closed display window serves as a true barrier, and hence, does not allow a sense of touch. We presented the product at about the same height in all three conditions. For an overview of the manipulation, see Appendix B.

We instructed participants to make evaluations regarding a product on several scales, and we informed them that they could touch the product if they wanted, except in the closed display window condition. Nobody attended the separate cubicle in order to eliminate possible peer influences. Subsequently, we administered the same dependent variables as in study 1. In particular, we first measured respondents' willingness-to-pay for the product, followed by their attitude towards the product (7 items, $\alpha = .93$), and the three desire-related measures ($\alpha = .81$). Moreover, similar to study 1, we asked participants about the perceived product quality. At the end of the survey, participants were asked to leave the separate cubicle and indicated their confidence in their completed product evaluations ($\alpha = .94$). Subsequently, we asked participants whether they had touched the product during their evaluations (i.e., in the shelf and open window display condition), and we measured the same items as in the previous study in the apple juice condition (i.e., whether they like drinking apple juice, how often they drink apple juice in their daily lives, how thirsty they were at the moment of the experiment, and whether they had bought the particular bottle of apple juice in the past). Finally, after a number of unrelated tasks, we asked participants to fill in the 12-item NFT scale (Peck & Childers, 2003a, $\alpha = .95$), and we thanked and debriefed them.

7.2 Results and Discussion

First, we removed two participants from the analysis, as they had indicated that they already had bought the particular type of apple juice in the past. No outliers were detected. Similar to study 1, we performed a principal component analysis (PCA) with varimax rotation on the 12 items that are in one way or another related to each other (i.e., attitude, desire and quality). We excluded 3 items because of ambiguous factor loadings after rotation. The final PCA analysis was significant (KMO = .89; all KMO values for individual items > .79; Bartlett's test of sphericity, $\chi^2(36) = 1058.91$, $p < .001$). Similar to study 1, the analysis yielded eigenvalues for each component in the data. Two components had eigenvalues over Kaiser's criterion of 1 and in combination explained 74.15% of the variance. Yet again, component 1 represents a general attitude towards the product, while component 2 corresponds to the desire towards the product. Both the general attitude subscale as the

desire subscale have high reliabilities. Table 4 shows the factor loadings after rotation for the ultimate 9 items.

Table 4. Summary of the final exploratory factor analysis results (study 2)

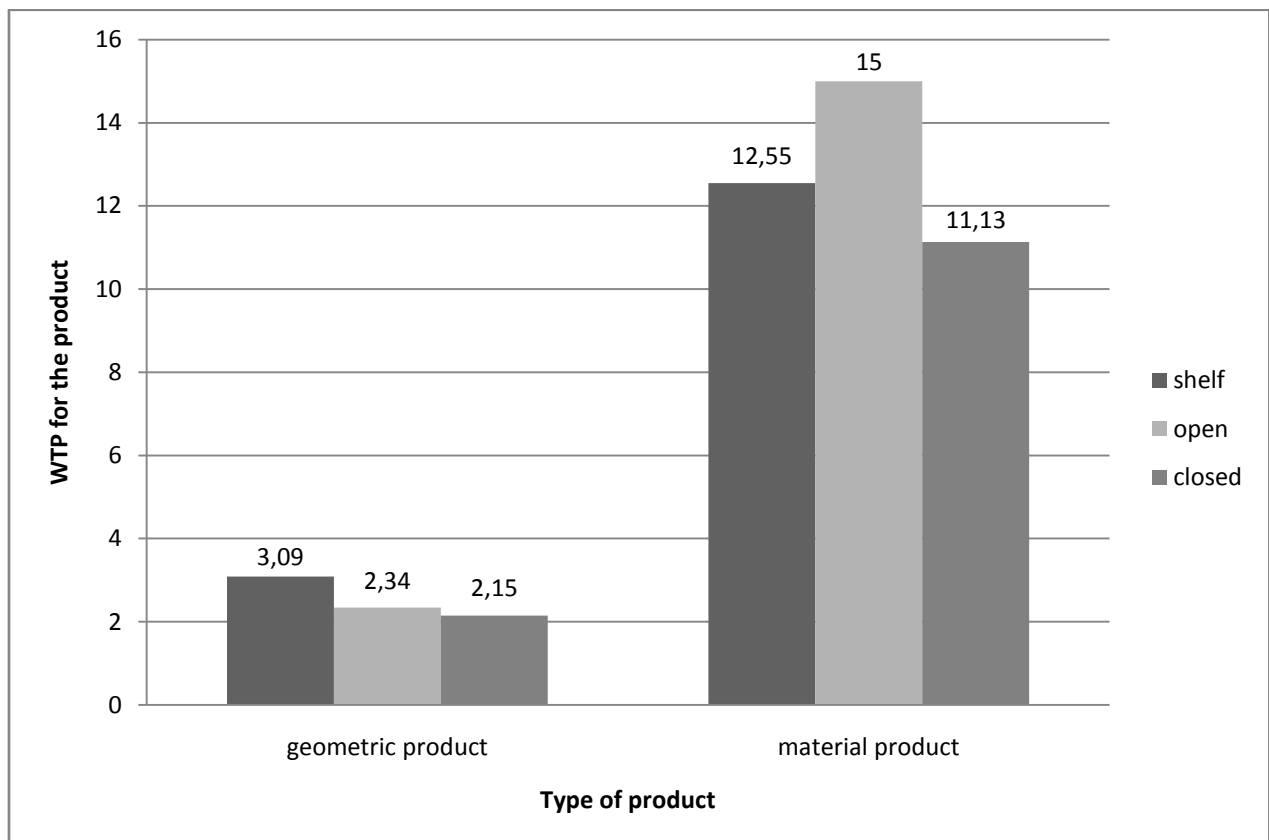
Item	Rotated Factor Loadings	
	General attitude	Desire
This is a bad (good) product	.87	.25
I dislike (like) the product	.86	.29
This product is unpleasant (pleasant)	.84	.24
I feel negative (positive) towards the product	.83	.31
This product is ineffective (effective)	.80	.01
This product does not gets (gets) one's money's worth	.79	.23
The product makes me enthusiastic	.27	.84
The product enhances my desire	.26	.82
The product inspires me	.09	.81
Eigenvalues	5.20	1.47
% of variance	57.82	16.33
Cronbach's α	.93	.81

Note. r (general attitude, desire) = .48, $p < .001$

Subsequently, we performed separate ANOVAs of tangibility (shelf vs. open display window vs. closed display window) and type of product (geometric vs. material) on the target dependent variables. First, results revealed a (marginally) significant interaction

between tangibility and type of product on respondents' WTP for the product ($F(2,167) = 2.52, p = .08$; see figure 4). In particular, respondents' WTP did not differ across conditions for the geometric product ($F(2,167) = .29, p = .75$). In contrast, we obtained a different data pattern for the material product ($F(2,167) = 4.96, p = .01$), such that respondents were willing to pay more when the bath towels were presented in an open window display ($M = 15.00, SD = 8.11$), as opposed to the shelf (albeit not significantly, $p = .16; M = 12.55, SD = 6.58$) and the closed window display ($p = .03; M = 11.13, SD = 4.83$). Interestingly, WTP did not differ significantly between the shelf and closed display window condition ($p = .41$).

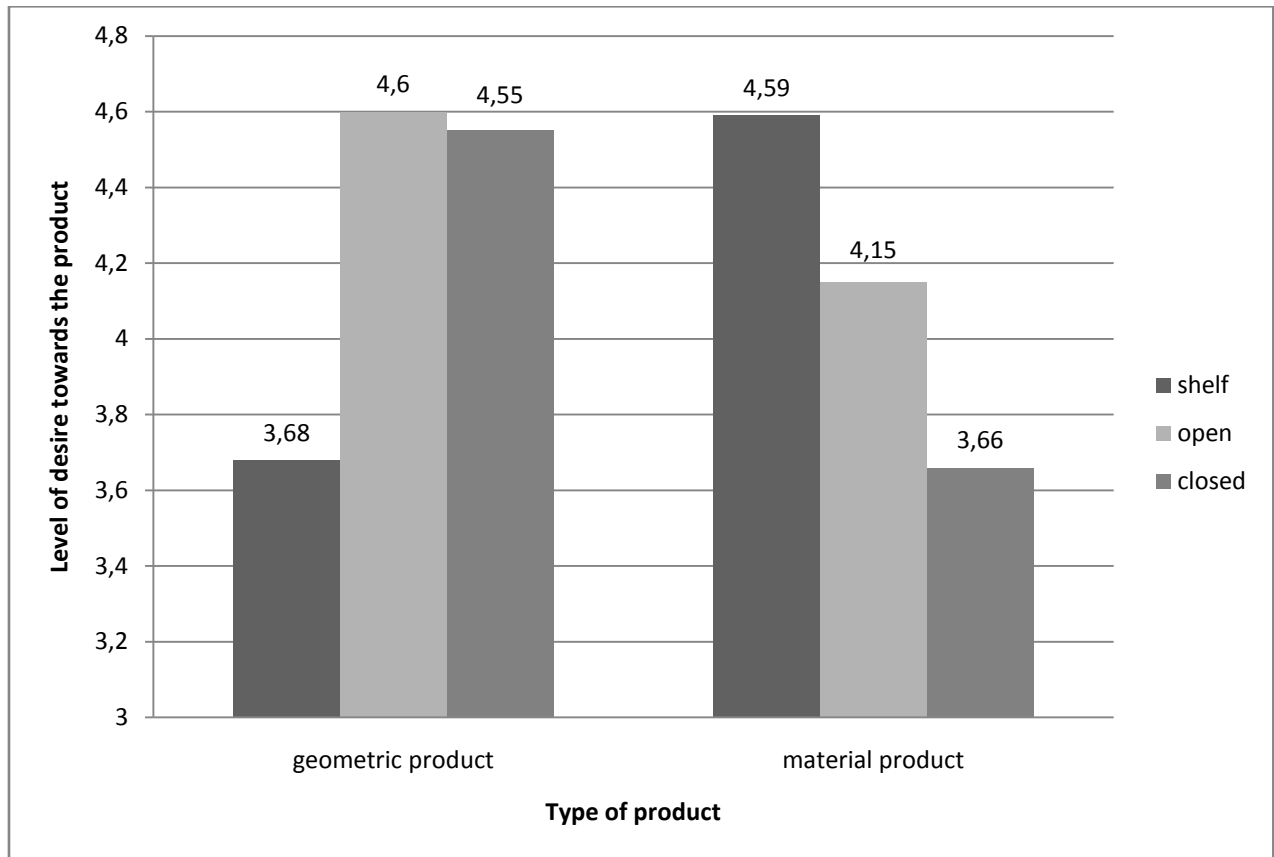
Figure 4. Willingness-to-pay for the product: Interaction between tangibility and type of product



Furthermore, we did not obtain a significant interaction between both independent variables on respondents' attitude towards the product ($F(2,167) = .28, p = .75$) and confidence in their completed evaluations ($F(2,167) = .32, p = .73$), however, results revealed a significant interaction on respondents' level of desire towards the product ($F(2,167) = 5.76, p = .004$; see figure 5). More specifically, participants' desire with regard to the geometric

product differed significantly across conditions ($F(2,167) = 3.33, p = .04$), such that desire was highest in both the open ($M = 4.60, SD = 1.58$) and closed display window condition ($M = 4.55, SD = 1.91$) as opposed to the shelf ($M = 3.68, SD = 1.32$) condition ($p = .04$ and $p = .05$, respectively). Desire did not differ significantly between the open and closed display window condition ($p = .90$). In contrast, regarding the material product, we obtained a different data pattern ($F(2,167) = 3.01, p = .05$). In particular, participants' desire was highest in the shelf condition ($M = 4.59, SD = 1.18$), as opposed to the closed window condition ($p = .01; M = 3.66, SD = 1.50$). Participants' level of desire, however, did not differ significantly when the material product was presented on a shelf versus in an open display window ($p = .21; M = 4.15, SD = 1.18$). Moreover, desire was higher in the open versus closed display window condition, albeit not significantly ($p = .15$). Given the obtained different data pattern between a geometric versus material product, it is not surprising that the material (versus geometric) product is favored in the shelf condition ($p = .02$), whereas the opposite is true in the closed display window condition ($p = .02$). However, type of product seems to play no significant role with regard to people's level of desire in the open display window condition ($p = .25$). Finally, NFT did not moderate and none of the covariates influenced any of the results.

Figure 5. Level of desire towards the product: Interaction between tangibility and type of product



Consistent with study 1, consumers' desire towards the material product is highest when it can be touched (i.e., shelf and open window display). Consequently, a display window might be equally effective as a regular shelf when exhibiting material products, however, the possibility of touch needs to be present. In contrast, exhibiting a geometric product merely on a shelf seems to decrease desire—which is consistent with the previous study. Indeed, consumers' desire regarding a geometric product is highest when presented in a display window, whether open or closed.

Interestingly, these latter findings add to our current understanding of the definition of a barrier. Actually, literature does not define precisely what is a barrier but rather conceptualizes it abstractly. For instance, in a collage about desire, a barrier was depicted by means of a mountain surrounding a desired object (Belk et al., 2003). Hence, these abstract connotations mirror a psychological barrier, rather than a real physical barrier. In our studies, we drew on real packaging (i.e., a display cover or window) to serve as a barrier, however, our findings might in fact dovetail with the assumption of a psychological barrier.

In particular, respondents' level of desire regarding the geometric product was significantly lower when presented on a shelf as compared to an open display window, even though the 'barrier' was equal (i.e., a possibility to touch). Moreover, level of desire towards the geometric product was equivalent in the open and closed display window conditions. Truly, the inability to touch does not merely drive our results. Probably, other perceptions might play a role as well (e.g., uniqueness, preciousness, expensiveness).

In contrast to study 1, we did not obtain an effect regarding participants' attitude towards the product. Possibly, quality perceptions might play an important role with respect to this finding. In fact, according to the PCA analysis, the quality items had to be dropped due to ambiguous factor loadings, whereas this was not the case in the previous study. Additional analyses were conducted in both studies in order to find out whether quality might have created this difference. In particular, a separate ANOVA of tangibility (shelf vs. open display window vs. closed display window) and type of product (geometric vs. material) on quality (i.e., the two quality items that had to be dropped from the PCA analysis) was conducted in study 2, as well as an ANOVA of tangibility (no cover vs. plexiglass cover) and type of product (geometric vs. material) on respondents' general attitude towards the product (without the two quality items) in study 1. However, results revealed no unequivocal explanation. In addition, the different manipulation of tangibility (i.e., display window instead of display cover) might have caused this difference in attitude.

To conclude, our last study investigates whether the effect of tangibility on desire might alter when considering the influence of spatial distance (i.e., displaying a product close vs. more distant). In particular, differences in psychological distance are found to be associated with different processing styles (e.g., Trope, Liberman, & Wakslak, 2007). Hence, the final study examines the role of construal level, and more specifically, the influence of spatial psychological distance on consumers' level of desire towards the product.

8. STUDY 3

Construal level theory (CLT; Liberman & Trope, 2008; Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2010) proposes that the psychological distance from objects or events is associated with how these objects or events are mentally construed, represented and evaluated (Liberman et al., 2007; Trope & Liberman, 2010). In particular, psychological

distance can be defined as the subjective experience or perception that something is far away or in close proximity to the self. Specifically, something is more psychologically distant as people are further away in terms of social (i.e., oneself versus others), temporal (i.e., near versus distant future), spatial (i.e., close versus remote location) or hypothetical (certain versus uncertain) dimensions (Liberman et al., 2007; Liberman & Trope, 2008; Trope & Liberman, 2010). Consider, for instance, a holiday trip that needs to be booked. One's psychological distance is perceived as smaller when the trip needs to be booked for oneself versus others (i.e., social distance), when one is leaving tomorrow versus next month (i.e., temporal distance), when the trip has to be booked at a local versus non-local travel agency (i.e., spatial distance), or when one is sure versus not sure that the trip will be made (i.e., hypothetical distance).

According to CLT, all different dimensions of psychological distance affect the way in which consumers mentally construe objects or events, and hence, influence their predictions, evaluations and behavioral intentions. More specifically, as psychological distance increases (socially, temporally, spatially or hypothetically), mental representations become more structured and schematically construed. That is, psychologically distant objects or events are represented in more general and abstract terms (i.e., high-level construals), whereas their corresponding alternatives (i.e., those that are more psychologically closer to us) are represented in a more specific and concrete way (i.e., low-level construals; e.g., Alter & Oppenheimer, 2008; Fujita, Henderson, Eng, Trope, & Liberman, 2006; Liberman et al., 2007; Liberman & Trope, 2008; Todorov, Goren, & Trope, 2007; Trope & Liberman, 2003, 2010; Wakslak, Trope, Liberman, & Alony, 2006).

For instance, one might construe the same event, such as children playing with a ball, at different levels of abstraction. More specifically, the event might be represented as just playing ball or having fun (i.e., high-level construal) when it happened several months ago (i.e., psychologically distant). In contrast, one might include the age of the children, how they look like, and the color of the ball (i.e., low-level construal) when the event occurred yesterday (i.e., psychologically close). Hence, the more psychologically distant (close) an object or event is, the more it will be represented at higher (lower) levels of abstraction—due to an association between distance and certainty or confidence (Henderson & Wakslak, 2010; Liberman & Förster, 2009).

The different modifications in construal might contain rich and important implications for evaluation, decision-making and consumption. For instance, consumers may pay more attention to the core benefits of a product when decisions are construed at a high level, whereas low-level construals might pertain the costs associated with the product (Trope et al., 2007). In fact, high-level construals tend to place more weight on desirability concerns (i.e., the value or “why” aspect), whereas low-level construals weigh feasibility more heavily (i.e., the means or “how” aspect; e.g., Borovoi, Liberman, & Trope, 2010; Fujita, Eyal, Chaiken, Trope, & Liberman, 2008; Liberman & Trope, 1998; Liviatan, Trope, & Liberman, 2008; Todorov et al., 2007). For instance, one will be more likely to choose a trip high in desirability features (e.g., beautiful country, culture, climate), versus a trip high in feasibility features (e.g., price, transport possibilities, language of the country), when perceiving a high (versus low) psychological distance (e.g., leaving next year versus tomorrow; Fiedler, 2007).

Hence, according to CLT, the extent to which one focuses on desirability features fluctuates depending on the perceived psychological distance. However, to the best of our knowledge, prior literature has not considered whether consumers’ actual level of desire towards a product may alter depending on psychological distance. Moreover, while prior research has mainly investigated the consequences of imagined spatial distance (e.g., Fujita et al., 2006; Liberman & Förster, 2009; Rim, Uleman, & Trope, 2009; Trope et al., 2007), little research has focused on the effects of real spatial distance. In addition, prior research encourages the examination of physical distance and how this may interact with other variables (Henderson & Wakslak, 2010)—the current study aims to fill this gap. In particular, we examine whether exhibiting a product at a certain distance elicits other reactions with regard to consumers’ level of desire towards the product than does a product that is presented nearby. Indeed, CLT assumes an association between psychological distance (e.g., spatial distance) and one’s level of abstraction, such that it might influence representations.

In particular, we expect the level of desire towards the product to increase, as the spatial distance decreases—due to a higher possibility to touch. Consequently, the effect of tangibility on desire might vanish when displaying the product at a certain physical distance. Indeed, one’s choice freedom might be threatened by means of barriers, such as a physical distance (Clee & Wicklund, 1980). Moreover, considering an enhanced desire when a geometric product is presented underneath a plexiglass cover (cf. study 1) or in a display

window (cf. study 2), at least in close proximity, we might expect a reversed U-shape curve between spatial distance and desire such that desire may be maximized if an object is just not close. Indeed, according to CLT's desirability/feasibility dimension, exhibiting a product in close proximity (i.e., providing the possibility to touch) should emphasize feasibility features, while the cover on itself might cause a certain psychological distance as well, and hence, emphasize desirability features. In fact, the concept of "psychological distance" can be interpreted as a subjective distance, alongside the largely explored objective distance (Henderson & Wakslak, 2010). Hence, events or objects that are subjectively close versus far from oneself—e.g., by means of a display case, might lead to different representations as well.

8.1 Participants and Procedure

As a conservative test, this study only examines a geometric type of product for which the sense of touch is not important. Moreover, we use the same manipulation as study 1, however, we additionally manipulate the spatial or physical distance of the product with regard to the participant. Hence, 111 undergraduate students ($M_{\text{age}} = 20.79$, $SD = .96$) were introduced to a lab experiment and were told the same information as in study 1. We randomly assigned them to one of the conditions of the between-subjects experiment (Tangibility: no cover vs. plexiglass cover; Distance: proximal vs. distant). In particular, we guided respondents to a separate cubicle in which they could make their product evaluations. Similar to study 1, we displayed the product either on a small table versus underneath a plexiglass cover, both at the same distance (i.e., about 40 cm from the right armrest of the participant's chair). In addition, participants either saw the product nearby on the small table (i.e., proximal condition) or at a distance of about 250 cm (i.e., distant condition). Every participant was seated at an equal distance from the product in each condition. Moreover, in the distant condition, participants were not able to take a closer look at the product. For an overview of manipulation used in this study, see Appendix C.

Subsequently, we measured about the same dependent variables as in studies 1 en 2, however, items were framed slightly different. Moreover, we added or extracted some measures. Specifically, we first asked participants to estimate the price of the product, followed by their willingness-to-pay. Subsequently, we administered respondents' first

impressions regarding the relevant product ($\alpha = .86$), using a 9-point scale ranging from strongly disagree (1) to strongly agree (9). Items included “My first impression regarding this product is positive”, “This product is in line with my image”, “I believe this product is attractive”, “I believe this is an expensive product”, “I believe this product is exclusive”, “I believe this product has a high quality”, “This product contains positive attributes”, “I desire this product”, and “I would like to possess this product.” Furthermore, we examined respondents’ attitude towards the product by means of a 9-point scale and sets of brief, opposing, complete sentences ($\alpha = .74$). Items included “This is a bad (good) product”, “This product is not enjoyable (enjoyable)”, “This product contains only a few (lots of) unique characteristics”, and “I dislike (like) the product”. Next, participants’ usage ($\alpha = .92$) and purchase intention ($\alpha = .95$) was measured by means of a 9-point bipolar scale. That is, participants were asked to indicate the probability that they would use the product, followed by their buying intentions. Specifically, both scales were anchored by means of several bipolar adjectives, i.e., unlikely/likely, nonexistent/existent, impossible/possible, and uncertain/certain. Finally, we administered the same desire-related measures as in the previous studies, and additionally asked participants whether “The product interests them” ($\alpha = .89$).

At the end of the survey, we asked participants to leave the cubicle. Furthermore, the same covariates as in the previous studies were administered (i.e., the extent to which they like apple juice, how often they drink it, their level of thirst, whether they had touched the product during the evaluation and whether they had bought that particular bottle of apple juice before). As a final measure, we again asked respondents about their confidence in their completed product evaluations by means of the same three items as in studies 1 and 2 ($\alpha = .91$). In addition, we asked participants to indicate whether they were able to touch the product during evaluation and whether they believed the product was nearby or far away. After a variety of unrelated tasks, participants were asked to fill in the 12-item NFT scale (Peck & Childers, 2003a, $\alpha = .95$). To conclude, we thanked and debriefed participants.

8.2 Results and Discussion

First, as a manipulation check, we removed six participants from the analysis as they failed the control measures (e.g., declaring that they were not able to touch the product

even though it was uncovered or the reverse). No outliers were detected. Second, we again performed a principal component analysis as in studies 1 and 2, however, no unambiguous factors could be identified because lots of items loaded on multiple factors. As a result, we opted to keep all items and averaged them in order to obtain one overall measure of desire ($\alpha = .95$).

Subsequently, we performed a separate ANOVA of tangibility (no cover vs. plexiglass cover) and physical distance (proximal vs. distant) on the target dependent variables. Results revealed a (marginally) significant interaction between tangibility and physical distance on price perception, such that participants perceived the product to be more expensive when it was covered (versus not), but only at a proximal distance ($F(1,101) = 2.82, p = .10$; see Figure 6A). Furthermore, we found a fairly similar data pattern regarding respondents' willingness-to-pay, albeit not significantly ($F(1,101) = 2.61, p = .11$; see Figure 6B).

Figure 6A. Product price perception: Interaction between tangibility and physical distance

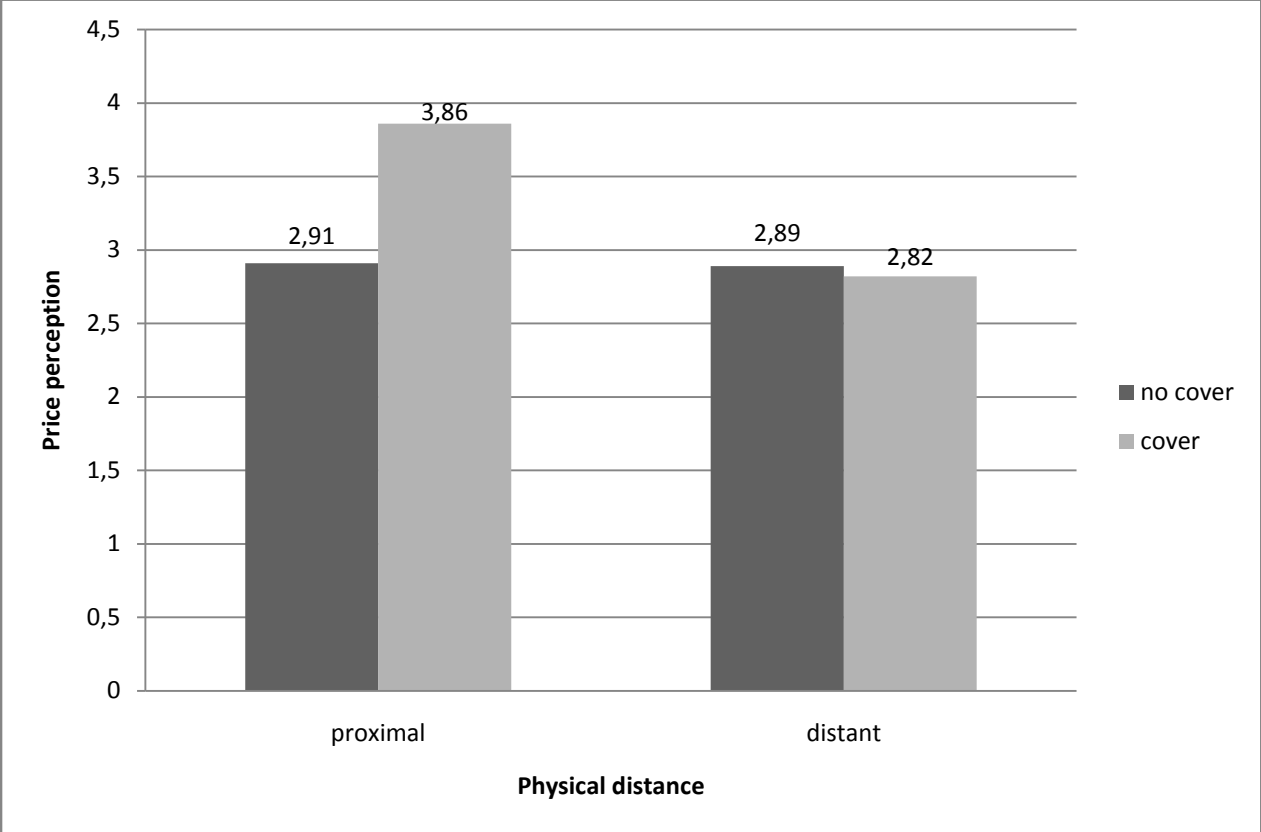
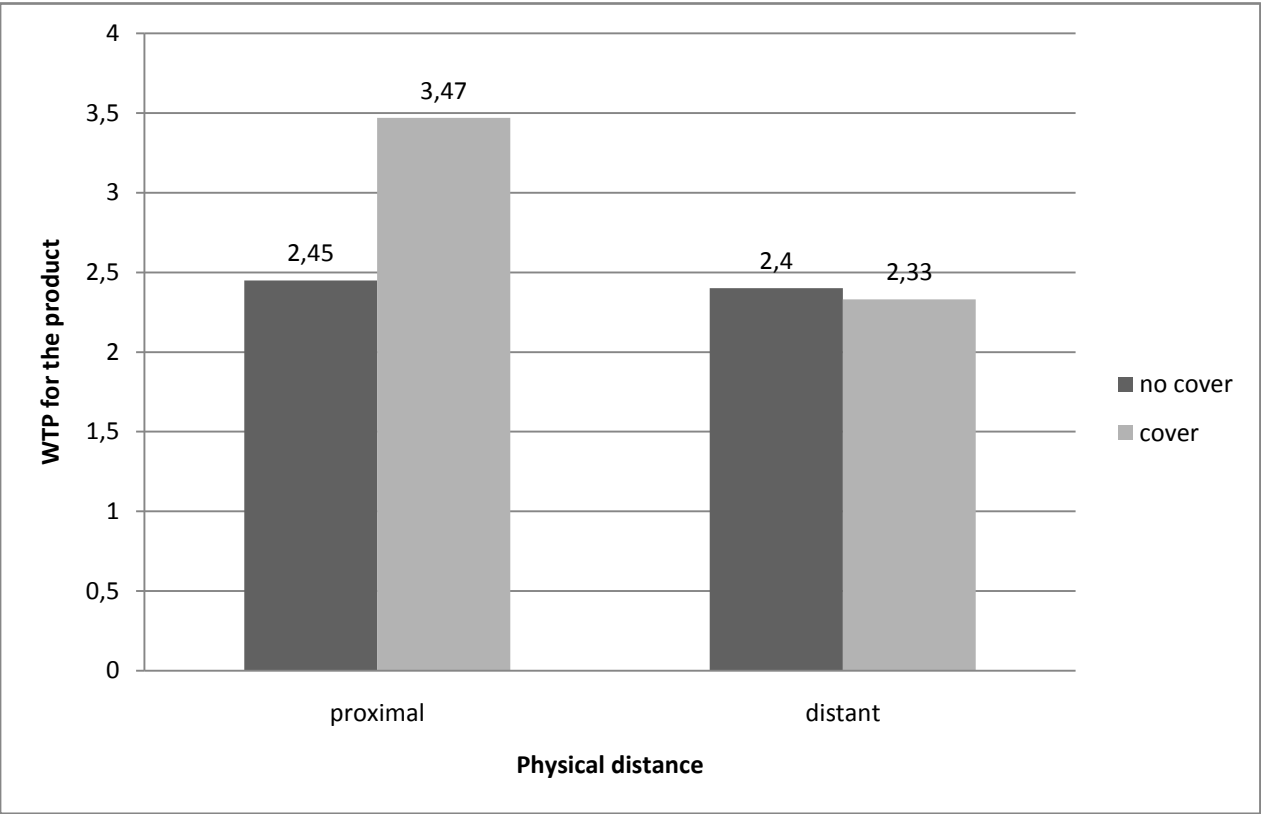
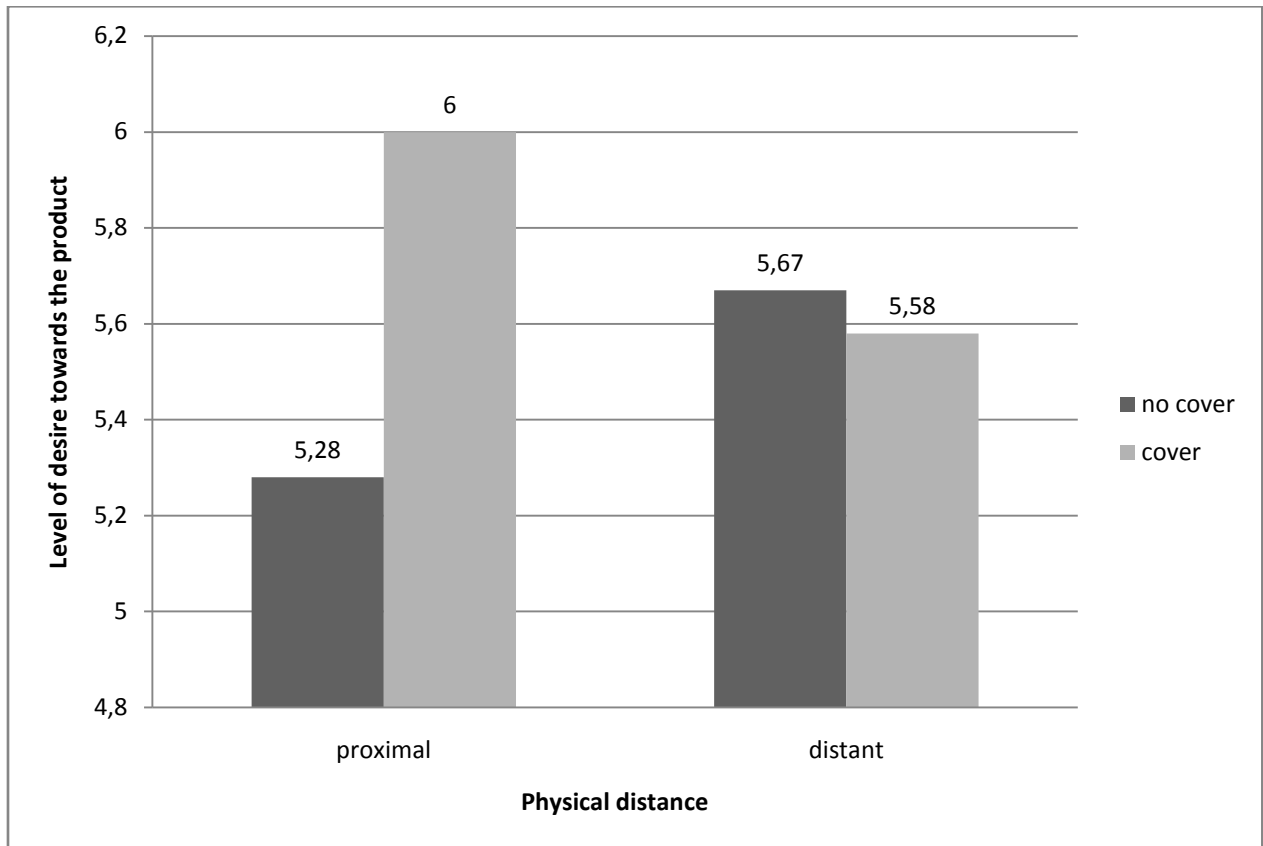


Figure 6B. Willingness-to-pay for the product: Interaction between tangibility and physical distance



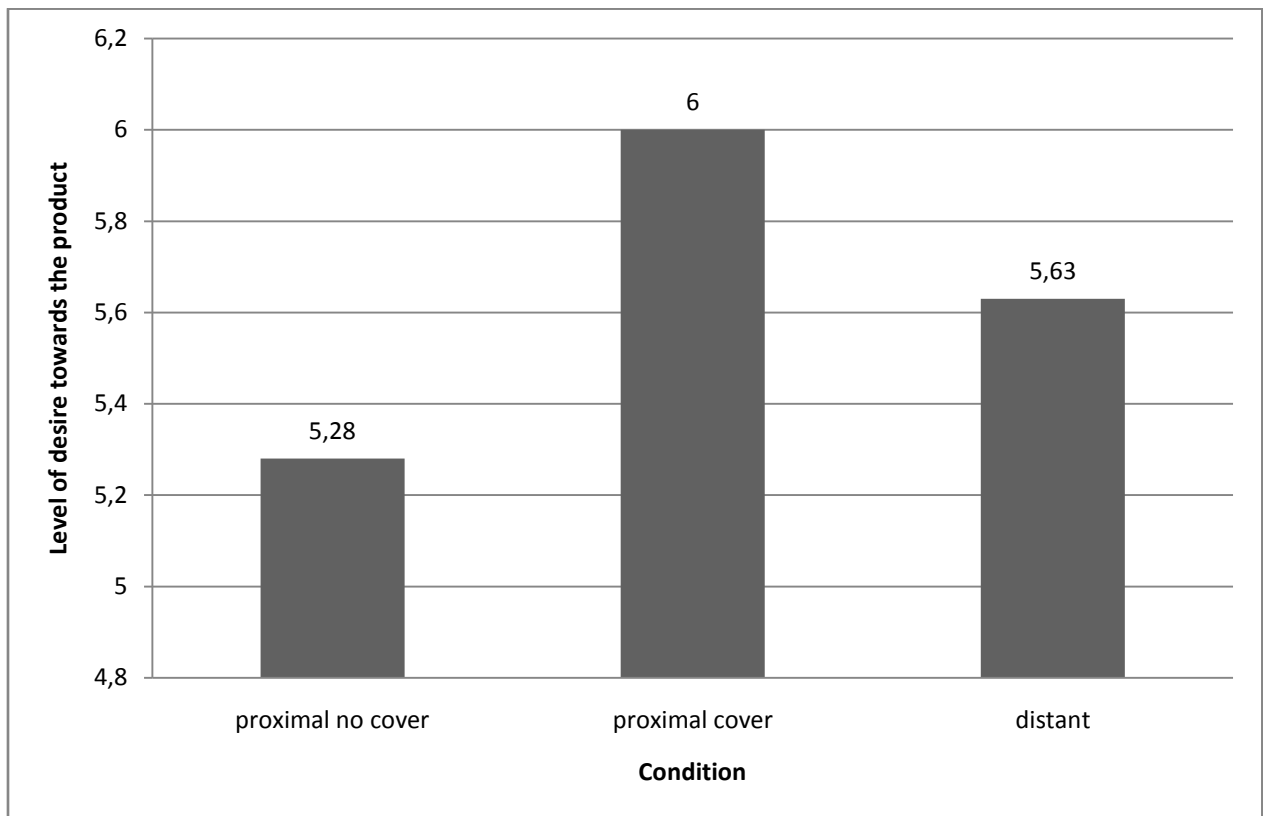
Importantly, results revealed a (marginally) significant interaction between tangibility and physical distance on the overall measure of desire ($F(1,101) = 3.00, p = .09$; see Figure 7), confirming our predictions. Specifically, consistent with respondents' product price perception and WTP, the level of desire towards the product was highest at a proximal distance, but only when the product was presented underneath the plexiglass cover ($F(1,101) = 5.01, p = .03$); hence, we obtained a significant higher desire towards the product when it could just not be touched. In the distant condition, however, no significant differences were found with regard to the presence or absence of a product cover ($F(1,101) = .07, p = .80$)—resembling figures 6A and 6B. Moreover, the exhibition of the geometric product without a cover did not significantly differ depending on the physical distance (in the vein of price perception and WTP), while a small difference in data patterns could be observed when presenting the product underneath a cover at a proximal or far distance. In fact, participants' level of desire does not significantly differ, while this is not the case regarding participants' product price perception and WTP (see table 5 for mean values, standard deviations and significant differences).

Figure 7. Level of desire towards the product: Interaction between tangibility and physical distance



As a result, we averaged the scores in the distant condition (i.e., with and without the cover) to obtain one measure of (far) distance. Consequently, a one-way ANOVA with condition as independent variable (i.e., proximal distance without cover, proximal distance with cover, far distance) on desire showed a (marginally) significant inverted U-shaped curve ($F(2,102) = 2.54, p = .08$; see Figure 8). In particular, consumers' overall desire towards the product was highest in the proximal condition underneath the plexiglass cover ($M = 6.00, SD = 1.00$), as opposed to the proximal condition with no cover ($p = .03; M = 5.28, SD = 1.29$) and the distant condition (albeit not significantly, $p = .18; M = 5.63, SD = 1.26$). Hence, results (partly) confirmed our predictions.

Figure 8. Level of desire towards the product: One-way ANOVA of condition



To conclude, no significant interaction was found regarding participants' confidence in their product evaluations ($F(1,101) = .06, p = .81$). Indeed, this result dovetails with prior literature which states that touch is not important regarding geometric products, and hence, does not influence confidence ratings (e.g., Peck & Childers, 2003b). Accordingly, individuals' need-for-touch did not moderate the results. Finally, none of the covariates influenced the results. Table 5 provides an overview of the mean values, standard deviations, and significant differences with respect to the target dependent variables.

Table 5. Mean values, standard deviations and significant differences with respect to the target dependent variables (study 3)

	Proximal				Distant			
	No cover		Cover		No cover		Cover	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Price	2.91 ^a	1.10	3.86 ^b	2.06	2.89 ^a	1.49	2.82 ^a	1.33
Perception								
WTP	2.45 ^a	1.01	3.47 ^b	2.25	2.40 ^a	1.11	2.33 ^a	1.28
Overall desire	5.28 ^a	1.29	6.00 ^b	1.00	5.67 ^{ab}	1.38	5.58 ^{ab}	1.15

Note. Different letters for mean values of variables between conditions indicate significant differences at the $p = .05$ level

In sum, consistent with studies 1 and 2, consumers' desire towards the geometric product is significantly higher when it is covered (versus not), however, only at close proximity. Put differently, the effect of tangibility on desire vanishes when the geometric product is presented at a remote distance. As a result, according to CLT's feasibility/desirability dimension, displaying a product at close proximity underneath a cover probably elicits desirability features, as the display case might be perceived as a psychological distance on its own. In contrast, displaying the same product at a proximal distance without a cover might elicit feasibility features, and hence, a lower desire.

Interestingly, our results suggest that actual physical distance does not enhance desirability, even though CLT suggests that psychological distance to an object increases as spatial distance increases (Trope & Liberman, 2010). However, prior research has mainly investigated spatial distance in terms of imagined distance (e.g., Fujita et al., 2006; Liberman & Förster, 2009; Rim et al., 2009; Trope et al., 2007), rather than factual physical distance. Indeed, our finding is in line with research on distant food (Maas, De Ridder, De Vet, & De Wit, 2012), in which the authors did not find an effect regarding actual physical distance as well.

9. GENERAL DISCUSSION

Prior research has repeatedly examined situations in which the sense of touch might exert favorable product evaluations (e.g., Grohmann et al., 2007). However, to the best of our knowledge, little or even no research has investigated whether a higher desire towards a product might be obtained when the relevant product is covered by means of a barrier, or put differently, when the product can nearly (but not quite) be touched. Drawing on a research stream regarding desire and barriers to enhance it, we propose that not all non-touch situations might lead to a decreased product evaluation. In addition, we investigate whether the effect of tangibility on desire alters when exhibiting different types of products (i.e., material versus geometric products) or for consumers high versus low in need-for-touch (NFT). Results from three studies suggest that material products rather follow the first stream of literature regarding the influence of touch, in which more favorable product evaluations are obtained when haptic exploration is possible (e.g., Grohmann et al., 2007). In contrast, geometric products rather respond to the second stream of literature regarding the influence of barriers, and hence, a heightened desire when something can just not be obtained (Belk et al., 2003) or touched in this case.

Furthermore, study 3 investigates the role of construal level, and more specifically, the influence of spatial distance on the effect of tangibility on desire. As differences in psychological distance are found to be associated with different processing styles (e.g., Trope et al., 2007), we proposed that the level of desire towards a product could alter as the spatial distance towards the product increased or decreased. Indeed, according to CLT's desirability/feasibility dimension, we obtained a higher desire towards a geometric product when it was covered, however, only at a proximal distance. The results disappeared when the product was presented at a further distance. Future research might validate our obtained results by asking participants to describe how the product looked like (i.e., concrete versus abstract descriptions; Trope & Liberman, 2003) or by including participants' estimated measures of real distance—given that more desirable objects are seen as closer (Balcetis & Dunning, 2010). Moreover, the same items as in studies 1 and 2 should have been administered, in order to preserve consistency across factors—which is a limitation of this study.

Surprisingly, consumers' NFT did not moderate any of the results. In fact, prior research has showed that high involved consumers are more motivated and use more cognitive effort to process messages than consumers in low involvement conditions (e.g., Batra & Ray, 1986; Petty & Cacioppo, 1986; Yalch & Elmore-Yalch, 1984). Consequently, high involved consumers are more likely to generate spontaneous implications about a product, and hold more favorable brand attitudes, as opposed to low involved consumers (Kardes, 1988; Stayman & Kardes, 1992). Although we selected products that require minimal effort to evaluate (i.e., apple juice and bath towels), and hence engender minimal possible confounding associations related to the product, the low involved products might have caused the indifferences between low and high need-for-touch consumers.

As a matter of fact, a general limitation of this paper refers to the nature of the selected stimuli. Although prior research mentioned types of beverages as typical geometric products (Grohmann et al., 2007; McCabe & Nowlis, 2003) and bath towels as classic material products (Grohmann et al., 2007; Peck & Childers, 2003b), the display of such products underneath a case or within a window is rather unusual. Probably, it would have added to realism to use products that sometimes are and sometimes are not shown in such a way. In addition, the products do not only differ with regard to their geometric versus material nature, but also in other respects. For instance, while a bottle of apple juice is a more straightforward product, bath towels might engender different perceptions (e.g., price perceptions). This notion might help explain the difference in data patterns between respondents' WTP (i.e., figure 4) and their level of desire (i.e., figure 5) in study 2. In particular, WTP did not differ across conditions for the geometric product, while participants' level of desire towards this type of product showed another and significant data pattern. Probably, the straightforward price of a bottle of apple juice does not allow for a great deal of price variation, while this is not exactly true for bath towels. In study 3, however, differences in price perception and WTP regarding the geometric product could be observed, but this study used another manipulation of tangibility; hence, one should exercise caution in comparing across studies and manipulations. Moreover, although we pretested different kinds of products, lots of products seem to encompass both geometric and material aspects. Consider, for instance, shoes, cell phones, sunglasses, wallets, and so on. In addition, such products typically engender several connotations and opinions, which

could confound the results. Other products (e.g., a vase) are more clear-cut, however, cannot be used to measure quality perceptions.

It is important to consider how our findings contribute to the question of the relevance of non-touch media, such as Internet and catalogue shopping. In fact, tangibility is becoming a more and more important topic for the rise of online shopping websites. Our studies show that both types of products (i.e., material and geometric products) might benefit from traditional retail. Indeed, research has shown that material products need to be touched in order to gather relevant product information (Klatzky et al., 1987), and hence, are favored among traditional retail channels (Citrin et al., 2003; McCabe & Nowlis, 2003; Grohmann et al., 2007). In addition, although prior research states that geometric products can be distributed in online as well as offline environments (McCabe & Nowlis, 2003)—because shape and size are its most determining product attributes and can be visually inspected (Klatzky et al., 1987), our paper shows that geometric products might gain from traditional retail. Indeed, consumers' desire towards geometric products can be heightened when the product is displayed in a way that it can nearly (but not quite) be touched (i.e., underneath a plexiglass cover or in a display window). Future research might investigate the relevance of this finding by accounting for the rise of online shopping websites, for instance, by further analyzing conditions using a real online shop. Even though our results from study 3 suggest that the effect disappears when presenting the (covered) product at a real physical distance, we do not know whether the effect will last when providing a picture of a covered geometric (versus material) product on, for instance, an online web shop. However, we expect that the effect as regards consumers' desire will vanish when presenting a covered product by means of a picture rather than in an actual environment, as prior research investigated the positive effects of real exposure (relative to picture or text conditions; Bushong, King, Camerer, & Rangel, 2010).

Furthermore, additional research is needed to expand this research project. First, associations regarding the display cover need to be examined, as they are found to enhance desire with respect to geometric products—even if touch is not possible. In fact, prior literature reiterates the importance of aesthetic product value, such that an attractive product design indeed attracts consumers' attention (Bloch, 1995), leading to more favorable attitudes and higher purchase intentions (e.g., Bloch, Brunel, & Arnold, 2003), impulse purchases (e.g., Bloch, 1995; Norman, 2002), and a higher willingness-to-pay (e.g.,

Bloch et al., 2003; Townsend & Sood, 2012). It has been found that attractive objects induce a “hot” affect (e.g., Park & MacInnis, 2006)—which has been shown to be related with desire (Belk et al., 2003), and hence, are high in wanting (e.g., Coates, 2003) and approach motivation (e.g., Gable & Harmon-Jones, 2008). Indeed, products that elicit “hot” affective states and high approach motivations capture consumers’ immediate attention (Bülbül & Menon, 2006; Gable & Harmon-Jones, 2008), and exert a strong impact on their immediate decisions, resulting in instinctive responses (Bülbül & Menon, 2006).

For instance, merely viewing an appetizing dessert causes strong cravings to approach the object (Gable & Harmon-Jones, 2008), or the sight of attractive sports cars might lead to increased reward-related activations in the brain (Erk, Spitzer, Wunderlich, Galley, & Walter, 2002). As a result, the sight of a beautiful object triggers instantaneous ownership desire (e.g., Coates, 2003), because attractive designs generate positive affect in consumers (e.g., Coates, 2003; Desmet & Hekkert, 2007; Norman, 2002). Everyday products that are primarily intended for utilitarian purposes might also elicit aesthetic notions (e.g., Bloch et al., 2003). Hence, in the current paper, it might be possible that the display case or window reflects a rather attractive design, triggering consumers’ positive affect. Consequently, as positive affect is frequently associated with favorable evaluations and approach behaviors (e.g., Diener & Diener, 1996; Isen, Shalke, Clark, & Karp, 1978; Sedikides, 1992), future research might benefit from the investigation of whether a product cover (such as a display case or window) elicits an attractive design, and hence, more favorable evaluations due to a positive mood. Indeed, pleasant and appealing store atmospherics have been shown to induce a positive mood, leading to higher purchase intentions (e.g., Baker, Levy, & Grewal, 1992).

Second, as consumers are rationally limited, they often make decisions by means of cues or simple heuristics. In fact, not all consumers’ decisions are based on a pure rational mind-set. In contrast, consumers often judge without a complete knowledge of all possible costs and benefits, which is the main perspective within behavioral economics as opposed to classic economic theories—in which consumers are assumed to make rational choices (e.g., Kahneman, 2003; Rubinson, 2010; Simon, 1959). Moreover, previous research has showed that individuals who are low involved with a message are more likely to be persuaded by simple or peripheral cues (Petty, Cacioppo, & Schumann, 1983). Hence, the display of a (low involved) product underneath a cover might signal, for instance, a quality cue, because the

product is protected. Indeed, our findings seem to suggest that consumers infer a higher quality when covering a geometric product (cf. factor 1 in study 1). Given that judgments are usually biased in the direction of the more attractive product—because they create the impression of working better than they actually do (e.g., Amar et al., 2011; Norman, 2002) or in the direction of the more attractive people (cf. "what is beautiful is good"; Dion, Berscheid, & Walster, 1972), it might be possible that covered products elicit higher quality perceptions due to the heuristics associated with the cover. Hence, merely relying on cues should cause faster response times regarding product evaluations in the display cover condition (as opposed to the not covered product). However, this might occur presumably only regarding geometric products.

Third, the display cover might intensify one's motivational state, and consequently, enhance one's desire towards the product that is covered—which dovetails with the general motivation hypothesis. In fact, when people are exposed to a consumption cue which is high in incentive value (e.g., chocolate or even the smell of a fabric refreshener), they get triggered by the cue leading to an enhanced desire and a subsequent pursuit of anything rewarding (Wadhwa et al., 2008). As a result, the display cover or window on itself might activate a general approach in order to get closer to the product or a general hunt for the reward (i.e., the covered product or any other rewarding items in the store). However, the effect might vanish when presenting covered material products.

Fourth, future research may also investigate potential moderators. In particular, consumers' involvement as regards the product might influence the obtained results. In the current paper, we used low involvement products to exclude any possible confounding associations or thoughts with regard to the product. However, results might alter when providing tempting products (e.g., Bushong et al., 2010). Moreover, results might even reinforce when displaying more expensive products (which presumably embraces a higher involvement) given that special occasion products are more favorably valued by consumers under metacognitive difficulties (e.g., difficult-to-read paradigms; Pocheptsova, Labroo, & Dhar, 2010)—which might dovetail with a barrier. Furthermore, being truly intended to buy the relevant product might change the results as well. Indeed, according to reactance theory (cf. intro, Brehm et al., 1966), threats to one's freedom of choice—by means of barriers, can increase the attractiveness of the object. However, for reactance to be aroused, there must be first an expectation of free choice. Hence, we do not know whether results might alter or

reinforce when participants are inclined to buy the product versus when they are not inclined to buy.

Finally, we do not know whether the documented effects will last when exhibiting familiar versus unfamiliar products (or brands), or when the product is displayed in isolation versus surrounded by multiple (similar) products. In fact, prior research suggests that a focal brand is more likely to be chosen or evaluated more positively when judged in isolation versus when other alternative products are considered (Posavac, Sanbonmatsu, Kardes, & Fitzsimons, 2004). In addition, to what extent would the effect hold when considering another type of activated desire, such as a shining light on a specific product? In fact, the 'barrier' itself disappears, however, the attention and focus on the product still remains. Consequently, this research project might be expanded in many different ways, as there are various questions to be unanswered. However, still, this project can be viewed as the first to reconcile inconsistent findings across literature, and hence, as a starting point for further interesting research questions.

10. APPENDICES

Appendix A. Study 1

Manipulation of tangibility (no cover versus cover) and type of product (geometric versus material)



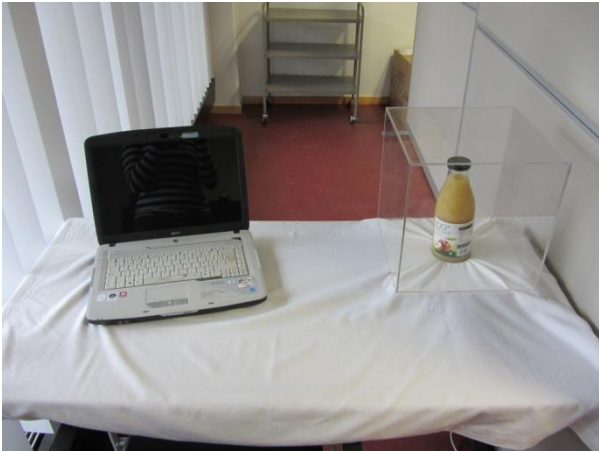
Appendix B. Study 2

Manipulation of tangibility (shelf versus open display window versus closed display window) and type of product (geometric versus material)



Appendix C. Study 3

Manipulation of tangibility (no cover versus cover) and distance (proximal versus distant)



CHAPTER IV:
EXPOSURE TO UNATTAINABLE LUXURY: BOOMERANG EFFECTS ON
MATERIALISTIC GOAL PURSUIT

**CHAPTER IV: EXPOSURE TO UNATTAINABLE LUXURY:
BOOMERANG EFFECTS ON MATERIALISTIC GOAL PURSUIT**

Although research has widely examined consumers' motives to buy luxury products, it is less clear how exposure to luxury influences their values and goals. This research investigates the influence of exposure to luxury on consumers' endorsement of materialistic goals. In contrast with common assumptions, we find that exposure to luxury may not necessarily increase consumers' materialistic goals. Drawing on goal commitment research, we show in four studies that exposure to luxury may produce different effects, depending on whether a person feels able or unable to attain these luxuries. In particular, when consumers feel able to attain the luxuries to which they are exposed, the level of their materialistic goal pursuit increases; in contrast, viewing unattainable luxury can actually decrease this level. Paradoxically, exposure to unattainable luxuries might even result in nonmaterialistic behavior, such as increased donations to charities. Mental imagery and chronic differences in pain of payment moderate the effects of luxury (un)attainability on materialistic goal pursuit.

Imagine you are watching a television show in which you are frequently exposed to images of the good life. Would simply being exposed to these kinds of luxuries influence your values and goals? Because luxury consumption is related to materialism (Belk & Pollay, 1985), it seems safe to assume that exposure to luxury increases materialistic pursuit. Several studies support a link between advertising exposure and the endorsement of material values (e.g., Han & Shavitt, 2005; Zhang & Shavitt, 2003). However, empirical evidence supporting this link is not unequivocal (e.g., Paek & Pan, 2004). We propose that this might be at least partly because the influence of exposure to images of luxury is more complex than is typically assumed.

The contribution of the current research is threefold. First, we show that the consequences of exposure to (images of) luxuries crucially depend on the attainability (or affordability) of these luxuries. Specifically, whereas exposure to attainable luxuries increases materialistic goal pursuit, exposure to unattainable luxuries may, paradoxically, decrease it. Second, we show that imagery can reverse the effect of exposure to unattainable luxuries, implying that luxury advertising may spur materialistic goal pursuit to the extent that it elicits mental imagery. Third, we find that images of very expensive luxuries only reduce materialism for consumers who spontaneously consider their price.

1. MATERIALISM: CAUSES AND CONSEQUENCES

Since the early 1980s, the materialism construct as a personal value has prompted extensive interest among researchers and received a great deal of attention in consumer behavior literature (Ahuvia & Wong, 2002; Belk, 1985). Materialism is conceptualized as a set of values and beliefs that reflect a lifestyle based on acquiring and possessing consumer goods (Belk, 1985; Chang & Arkin, 2002; Fournier & Richins, 1991; Richins & Dawson, 1992), beyond what is necessary to meet basic needs (Kasser, 2002). It involves the belief that it is important to become wealthy and own nice possessions, the right image, or a high status (Kasser, Ryan, Couchman, & Sheldon, 2004). Consequently, materialistic people consider the accumulation of material goods a means to achieve personal goals, such as success and happiness (e.g., Ahuvia & Wong, 2002; Fournier & Richins, 1991; Ger & Belk, 1996, 1999; Richins & Dawson, 1992; Vigneron & Johnson, 2004).

The spread of materialism represents an increasing challenge for contemporary societies. Among other things, materialism is related to unhappiness (e.g., Burroughs & Rindfleisch, 2002; Dittmar, 2008; Kasser, 2002; Sirgy, 1998; Swinyard, Kau, & Phua, 2001; Wright & Larsen, 1993) and decreased personal well-being (e.g., Christopher, Terell, Jordan, & Park, 2007; Deckop, Jurkiewicz, & Giacalone, 2010; Karabati & Cemalcilar, 2010; Kashdan & Breen, 2007; Kasser & Ahuvia, 2002; Richins, McKeage, & Najjar, 1992; Ryan & Dzurawiec, 2001): Materialists are more likely to be depressed (e.g., Kasser & Ryan, 1993), experience higher levels of social anxiety (Chang & Arkin, 2002; Schroeder & Dugal, 1995), and engage in problematic and risky consumption behaviors (e.g., Dittmar, 2005; Rindfleisch, Burroughs, & Denton, 1997; Vansteenkiste, Duriez, Simons, & Soenens, 2006; Watson, 2003; Williams, Cox, Hedberg, & Deci, 2000). In addition, materialism causes negative externalities. The pursuit of ever bigger and more expensive goods causes an upward shift in the frame of reference of other people (Frank, 1999, 2007); as a result, their possessions become subpar and the utility derived from them decreases (Richins, 1994). Furthermore, materialism is negatively associated with interpersonal relationships and participation in the public society (e.g., Kasser, 2002; Ryan & Deci, 2000; Sheldon & Kasser, 1995; Sheldon, Sheldon, & Osbaldiston, 2000; Solberg, Diener, & Robinson, 2004), as well as with ecological concern and sustainability (e.g., Brown & Kasser, 2005; Clump, Brandel, & Sharpe, 2002; Dholakia & Wackernagel, 1999). As such, the adoption of material values entails a cost to future generations.

Kasser (2002; see also Kasser et al., 2004) identifies two potential causes of material goal pursuit. First, people may pursue material goals to cope with various insecurities that they experience (e.g., Chang & Arkin, 2002; Rindfleisch et al., 1997). In particular, extant research has linked materialism to low self-esteem (e.g., Chaplin & John, 2007, 2010; Mick, 1996; Kasser, 2002; Kasser & Ryan, 2001; Solberg et al., 2004), mortality salience (Christopher, Drummond, Jones, Marek, & Therriault, 2006; Kasser & Sheldon, 2000; Mandel & Heine, 1999; Rindfleisch, Burroughs, & Wong, 2009), self-doubt (Chang & Arkin, 2002), social anxiety (Schroeder & Dugal, 1995), and an insecure childhood (John, 1999; Kasser, Ryan, Zax, & Sameroff, 1995; Rindfleisch et al., 1997). Research indicates that even the dreams of highly materialistic people demonstrate aspects related to different kinds of uncertainties, such as death and interpersonal conflicts (Kasser & Kasser, 2001). As a way to compensate for their feelings of insecurity, materialistic people try to acquire possessions to

exhibit their success in life, as a path to personal happiness (Ahuvia & Wong, 2002; Fournier & Richins, 1991; Mick, 1996; Richins & Dawson, 1992).

Second, in present-day society, people receive many messages, implicit and explicit, that convey the importance of money and wealth and that lead to the adoption of material goals. Thus, researchers assume that materialism also results from a socialization process (Chang & Arkin, 2002). In particular, major mass communication channels, such as television and advertising, are likely sources of socialization (e.g., Buijzen & Valkenburg, 2003; Chan & Prendergast, 2007; Kasser et al., 1995; Rose & DeJesus, 2007; Shrum, Burroughs, & Rindfleisch, 2005). According to the Advertising Media Internet Community (1997), the average number of daily exposures to advertisements is approximately 245. Thus, daily exposures to advertisements likely can activate materialistic mind-sets.

The advertising exposures that may induce materialism most effectively are those that convey images of the “good life” (i.e., luxury). Prior research has established positive associations between materialism and the desire for unique consumer products (Lynn & Harris, 1997) and status consumption (Budiman & O’Cass, 2007; Eastman, Fredenberger, Campbell, & Calvert, 1997; Fournier & Richins, 1991; Heaney, Goldsmith, & Wan Jusoh, 2005; Wong, 1997). As a result, luxury consumption may be appealing to materialistic consumers (e.g., Belk, 1985, 1988; Fournier & Richins, 1991; Holt, 1995; Hudders & Pandelaere, 2012; Prendergast & Wong, 2003; Richins, 1994; Rindfleisch, Freeman, & Burroughs, 2000; Tatzel, 2002; Wong, 1997; Wong & Ahuvia, 1998), because they offer uniqueness and exclusivity (e.g., Caniato, Caridi, Castelli, & Golini, 2009; Catry, 2003; Kapferer & Bastien, 2009; Okonkwo, 2007; Phau & Prendergast, 2000), as well as a signal of success, wealth, and social achievement (Rucker & Galinsky, 2009). In addition, materialists want to have a great deal of luxury in their lives and think that their lives would be better if they owned certain things they do not have (Richins & Dawson, 1992; Wiedmann, Hennigs, & Siebels, 2009)—a frequently expressed message in advertising. Thus, it seems intuitive to assume that exposure to (images of) luxuries can induce materialism. However, surprisingly little research has investigated this proposition.

The idea that socialization processes contribute to the emergence of a materialistic culture instead is supported by studies that document positive associations between materialism and the endorsement of related values and amount of television watching in general (e.g., O’Guinn & Shrum, 1997; Shrum et al., 2005; Sirgy et al., 1998) and advertising

exposure specifically (Brand & Greenberg, 1994; Han & Shavitt, 2005; Moschis & Moore, 1982; Paek & Pan, 2004; Zhang & Shavitt, 2003). However, studies suggesting that advertising exposure enhances materialism are either correlational or quasi-experimental at best, precluding causal inferences. For example, several studies have yielded small to moderate correlations between television exposure—which presumably includes advertising exposure—and materialism (e.g. Churchill & Moschis, 1979; Moschis & Churchill, 1978; Moschis & Moore, 1982; Ward & Wackman, 1971). Others have tried to demonstrate that television viewership, or advertising exposure specifically, influences materialism; however, these authors measure effects on perceptions rather than on personal values (e.g., O’Guinn & Shrum, 1997; Shrum et al., 2005). Other findings are mainly exploratory (e.g., due to data limitations) and thus lack theoretical precision (Paek & Pan, 2004). None of these studies can exclude the possibility of reverse causality—namely, that especially materialistic people are attracted to television and advertising images. Finally, studies using content analyses of advertising messages over time merely reveal concurrent changes in advertising and audience toward more materialism (Han & Shavitt, 2005; Tse, Belk, & Zhou, 1989; Zhang & Shavitt, 2003); the interpretation of such findings also suffers from the possibility of reverse causality. Our literature review did not reveal convincing evidence of whether images of the good life increase materialism.

2. GOAL COMMITMENT AND (UN)ATTAINABILITY

Because materialism is widely viewed as an important life value (Fournier & Richins, 1991; Kasser & Ryan, 1993; Mick, 1996; Richins, 1994; Richins & Dawson, 1992), it should affect the goals people set in life. Rokeach (1968, p. 161) defines a value as “a centrally held, enduring belief which guides actions and judgments across specific situations and beyond immediate goals to more ultimate end-states of existence.” Similarly, Schwartz (1996, p. 2) defines values as “desirable, transsituational goals, varying in importance, that serve as guiding principles in people’s lives.” Values thus can be viewed as representations of goals, because they refer to judgments or beliefs about desired goals and how to reach them (Schwartz, 1992, 1994). For example, people who stress power as a value tend to pursue goals related to social status and reputation, whereas those who believe in universalism are

more inclined to pursue goals related to human rights, equality, and environmental protection (Schwartz, 1994).

In line with this theory, materialistic behavior can be viewed as a type of goal-oriented behavior, designed to acquire and possess material goods to ensure happiness. Materialism is often viewed as a proxy for extrinsic (relative to intrinsic) goal pursuit (e.g., Brown & Kasser, 2005; Kasser, 2002; Kasser & Ahuvia, 2002; Kasser & Ryan, 1993, 1996; Sheldon & Kasser, 2008; Van Boven, Campbell, & Gilovich, 2010), which is a component of Ryan and Deci's (2000) self-determination theory and reflects an outward orientation, such as making a good impression on others, acquiring financial success, social recognition, and being physically attractive. Therefore, people who value the acquisition of material possessions display a tendency to pursue materialistic (or extrinsic) goals.

When a desired internal end state has been triggered as a goal, people continuously evaluate their goal progress by giving themselves feedback about their current, past, and future goal striving. This feedback in turn may influence their expectations about goal attainability (Brendl & Higgins, 1995) and consequently the effort they exert to reach the goal. If a goal appears likely to be achieved or easy to attain, people allocate more effort to reach it and are more likely to commit to it. Conversely, when a goal seems difficult or impossible to attain, people may disengage and adopt coping strategies, such as abandoning the pursuit of the unattainable goal (Baumgartner & Pieters, 2008; Carver & Scheier, 1998; Kruglanski et al., 2002; Stein, Liwag & Wade, 1996; Stein, Trabasso, & Liwag, 1993) because confrontations with unattainable goals lower well-being (Carver & Scheier, 1990); for example, dieters who were frequently exposed to extremely thin models (i.e., perceived an unattainable goal) disengage from their initial dieting goals more often than dieters who were frequently exposed to normal-sized models (i.e., perceived an attainable goal; Klesse, Goukens, Geyskens, & De Ruyter, 2012).

When people want to evaluate their goal progress, they may engage in social comparison (Festinger, 1954; Wood, 1989). People engage in upward (i.e., comparisons to a superior other) and downward (i.e., comparisons to an inferior other) comparisons to evaluate their materialistic goal pursuit, but exposure to luxury images typically involves upward comparisons. Such comparisons affect people's self-evaluations negatively (Collins, 1996; Martin & Gentry, 1997; Myers & Biocca, 1992; Richins, 1991) or positively (Collins, 1996; Henderson-King & Henderson-King, 1997; Mills, Polivy, Herman, & Tiggemann, 2002).

A crucial determinant of the outcome is the extremity (or attainability) of the comparison target. Extreme upward comparisons may result in contrast effects (e.g., negative self-evaluations), whereas moderate upward comparisons likely cause assimilation effects (e.g., positive self-evaluations; e.g., Mussweiler, Rüter, & Epstude, 2004; Stapel & Blanton, 2004).

Assimilation versus contrast arises when the upward comparison target's performance seems attainable rather than unattainable (Lockwood & Kunda, 1997). In particular, believing that the achievements of an ideal role model are attainable boosts a person's self-enhancement and elicits inspiration; the opposite (i.e., deflation and demoralization) occur when a role model's success is perceived as unattainable. Similarly, in the context of materialistic goal pursuit, perceptions of one's own attainability of consumer goods may serve as a signal of the likelihood that one may successfully attain one's material goals. Exposure to luxuries that consumers believe they can afford (i.e., attainable luxuries) may strengthen the endorsement of their material goals, whereas exposure to luxuries they cannot afford (i.e., unattainable luxuries) paradoxically may decrease this endorsement. In the case of unattainability (i.e., exposure to extreme, very exclusive luxuries), consumers might attach less importance to material goals to reduce the unpleasant tension or disutility they experience due to unaffordability (Festinger, 1957).

Perceptions of attainability versus unattainability presumably require consumers to compare their financial resources with the resources required to obtain the luxury products. This comparison requires estimating the cost of the products to which they are exposed. Thus, when cost estimation becomes less likely, exposure to extreme luxury should not lead to the abandonment of material goal pursuit but rather may reinforce it. We investigate two potential moderators of the proposed relation between exposure to extreme luxury and material goal pursuit. The first involves the presence or absence of imagery; imagery (i.e., imagining owning the exposed luxuries) may make the unattainable luxuries seem more attainable and thus eliminate the effect of unaffordability. Imagining owning a product typically elicits outcome-focused thoughts, in which consumers elaborate on the benefits of ownership. Such thoughts, in contrast with process-focused thoughts, draw consumers' attention away from the actions necessary to obtain the product (Escalas & Luce, 2004). As a result, cost considerations may be less salient during imagination. Therefore, when consumers imagine owning a product, exposure to extreme luxury may not result in decreased materialism, but rather in increased materialism.

A second potential moderator involves the extent to which people are restrained versus unrestrained in their spending behavior. Rick, Cryder, and Loewenstein (2008) argue that consumers vary along a spendthrift–tightwad dimension. Tightwads exhibit a general tendency to spend less than they would like, whereas spendthrifts spend more than they prefer ideally. In addition, tightwads typically experience an immediate pain of paying when making purchases and thus continuously consider financial cost in their everyday lives. In contrast, spendthrifts are less likely to consider opportunity costs spontaneously when paying for consumption goods (Frederick, Novemsky, Wang, Dhar, & Nowlis, 2009). Consequently, tightwads may feel less able to attain extreme luxuries than spendthrifts, and we expect unattainability concerns to occur more among tightwads (compared to spendthrifts), leading to a decrease in their endorsement of material values after exposure to unattainable luxuries.

3. OVERVIEW OF THE EMPIRICAL INVESTIGATION

After we established, in a pilot study, that people generally assume that exposure to any form of luxury elevates materialism, we performed four studies to test a prediction that runs counter to this common assumption. In particular, we investigated the influence of exposure to unattainable luxuries on people’s endorsement of materialistic values (study 1) and on their behavioral intentions, using a dictator game (study 2). In addition, we test the prediction that our obtained results stem from the inferences participants make that they cannot attain the depicted images of luxuries. In this case, we examine the moderating role of attainability through processes of imagination (study 3) and differences in people’s tightwad–spendthrift disposition (study 4).

4. PILOT STUDY: INVESTIGATING COMMON ASSUMPTIONS

Despite the lack of solid evidence, exposure to advertising—which frequently displays images of luxuries—is often criticized for spreading materialism (Pollay, 1986, 1987). To examine the extent to which people share this belief, we conducted a pilot study. In addition, we investigated whether participants take attainability into account when predicting the effect of luxury exposure on materialistic goal pursuit. We asked 60 randomly

chosen participants ($M_{age} = 31.58$, $SD = 9.16$; 28 men) whether exposure to luxury versus unattainable luxury influences people's level of materialism, such that they believe people would become less materialistic, more materialistic, or neither less nor more materialistic after exposure to images of luxuries in advertisements and on television ($N = 30$) versus after exposure to images of luxuries they cannot afford (i.e., unattainable luxury; $N = 30$).

We conducted a multinomial logistic regression with the level of materialism as a three-level nominal dependent variable (i.e., more, less, or neither; more materialistic = reference category), and the type of exposure (luxury vs. unattainable luxury) as the predictor variable. The results in table 1 reveal that participants were as likely to claim that people would become more materialistic after exposure to regular luxuries than after exposure to unattainable luxuries in everyday life (26 of 30 and 21 of 30, respectively; for observed frequencies, see table 2). However, here, we propose that not all exposures to materialistic cues may lead to a heightened materialistic mind-set. In particular, we suggest that exposure to attainable luxuries may indeed produce the assumed effects, while exposure to (images of) unattainable luxuries (i.e., very exclusive or expensive luxuries) might produce unexpected results.

Table 1. Multinomial logistic regression model

Reference change	Independent variable	<i>B</i>	<i>SE</i>	Wald Chi ²	<i>p</i>
1 → 2	Type of exposure	-.91	1.26	.52	.47
1 → 3	Type of exposure	-1.06	.75	2.00	.16

Note. More materialistic = reference category = 1. Less materialistic = 2. Neither less nor more materialistic = 3

Table 2. Observed frequencies

Type of exposure	Dependent variable	Frequency (<i>N</i>)	Percentage
Luxury	More materialistic	26	86.7 %
	Less materialistic	1	3.3 %
	Neither less nor more materialistic	3	10.0 %
Unattainable luxury	More materialistic	21	70.0 %
	Less materialistic	2	6.7 %
	Neither less nor more materialistic	7	23.3 %

5. STUDY 1: INVESTIGATING THE EFFECT OF UNATTAINABLE LUXURY ON MATERIALISM

The purpose of study 1 is to test predictions against common intuition (cf. pilot study); more specifically, to measure participants' importance to materialistic values after exposure to unattainable luxuries.

5.1 Participants and Procedure

One hundred thirty-five students ($M_{\text{age}} = 20.76$, $SD = 1.44$) were invited to participate in a lab study in which they were instructed to complete some diverse, unrelated tasks. They received course credit for their participation. We asked participants to decorate a house, completely in line with their own taste. Half the respondents received instructions to decorate a highly expensive, classy villa (i.e., unattainable luxury), whereas the other half were asked to decorate a mainstream house. Participants received a paper floor plan of a villa versus a smaller house and different sets of photos with possible interiors for each room. The photos were either very luxurious or common interiors. To increase task involvement, participants were instructed to choose their favorite interior for each room and place the pictures of their choice on the floor plan (see appendix A).

Next, as a test of the effect of our manipulation on materialistic values, participants filled out a five-point material values scale (Richins & Dawson, 1992, $\alpha = .83$). To get an overview of the materialism items, see Appendix B (i.e., original materialism scale) and Appendix C (i.e., Dutch version of materialism scale).

We also measured participants' desire to live in the home they had decorated and the likelihood of living in that type of home ten years from now, both on nine-point scales.

5.2 Results and Discussion

Before conducting the analysis, we removed one outlier, as revealed by an exploratory boxplot. Next, as intended, we found that participants indicated a significantly stronger desire to reside in the villa ($M = 7.39$, $SD = 1.67$) than in the mainstream house ($M = 4.88$, $SD = 2.17$; $t(132) = 7.52$, $p < .001$); however, they believed that residing in the villa would be significantly less attainable within ten years ($M = 4.44$, $SD = 2.48$) than residing in the mainstream house ($M = 7.78$, $SD = 1.52$; $t(132) = -9.37$, $p < .001$).

The type of exposure showed a significant effect on the importance that participants placed on materialistic values ($F(1,132) = 4.27$, $p = .04$). Specifically, the importance attached to materialistic values was significantly lower after decorating the villa ($M = 2.85$, $SD = .49$) versus the mainstream house ($M = 3.04$, $SD = .58$), in contrast with the common assumption that exposure to images of any type of luxury would induce materialism.

We designed study 2 to replicate the results of study 1. Whereas study 1 focuses on materialistic values, study 2 focuses on behaviors related to materialism.

6. STUDY 2: INVESTIGATING THE EFFECT OF UNATTAINABLE LUXURY ON PROSOCIAL BEHAVIOR

Instead of filling out a questionnaire on material values, participants in study 2 were asked to play a dictator game. They received a (virtual) sum of money and decided how much to keep for themselves and how much to give to a third party. In our study, the third party was their favorite charity. Because research shows that materialists are ungenerous (Belk, 1985) and uncovers negative relations between materialism and giving (e.g., Kasser, 2002, 2005; Richins & Dawson, 1992; Sargeant, Ford, & West, 2000; Schwartz, 1996), we

expected that materialism exerts powerful influences on donor behavior. Thus, if exposure to unattainable luxury decreases the importance of material values, it could increase the sums that participants agree to donate to their favorite charity.

6.1 Participants and Procedure

Sixty-eight respondents between the ages of 19 and 76 years ($M = 37.01$, $SD = 16.77$) participated in an online survey. They were told that the survey consisted of several parts. First, participants were randomly assigned to one of three conditions (unattainable luxury vs. functional vs. control condition). In the unattainable luxury condition, participants rated 30 very exclusive luxury pictures (e.g., master bedroom with a spectacular view, private jet, very expensive cars), whereas in the functional condition, they rated 30 photos depicting functional products (e.g., rolling pin, hammer, calculator, ballpoint pen; see Appendix D). To increase task involvement, we asked participants to rate each picture on how luxurious and affordable they believed the depicted products were on nine-point scales. We counterbalanced the order of the pictures across participants. Participants in the control condition did not view any pictures.

After this manipulation, all respondents were asked to evaluate some not-for-profit organizations on the basis of their popularity. Thus, participants indicated their favorite charity out of ten possibilities (e.g., Amnesty International, Greenpeace, Cliniclowns, World Wildlife Fund). On a subsequent screen, we introduced the dictator game (Hoffman, McCabe, Shachat, & Smith, 1994), with the chosen charity as responder. Participants were asked to allocate €10 between themselves and their favorite charity. They used a slider on the screen to indicate the amount of money they would give, from €0 (left) to €10 (right). We used a hypothetical dictator game, because the gain in convenience in this case does not get offset by decreased validity (Ben-Ner, Kramer, & Levy, 2008). Finally, we asked respondents to guess the true purpose of the overall experiment.

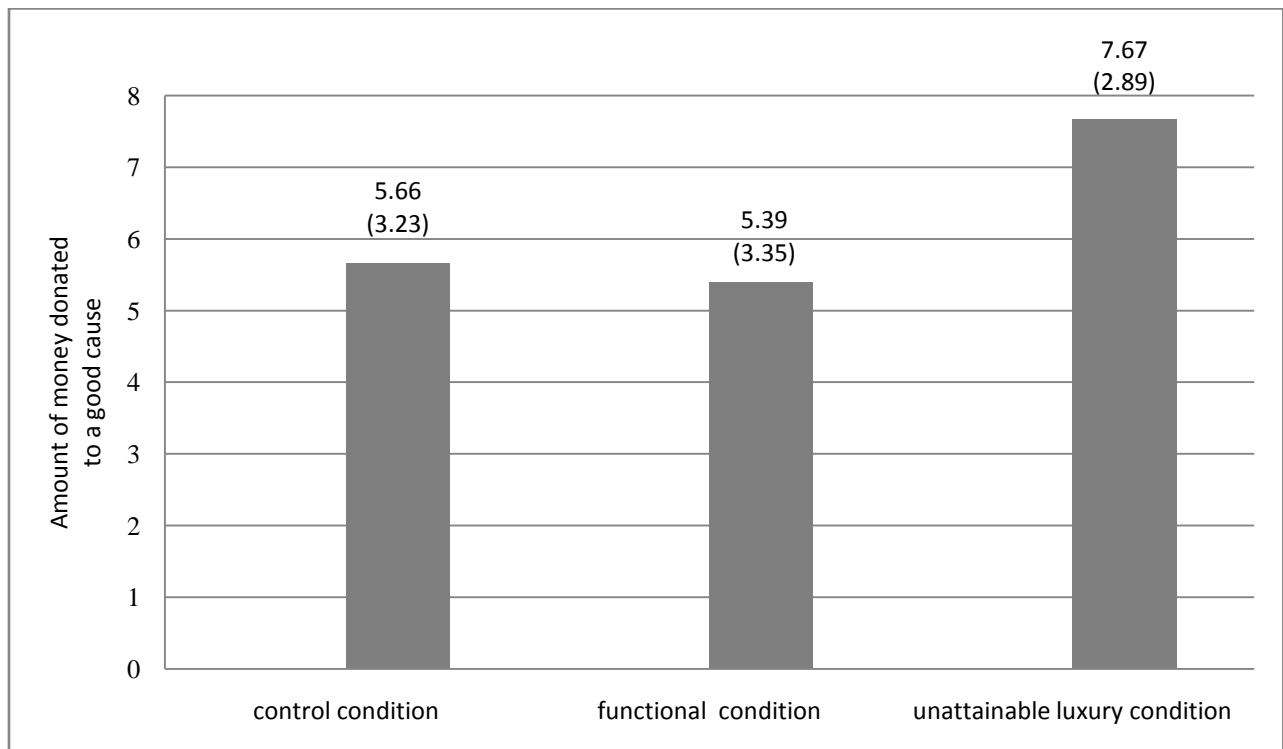
6.2 Results and Discussion

As intended, respondents believed that the objects depicted in the unattainable luxury condition were significantly more luxurious ($M_{\text{luxury}} = 7.07$, $SD = 1.26$ vs. $M_{\text{functional}} =$

3.34, $SD = 1.18$; $t(37) = -9.53, p < .001$) and less affordable ($M_{luxury} = 3.14, SD = .88$ vs. $M_{functional} = 6.33, SD = 1.29$; $t(37) = 8.90, p < .001$) than the objects depicted in the functional condition. None of the respondents discerned the true purpose of the overall study.

We performed a one-way ANOVA of type of exposure on the amount of money participants donated to the not-for-profit organization. The results significantly confirmed our prediction ($F(2,65) = 3.28, p = .04$; see Figure 1): The amount of money donated to a good cause was significantly higher after exposure to unattainable luxury than after exposure to functional products ($t(65) = 2.24, p = .03$) or in the control condition ($t(65) = 2.22, p = .03$). Moreover, the amount of money donated to a good cause did not significantly differ between the functional and control conditions ($t(65) = .28, p = .78$).

Figure 1. Prosocial (nonmaterialistic) behavior



Note. Numbers in parentheses represent standard deviations

Overall, the results of studies 1 and 2 support the idea that being exposed to extreme luxuries leads to a motivated downplaying of the importance of material wealth. Following goal commitment research (Kruglanski et al., 2002), the importance participants place on materialistic values should be altered when they feel able to afford the luxuries. Thus, we

predict an increase in respondents' endorsement of materialistic values when they are able to attain the exposed luxuries. Studies 3 and 4 test this idea more explicitly.

7. STUDY 3: MODERATING ROLE OF ATTAINABILITY THROUGH MENTAL IMAGERY

The current study investigates whether engaging in mental imagery eliminates the effect of exposure to unattainable luxuries on materialism. Determining whether imagery serves as a moderator is not only valuable for investigating the effect of luxury attainability but also relevant to the debate about the effects of advertising.

Imagery and simulation tasks typically evoke outcome-focused thoughts, in which participants elaborate on the benefits of owning. Such thoughts, in contrast with process-focused thoughts, draw consumers' attention away from the actions necessary to obtain a product (Escalas & Luce, 2004). Similar to the way physical touch increases feelings of ownership, imagining owning a product does as well (Peck & Shu, 2009). Imagination might render the exclusive luxuries more attainable, thus eliminating the effect of unaffordability.

7.1 Participants and Procedure

For study 3, we used the same manipulation from study 1, except that we crossed it with a simulation manipulation. Specifically, half the participants were encouraged to imagine themselves owning the home they had decorated (either the mainstream house or the expensive, classy villa), and the other half did not receive these instructions. We gave respondents easy-to-imagine and vivid verbal descriptions, because prior research suggests that vivid imagery instructions are an effective way to generate a readily accessible mental image of the experience (Petrova & Cialdini, 2005). In addition, we used message elements that facilitated imagery processing, such as concrete instructions to imagine, a self-related scenario, and a plausible yet distinctive and unique scenario (Bone & Ellen, 1990, 1992).

That is, we asked participants to imagine themselves as interior designers, such that one of their customers had asked them to decorate his or her future house completely in line with the designer's own taste. Next, we told participants that the best way to complete this assignment was to imagine that the house was completely theirs and that they had to imagine living there and owning it. In particular, we instructed them to imagine themselves

sleeping in the bedroom they chose, cooking in that specific kitchen, taking a bath in the bathroom, and so on. Appendix E provides a detailed overview of the imagination procedure used in this study. Our intent was to render the luxurious villa more attainable, so that participants felt more able to afford the exposed luxuries.

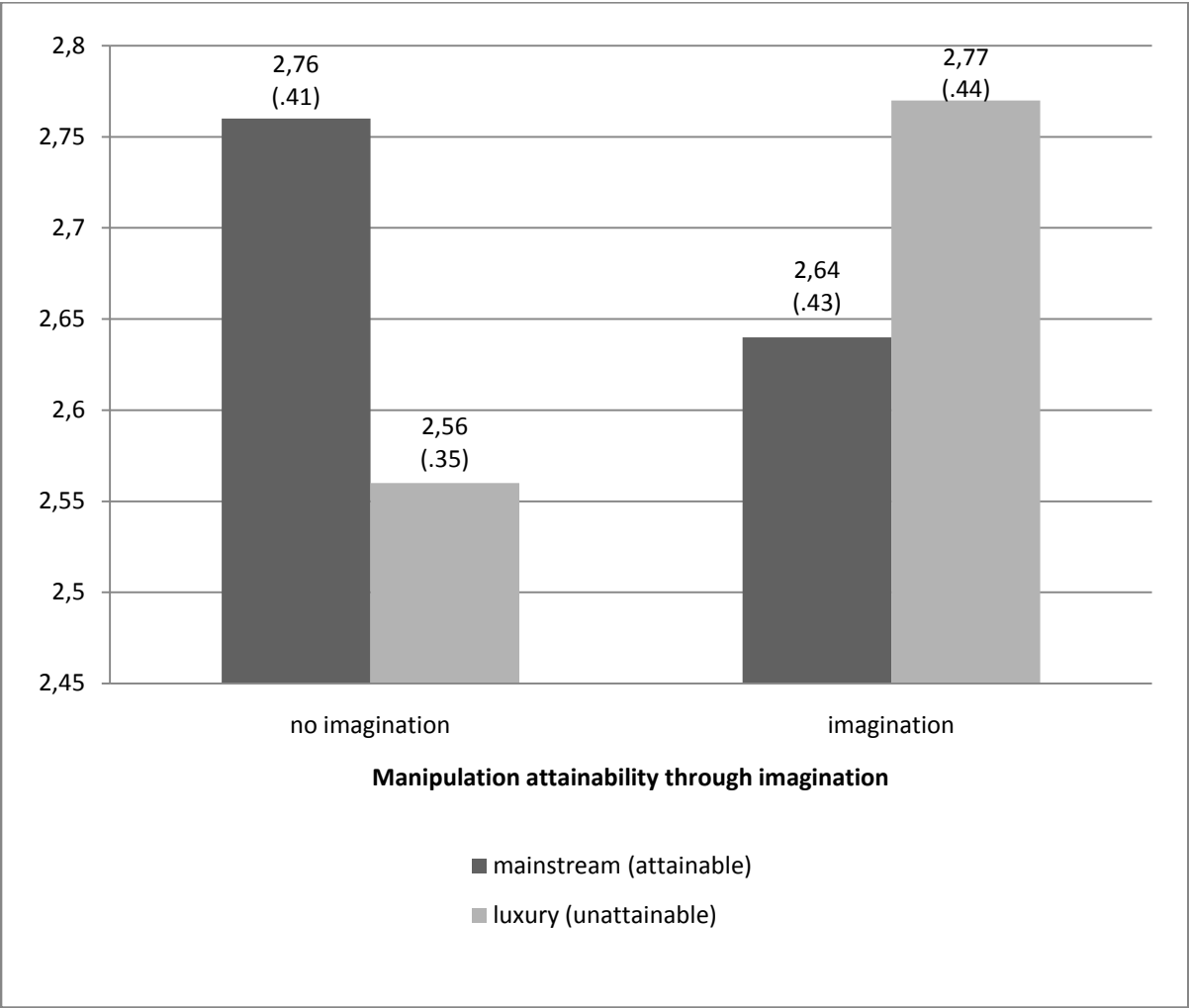
We randomly assigned a sample of 167 students ($M_{age} = 20.64$, $SD = 1.79$) to one of four conditions in a 2 (type of home: expensive villa versus mainstream house) \times 2 (simulation: imagination versus no imagination) between-subjects design. After the exposure, we measured materialism on a five-point scale (Richins & Dawson, 1992, $\alpha = .83$). At the end of the experiment, we asked participants to indicate to what extent they liked accomplishing the assignment of imagination on a nine-point scale (Babin, Burns, & Biswas, 1992). Research shows that disliking or experiencing difficulties with regard to consumption imagery could reverse the generally positive effects of imagery appeals (Petrova & Cialdini, 2005). Finally, we thanked and debriefed participants.

7.2 Results and Discussion

We first removed 11 participants from the analyses because they indicated disliking engaging in imagery, which may have kept them from completing the imagery task properly and thus have led to a weakened positive impact of imagery requests (Petrova & Cialdini, 2005). Furthermore, we removed four outliers, as revealed in an exploratory boxplot.

An ANOVA with type of home and simulation as the between-subjects independent variables and materialism as the dependent variable revealed a significant interaction between simulation and type of home ($F(1,148) = 5.70$, $p = .02$; see Figure 2). Consistent with study 1, participants were significantly less materialistic after decorating the expensive villa versus the mainstream house ($F(1,148) = 4.58$, $p = .03$) in the absence of imagination. In the imagination condition however, materialism was not significantly affected by the type of house ($F(1,148) = 1.66$, $p = .20$). In addition, imagining (versus not imagining) owning the expensive villa significantly increased materialistic values ($F(1,148) = 4.85$, $p = .03$), but we found no such effect with regard to the mainstream house ($F(1,148) = 1.45$, $p = .23$).

Figure 2. Endorsement of materialistic values: Interaction between simulation and type of home



Note. Numbers in parentheses represent standard deviations

Our results indicated that the participants attached less importance to material values when exposed to unattainable luxuries, but not when their attention was drawn away from affordability concerns (e.g., by imagining owning the exposed luxuries). Consumers may differ naturally in the degree to which attainability concerns arise, such that those who tend to be very sensitive to the cost of products may display the effects of unattainable luxuries we documented in the previous studies. Consumers who naturally care less about the cost involved in acquiring products may display the opposite effect, such that exposure to both attainable and unattainable luxury increases materialism. Study 4 examines this possibility by testing a potential moderation by tightwad–spendthrift disposition.

8. STUDY 4: MODERATING ROLE OF TIGHTWAD-SPENDTHRIFT DISPOSITION

Consumers differ in the degree to which they consider financial cost in everyday life (Rick et al., 2008). On the one hand, spendthrifts are not likely to consider financial costs routinely when being exposed to luxury items. Rather than being discouraged by prices, they are captivated by the rewards they buy (Chancellor & Lyubomirsky, forthcoming). As a result, they are more inclined to buy luxuries (Rick, 2008). In addition, recent research suggests that spendthrifts are less likely to consider opportunity costs spontaneously when making purchases (Frederick et al., 2009). Tightwads, on the other hand, are more comparable with hyperopic consumers (who deprive themselves of any enjoyable experience and exhibit an aversion to indulgence) and consequently are less likely to purchase luxuries (Haws & Poynor, 2008). In comparison with spendthrifts, they are more inclined to construe purchase decisions spontaneously in terms of opportunity costs (Frederick et al., 2009). Therefore, it is not surprising that tightwads carry less debt than spendthrifts (Rick et al., 2008).

In line with these findings, we expect that tightwads readily perceive extreme luxuries as unattainable because they routinely consider financial cost when exposed to products. Thus, for tightwads, we should observe reduced materialism after exposure to extreme luxuries (as in our previous studies). In contrast, spendthrifts—who are less preoccupied by cost and do not routinely think of cost when exposed to extreme luxuries (or any other type of product)—should not readily perceive extreme luxuries as unattainable. Therefore, we predict that for these consumers, exposure to extreme luxuries will not decrease materialistic values.

8.1 Participants and Procedure

We collected data in two phases, separated by a period of approximately three weeks. In the first phase, 146 respondents participated in an online survey and were informed that the research would consist of two unconnected phases of questioning that would take place at different times. The first part of the study used a similar manipulation to that in study 2. Specifically, participants were randomly assigned to one of two conditions: unattainable luxury or functional. They either saw 30 exclusive luxury pictures or 30 photos depicting functional products (see study 2). To eliminate any possible distrust regarding the

purpose of the assignment, we asked participants how much they desired each displayed picture on a nine-point scale. Next, we measured materialism (Richins & Dawson, 1992, $\alpha = .84$) on a five-point scale.

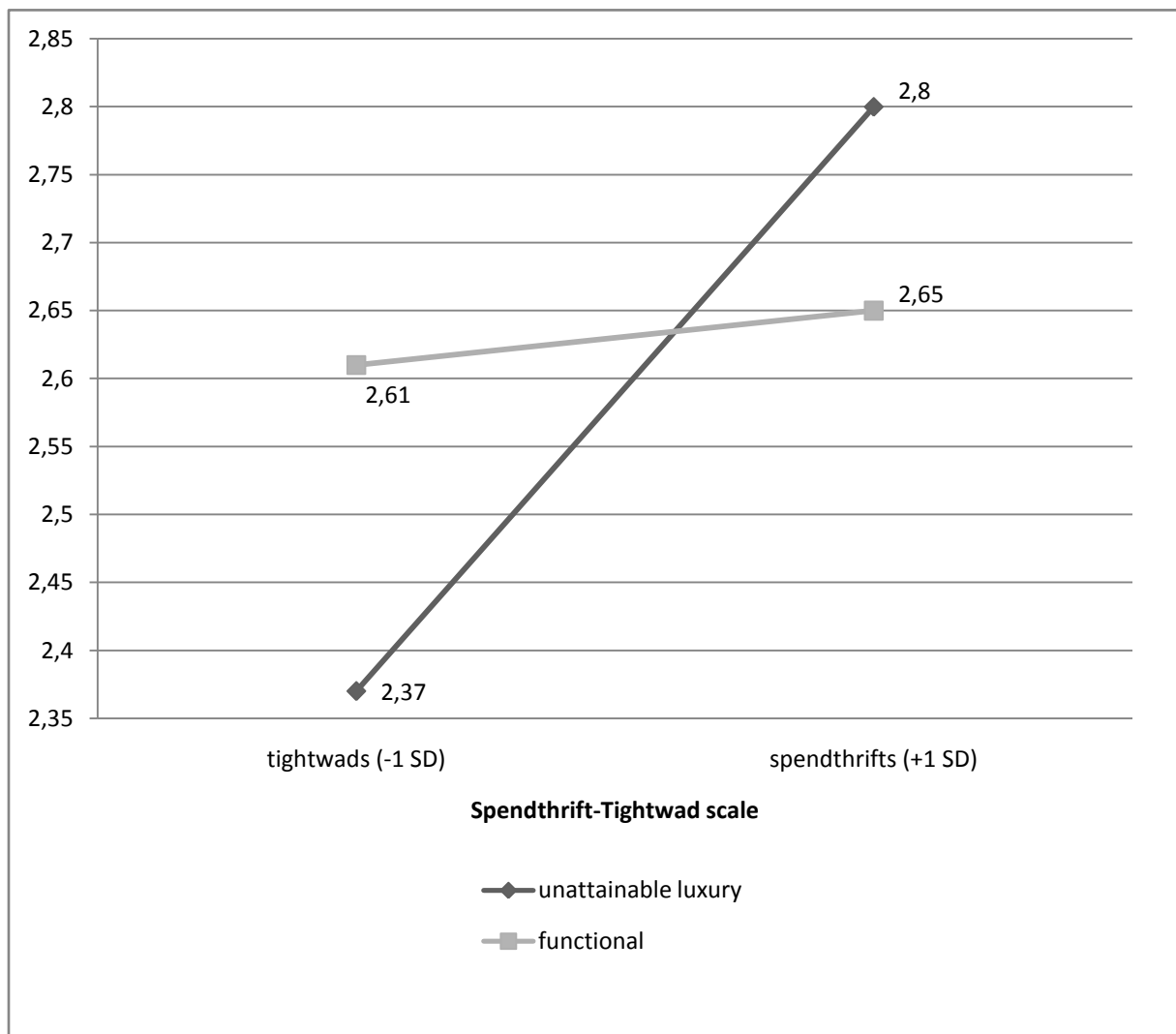
Three weeks later, all the participants in the first phase were asked to fill in the second part of the research, with the goal of examining the pain of paying they felt. In total, 129 respondents, ranging from 18 to 73 years ($M = 35.54$, $SD = 15.19$), participated in the second part of the study and completed the spendthrift–tightwad scale developed by Rick et al. (2008). This scale contains four items measuring respondents' spending habits on their usual shopping trips and thus investigates chronic differences in the extent to which consumers experience anticipatory pain when making purchasing decisions. The scale characterizes people as tightwads (lower score) and spendthrifts (higher score). To get an overview of the spendthrift-tightwad scale items, see Appendix F (i.e., original spendthrift-tightwad scale) and Appendix G (i.e., Dutch version of spendthrift-tightwad scale). At the end of the survey, respondents were asked about the true purpose of the overall experiment and thanked for their participation.

8.2 Results and Discussion

None of the respondents guessed the true purpose of the overall study. Consequently, we conducted a generalized linear model analysis with condition (unattainable luxury versus functional) as the between-subjects factor and tightwad–spendthrift disposition as covariate on materialism; the model also included the two-way interaction. The results revealed a significant main effect of condition ($F(1,125) = 5.21$, $p = .02$); however, this main effect was qualified by a significant interaction with participants' tightwad–spendthrift disposition ($F(1,125) = 4.95$, $p = .03$; see Figure 3). The regression slope was significant in the unattainable luxury condition ($t(125) = 3.64$, $p < .001$) but not in the functional condition ($t(125) = .23$, $p = .82$). A spotlight analysis (Aiken & West, 1991) revealed that tightwads (scoring 1 SD below the mean on the spendthrift–tightwad scale) attached less importance to material values in the unattainable luxury condition than in the functional condition ($\beta = .24$, $t(125) = 1.91$, $p = .06$). However, the effect disappeared for spendthrifts (scoring 1 SD above the mean on the spendthrift–tightwad scale; $\beta = -.16$, $t(125) = -1.22$, $p = .22$).

As an additional analysis, we performed the Johnson–Neyman test (Hayes, 2012; Preacher, Curran, & Bauer, 2006) to examine the significant confidence intervals at which the level of being a tightwad or spendthrift affected the influence of luxury exposure on the endorsement of material values. At values of the spendthrift–tightwad scale below 2.74, the endorsement of material values was significantly lower after exposure to unattainable luxuries than after exposure to functional products ($p < .05$). In contrast, at values higher than 5.06, the endorsement of material values increased after exposure to unattainable luxuries compared with exposure to functional products, though only marginally significantly ($p < .10$).

Figure 3. Endorsement of materialistic values: Interaction between pain of paying and type of exposure



In summary, study 4 replicated our previous results. Overall, exposure to extreme luxury decreased the endorsement of material values. At the same time, our results qualified our prior findings, in that the effect of exposure to extreme luxury on materialism was moderated by the tightwad–spendthrift score. Only tightwads, who presumably more readily perceived the exposed luxuries as unattainable, engaged less in materialistic goal pursuit after exposure to unattainable luxuries. In contrast, spendthrifts did not show a diminished materialistic pursuit after exposure to extreme luxuries. This latter finding suggests that spendthrifts do not routinely consider financial cost when exposed to luxury items, and thus, these items do not raise spontaneous attainability concerns. Overall, studies 3 and 4 show that feelings of attainability moderate the effect of exposure to luxury on the endorsement of materialistic values.

What is more, the obtained data patterns of studies 3 and 4 are highly resembling: feeling unable to attain the exposed luxuries—due to a lack of imagination (study 3) or a tightwad disposition (study 4)—significantly decreased the endorsement of materialistic values, while results altered (albeit not significantly) when feeling able to attain the exposed luxuries—as a result of imagination (study 3) or exhibiting a spendthrift disposition (study 4). In addition, imagining (versus not imagining) owning the expensive villa (study 3) or exhibiting a spendthrift (versus tightwad) disposition when being exposed to unattainable luxuries (study 4) significantly increased materialistic values, while no such effect was found with regard to the mainstream house (study 3) or when exposed to functional products (study 4).

9. GENERAL DISCUSSION

Prior studies have repeatedly demonstrated negative consequences of materialism (e.g., Burroughs & Rindfleisch, 2002). It is therefore important to investigate its causes. One often assumed cause of materialistic goal pursuit involves exposure to messages that associate money and wealth with happiness and success (e.g., Kasser, 2002). The current paper focuses on this cause and, specifically, on the impact of exposure to images of luxury. Our pilot study indicates that people believe that exposure to any form of luxury would increase materialism. However, drawing on goal commitment research, we propose that exposure to luxury might increase materialistic values only of these luxuries that seem

attainable. If the luxuries do not seem attainable, luxury exposure might actually decrease the endorsement of materialistic values. The results of four studies support this idea: Exposure to images of extreme luxury decreases the endorsement of material values (studies 1, 3, and 4) and increases the amount of money participants want to give to charity in a dictator game (study 2). Studies 3 and 4 further suggest that feelings of attainability—due to processes of imagination and suspension of cost consideration, respectively—moderate the obtained results.

Advertising often draws on imagery to influence consumers and encourage them to transport themselves into a state in which they are using the advertised item. For example, consumers are regularly confronted with messages such as, “Imagine yourself,” “Picture how it would be,” or “Imagine the possibilities.” Prior research has indicated that messages drawing on imagery exert powerful influences on consumers and their product preferences (e.g., Babin et al., 1992; Gregory, Cialdini, & Carpenter, 1982; MacInnis & Price, 1987; McGill & Anand, 1989; Petrova & Cialdini, 2005). Even changes in behavioral intentions can result from mental imagery. For example, people who were asked to imagine themselves enjoying the benefits of cable television had greater intentions to subscribe to the cable service than those who were not instructed to engage in imagination (Gregory et al., 1982). In a similar vein, we demonstrate that engaging in mental imagery may alter the influence of otherwise unattainable luxuries and thereby change consumers’ values. Keeping in mind that advertising often draws on imagery, we conclude that luxury advertising may spur materialistic goal pursuit. Although commonly assumed, prior research has failed to convincingly demonstrate this causal relation.

Study 4 shows that individual differences in sensitivity to the pain of paying also moderate the effect of attainability concerns. Interestingly, we found a (marginally) increased effect regarding materialistic goal pursuit among spendthrifts after exposure to unattainable luxuries versus functional products. Recent research has shown that spendthrifts are less likely to consider opportunity costs spontaneously when making purchases (Frederick et al., 2009). In particular, tightwads are less influenced by manipulations that bring to mind opportunity costs, because they already are more inclined to construe purchase decisions in terms of opportunity costs. In contrast, spendthrifts are more susceptible to such salience manipulations, because they are more inclined to neglect opportunity costs. Thus, it is possible that spendthrifts may show reduced levels of

materialism after exposure to extreme luxuries when they are prompted to consider their cost.

In general, our findings with regard to respondents' decrease in the endorsement of material values after exposure to unattainable luxuries might dovetail with literature regarding "jilting"—that is, wanting something more but liking it less because of barriers to the desired target (Litt, Khan, & Shiv, 2010). Wanting and liking thus may be distinguishable constructs that can be individually measured and influenced (Berridge, 1996). As a result, feeling unable to attain material goals might act as a barrier and partly explain the decreased liking (or endorsement) of material values. However, the desire to attain the initial material values might still exist, which could be an avenue for further research.

In a similar vein, prior literature recognizes a "sour grapes" rationalization: When desirable products or objects become unobtainable, people tend to downgrade or derogate them by perceiving them as less attractive (Lessne & Notarantonio, 1988). When a barrier becomes too strong (e.g., unaffordability barriers that thwart the pursuit of material goals), decreased attraction effects could result (Clee & Wicklund, 1980; Elster, 1983; Hammock & Brehm, 1966), as manifested in this case in a decreased endorsement of material values. People tend to align their evaluations and preferences with their perceptions of likelihood or expectations (Elster, 1983; Pyszczynski, 1982).

Overall, it is important to consider how our findings contribute to the debate of socialization of material values. First, exposure to extreme luxury may put people off, but images of moderate luxury may actually increase materialistic pursuits. In this regard, it is telling that luxury has become increasingly attainable for the masses (Silverstein & Fiske, 2003) and that the luxury market no longer includes only members of the richest social classes (Nueno & Quelch, 1998; Yeoman & McMahon-Beattie, 2006). As such, most advertised luxuries may seem attainable, and advertising might contribute to the emergence of a consumer culture. Being able to attain material goals may particularly reinforce a materialistic lifestyle (Hudders & Pandelaere, 2012).

Second, to the extent that advertising sells dreams, it is apt to encourage consumers to imagine living the good life. Processes of imagination may play a key role in the adoption of material values. We find that even images of extreme luxury lead to the adoption of material values if the consumer simulates owning these luxuries. In a similar vein, Mandel, Petrova, and Cialdini (2006) find that narratives of the success of similar others increases

preference for luxury brands, but only if participants find it easy to imagine themselves in the proponent's situation. The role of imagination also may explain why exposure to parts of the movie *Wall Street* led to increased materialism among viewers (Shrum, Lee, Burroughs, & Rindfleisch, 2011).

To better understand the potential consequences of exposure to (images of) luxuries, this paper distinguished between attainable and unattainable luxuries (i.e., luxuries that one can or cannot afford). Obviously, perceptions of affordability after exposure to luxury might differ on an individual level. However, the extreme luxuries used in our studies were generally perceived as unattainable (i.e., unaffordable or out of reach). In fact, our samples primarily consisted of students. Moreover, we included several affordability perceptions (such as the likelihood to live in the decorated type of home within ten years from now or affordability ratings of the luxury pictures) which all demonstrated feelings of 'unattainability'.

Our findings raise several worthwhile issues to be addressed in further research. First, the inclusion of an appropriate attainable luxury condition would have added to our current understanding of exposure to attainable versus unattainable luxury. Although we indirectly examined attainability by incorporating imagery (study 3) and the pain of paying (study 4), at least one study should have investigated attainability directly. Consider, for instance, a study in which the price tag of "ambiguous" luxury products (i.e., products from which consumers do not know its exact price) is manipulated as affordable versus unaffordable. Moreover, rather than manipulating attainability, another possible study could have measured participants' perception of their ability to afford a number of advertised products directly. In particular, advertisements for moderately expensive luxury products (e.g., the newest Apple MacBook, Hugo Boss clothing) allow for variation in participants' perceptions of affordability.

Second, the further investigation of unattainability is an important issue, in that anxieties resulting from unattainability concerns have a detrimental impact on consumers' self-evaluations (Carver & Scheier, 1990). Keeping this in mind, it would be interesting to investigate the actual process of our obtained effects. Our studies seem to suggest that people bring down the value of something which they cannot have, however, as an alternative explanation, one might also feel grateful of the things one does have after being exposed to unattainable objects. As a matter of fact, the observed increase in donation

behavior in study 2 after exposure to unattainable luxuries might be explained by such a coping mechanism of increased gratitude.

Third, further research could investigate potential moderators. Because mental simulation seems to reduce unattainability thoughts, we might expect that spontaneous attainability thoughts arise neither when situations or ads evoke imagery nor when people score high on mental imagery (Childers, Houston, & Heckler, 1985; Pham, Meyvis, & Zhou, 2001) or are easily transported in ads (Escalas, 2004; Green & Brock, 2000; MacInnis & Price, 1990). An interesting issue involves the impact of materialism on the elicitation of attainability thoughts. On the one hand, one might assume that materialistic consumers are more likely to consider to what extent they can buy various products. On the other hand, because they are more likely to view material consumption as a road to happiness, they might be more likely to engage in imagery.

Fourth, another issue involves the relation between self-esteem and materialism. Both extant theorizing (Kasser, 2002) and a host of findings (e.g., Arndt, Solomon, Kasser, & Sheldon, 2004; Sivanathan & Pettit, 2010) indicate that low self-esteem and materialism go hand in hand. Materialistic pursuits and conspicuous consumption are mechanisms to cope with various insecurities and uncertainties. Moreover, previous research has demonstrated that goal achievement versus frustration can affect a person's self-esteem (Crocker, Sommers, & Luhtanen, 2002; Crocker & Wolfe, 2001; Levine, Wyer, & Schwarz, 1994; Park, Crocker, & Kiefer, 2007): People experience boosts to self-esteem when they succeed at their goals but suffer drops when they fail (Carver, 2003; Carver & Scheier, 1998).

Given that materialists derive a sense of worth and happiness from the acquisition of possessions (Richins & Dawson, 1992), the knowledge that they are unable to afford advertised products might be problematic for the self-esteem of these consumers if they repeatedly fail to meet their culturally imposed, materialistic standards (Kasser et al., 2007). If the failure to attain material goals results in low self-esteem, it also might induce withdrawal from these goals. Current theorizing on materialism fails to take this possibility into account. Further research would benefit from a dynamic perspective on the relation between self-esteem and material goals. In particular, if low self-esteem is caused by frustrated material goal pursuit, people might withdraw from it, but if low self-esteem is caused by other reasons (e.g., job performance, social insecurities), it could incite material goal pursuit.

A final and related issue involves the longevity of the effect of exposure to unattainable luxury; it is not clear how long the documented effects last. In addition, previously unattainable luxuries might become attainable over time (e.g., through increased income). It would be valuable to investigate whether increased affluence might cause people to endorse material values after they initially withdrew from them following exposure to unattainable luxury. Still, it appears that exposure to extreme luxury (e.g., through reruns of *MTV Cribs*) ironically may decrease how important consumers find such luxury and materialistic goals more generally.

10. APPENDICES

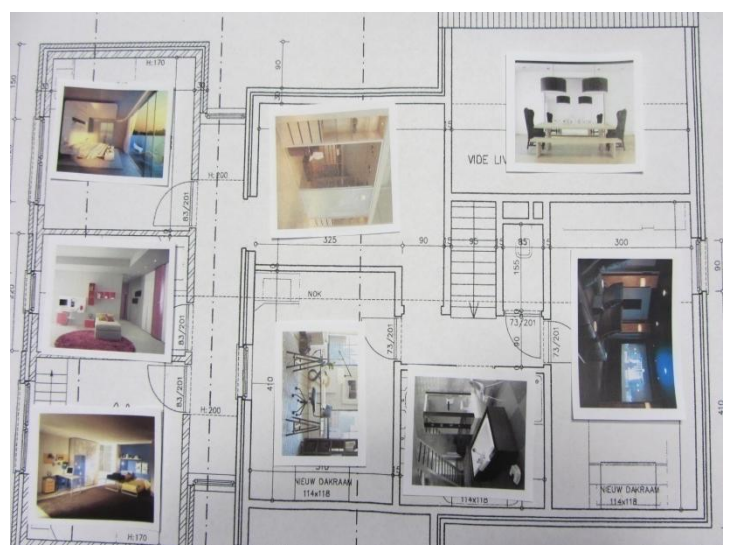
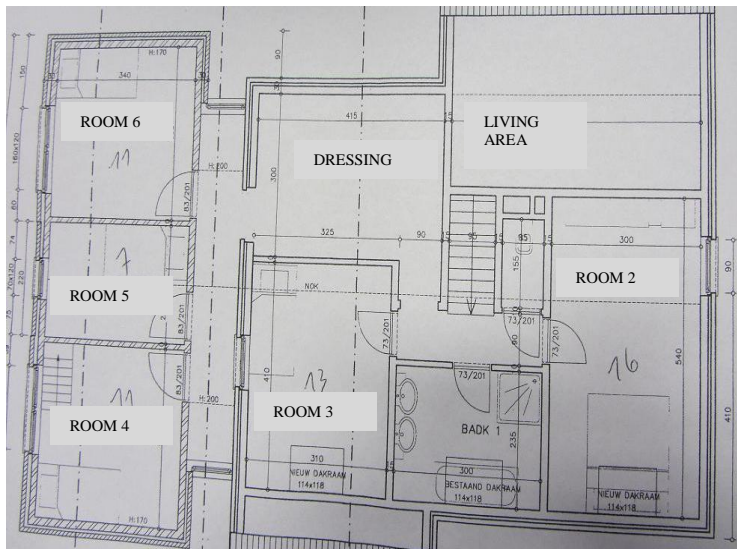
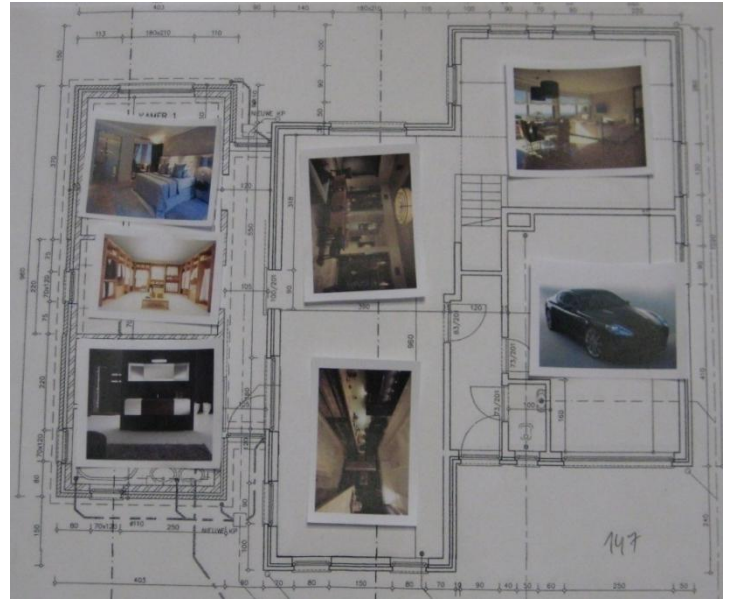
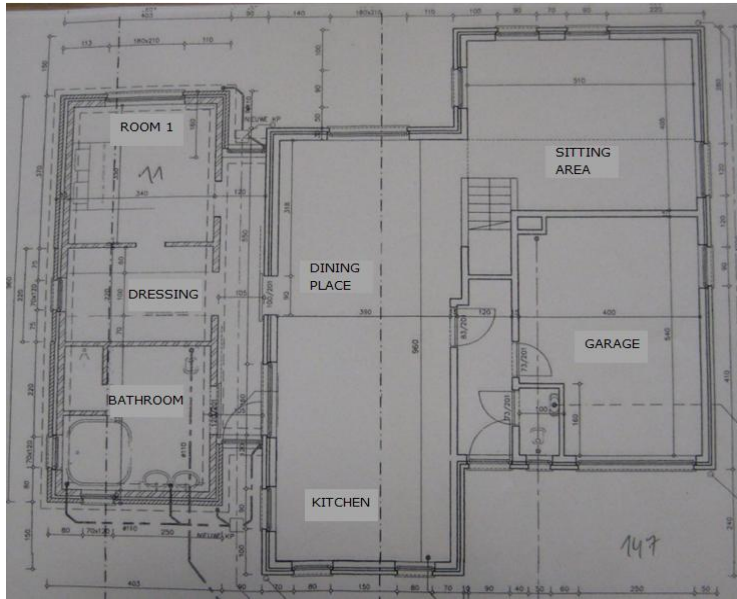
Appendix A. Studies 1 and 3

Examples of home decoration: highly expensive villa versus mainstream house



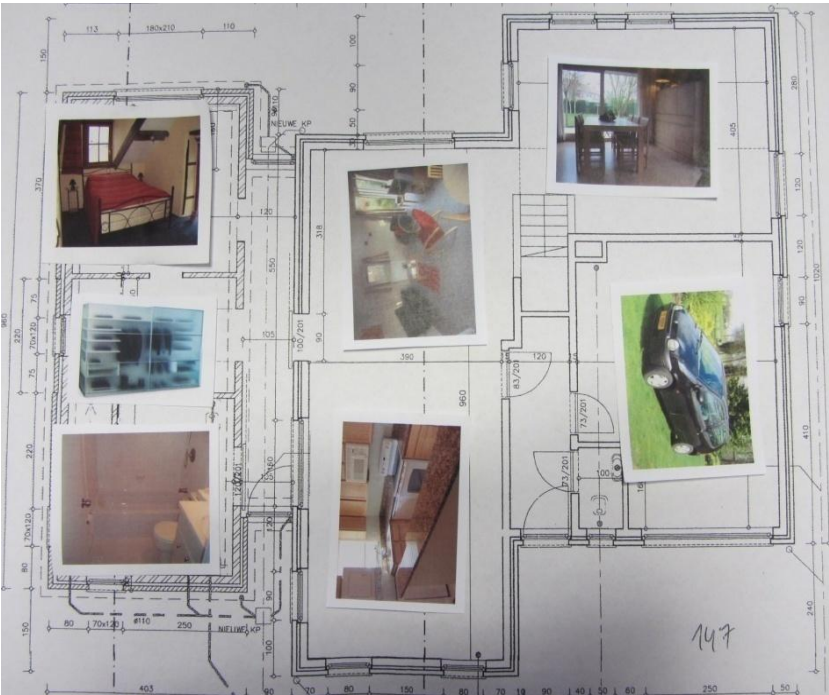
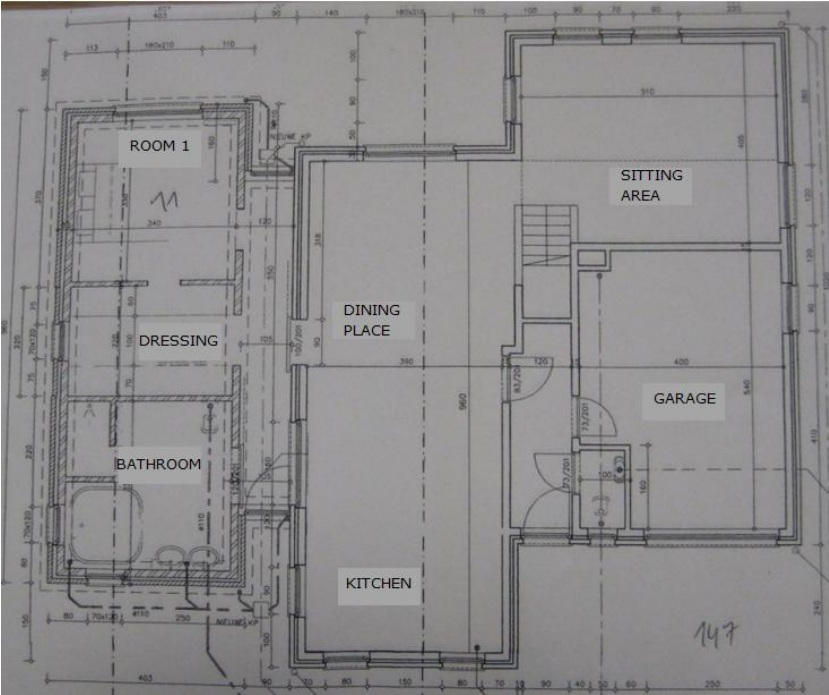
Appendix A. Studies 1 and 3 (continued)

Example floor plan of the highly expensive villa



Appendix A. Studies 1 and 3 (continued)

Example floor plan of the mainstream house



Appendix B. Studies 1, 3 and 4

Richins & Dawson Materialism scale

I admire people who own expensive homes, cars, and clothes.

Some of the most important achievements in life include acquiring material possessions.

I don't place much emphasis on the amount of material objects people own as a sign of success. (*)

The things I own say a lot about how well I'm doing in life.

I like to own things that impress people.

I don't pay much attention to the material objects other people own. (*)

I usually buy only the things I need. (*)

I try to keep my life simple, as far as possessions are concerned. (*)

The things I own aren't all that important to me. (*)

I enjoy spending money on things that aren't practical.

Buying things gives me a lot of pleasure.

I like a lot of luxury in my life.

I put less emphasis on material things than most people I know. (*)

I have all the things I really need to enjoy life. (*)

My life would be better if I owned certain things I don't have.

I wouldn't be any happier if I owned nicer things. (*)

I'd be happier if I could afford to buy more things.

It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.

(*) Reverse scored item

Appendix C. Studies 1, 3 and 4

Dutch version of Materialism scale

Ik bewonder mensen die dure huizen, auto's en kleding bezitten.

Materiële bezittingen verwerven is één van de belangrijkste prestaties in het leven.

Ik beschouw het aantal spullen dat mensen bezitten niet als een teken van hun succes. (*)

De dingen die ik bezit, zeggen veel over hoe goed ik het doe in het leven.

Ik bezit graag dingen waar anderen van onder de indruk zijn.

Ik besteed niet veel aandacht aan de materiële bezittingen van anderen. (*)

Meestal koop ik enkel de dingen die ik nodig heb. (*)

Ik probeer mijn leven eenvoudig te houden, wat bezittingen betreft. (*)

De dingen die ik bezit, zijn niet zo belangrijk voor mij. (*)

Ik vind het leuk om geld uit te geven aan dingen die niet direct een praktisch nut hebben.

Ik beleef veel plezier aan het kopen van dingen.

Ik heb graag veel luxe in mijn leven.

Ik hecht minder belang aan materiële dingen dan de meeste anderen die ik ken. (*)

Ik heb al de dingen die ik echt nodig heb om van het leven te genieten. (*)

Ik zou een beter leven hebben als ik bepaalde dingen had die ik nu niet bezit.

Ik zou niet gelukkiger zijn indien ik leukere of mooiere spullen had. (*)

Ik zou gelukkiger zijn als ik het mij kon veroorloven om meer dingen te kopen.

Soms stoor ik me eraan dat ik niet alle dingen kan kopen die ik graag zou hebben.

(*) Reverse scored item

Appendix D. Studies 2 and 4

Examples of very exclusive luxury pictures



Appendix D. Studies 2 and 4 (continued)

Examples of photos depicting functional products



Appendix E. Study 3

Imagination manipulation

Mainstream house – No imagination task

Please read these instructions very carefully.

Imagine yourself the following scenario. You are an interior designer and one of your customers asks you to decorate his/her future house completely in line with your own taste. In a moment, you will receive a floor plan of a house that needs to be decorated, as well as some possible interiors per room to choose from. As a result, you are required to decorate all rooms according to your own preferences.

Mainstream house – Imagination task

Please read these instructions very carefully.

Imagine yourself the following scenario. You are an interior designer and one of your customers asks you to decorate his/her future house completely in line with your own taste. In a moment, you will receive a floor plan of a house that needs to be decorated, as well as some possible interiors per room to choose from. As a result, you are required to decorate all rooms according to your own preferences.

Consequently, the purpose for this assignment is to imagine yourself that the house is completely yours.

Specifically, concerning the bedroom, imagine that you would sleep over there;

Concerning the kitchen, imagine that you would cook over there;

Concerning the sitting area, imagine watching TV in the couch;

Concerning the bathroom, imagine taking a good bath over there;

Concerning a car for the garage, imagine driving with it; ...

In general, the best way to decorate the home according to your own taste is to imagine yourself living over there and owning the house and the matching interiors. Good luck!

Appendix E. Study 3 (continued)

Imagination manipulation

Exclusive villa – No imagination task

Please read these instructions very carefully.

Imagine yourself the following scenario. You are an interior designer and one of your customers asks you to decorate his/her future house completely in line with your own taste. In a moment, you will receive a floor plan of a villa that needs to be decorated, as well as some possible interiors per room to choose from. As a result, you are required to decorate all rooms according to your own preferences.

Exclusive villa – Imagination task

Please read these instructions very carefully.

Imagine yourself the following scenario. You are an interior designer and one of your customers asks you to decorate his/her future house completely in line with your own taste. In a moment, you will receive a floor plan of a villa that needs to be decorated, as well as some possible interiors per room to choose from. As a result, you are required to decorate all rooms according to your own preferences.

Consequently, the purpose for this assignment is to imagine yourself that the house is completely yours.

Specifically, concerning the bedroom, imagine that you would sleep over there;

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Concerning the sitting area, imagine watching TV in the couch;

Concerning the bathroom, imagine taking a good bath over there;

Concerning a car for the garage, imagine driving with it; ...

In general, the best way to decorate the home according to your own taste is to imagine yourself living over there and owning the house and the matching interiors. Good luck!

Appendix F. Study 4

Spendthrift-tightwad scale

1. Which of the following descriptions fits you better?

1	2	3	4	5	6	7	8	9	10	11
Tightwad				About the same			Spendthrift			
(difficulty spending money)				or neither			(difficulty controlling spending)			

2. Some people have trouble limiting their spending: they often spend money—for example on clothes, meals, vacations, phone calls—when they would do better not to. Other people have trouble spending money. Perhaps because spending money makes them anxious, they often don’t spend money on things they should spend it on.

a. How well does the first description fit you? That is, do you have trouble limiting your spending?

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

b. (-) How well does the second description fit you? That is, do you have trouble spending money?

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

3. (-) Following is a scenario describing the behavior of two shoppers. After reading about each shopper, please answer the question that follows.

Mr. A is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. A sees that the store has a “one-day-only-sale” where everything is priced 10-60% off. He realizes he doesn’t need anything, yet can’t resist and ends up spending almost 100 dollars on stuff.

Mr. B is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. B sees that the store has a “one-day-only-sale” where everything is priced 10-60% off. He figures he can get great

deals on many items that he needs, yet the thought of spending the money keeps him from buying the stuff.

In terms of your own behavior, who are you more similar to, Mr. A or Mr. B?

1	2	3	4	5
Mr. A		About the same or neither		Mr. B

Note. Items 2b and 3 are reverse-scored

Appendix G. Study 4 (continued)

Dutch version of spendthrift-tightwad scale

1. Welke van de volgende omschrijvingen past beter bij jou?

1	2	3	4	5	6	7	8	9	10	11
(Ik vind het moeilijk om mijn geld uit te geven / te spenderen)					Ongeveer allebei of geen van beide			(Ik vind het moeilijk om mijn gelduitgaven te controleren/in bedwang te houden)		

2. Sommige mensen hebben problemen met het beperken van hun uitgaven: ze spenderen vaak geld—bijvoorbeeld aan kledij, eten, vakantie, telefoongesprekken—wanneer ze dit beter niet zouden doen.

Andere mensen hebben problemen met geld uitgeven. Misschien omdat het uitgeven van geld hen angstig maakt, ze spenderen vaak geen geld aan zaken waar ze beter wel geld aan zouden spenderen.

a. Hoezeer past de eerste omschrijving bij jou? Dit wil zeggen, heb je problemen met het beperken van je uitgaven?

1	2	3	4	5
Nooit	Zelden	Soms	Vaak	Altijd

b. (-) Hoezeer past de tweede omschrijving bij jou? Dit wil zeggen, heb je problemen met geld uitgeven?

1	2	3	4	5
Nooit	Zelden	Soms	Vaak	Altijd

3. (-) In wat nu volgt, wordt een scenario beschreven van twee shoppers. Gelieve na het lezen over elke shopper de daaropvolgende vraag te beantwoorden.

Mr. A vergezelt een goede vriend die op winkeluitlestap is in een lokaal winkelcentrum. Wanneer ze een groot warenhuis binnenstappen, merkt Mr. A op dat de winkel een “enkel vandaag korting” aanbiedt waarbij alles afgeprijsd is met 10 tot

60%. Hij realiseert zich dat hij niets nodig heeft, maar kan niet weerstaan en eindigt met het spenderen van bijna 100 euro aan spullen.

Mr. B vergezelt een goede vriend die op winkeluitstap is in een lokaal winkelcentrum. Wanneer ze een groot warenhuis binnenstappen, merkt Mr. B op dat de winkel een “enkel vandaag korting” aanbiedt waarbij alles afgeprijsd is met 10 tot 60%. Hij realiseert zich dat hij goede koopjes kan doen op verschillende spullen die hij nodig heeft, maar de gedachte van het geld uitgeven houdt hem tegen om de spullen aan te kopen.

Toegepast op je eigen gedrag, op wie gelijk je meer, Mr. A of Mr. B?

1	2	3	4	5
Mr. A	Ongeveer allebei of geen van beide			Mr. B

Note. Items 2b and 3 are reverse-scored

CHAPTER V:
CONCLUSIONS, CONTRIBUTIONS AND FUTURE RESEARCH

CHAPTER V: CONCLUSIONS, CONTRIBUTIONS AND FUTURE RESEARCH

As demonstrated by a wide range of examples in the introductory chapter, beauty and attractiveness fascinate people, and consequently, influence various consumer choices, preferences and behaviors in everyday life. The main aim of this dissertation is to contribute to this domain of appeal and luxury by focusing on unexplored aspects and by integrating a different point of view in each essay in relation to the domain of attraction. Consequently, I provide a deeper understanding of the effect of attraction and luxury on consumers' mind (Chapter II), attitudes (Chapter III), and values (Chapter IV) by integrating (respectively) concepts of evolutionary psychology, tangibility, and goal commitment.

In this chapter, I summarize the core findings of each essay and discuss their interrelations, as well as the implications, contributions, limitations and directions for future research.

1. FINDINGS AND THEORETICAL CONTRIBUTIONS

"I believe very strongly that when it comes to desire, when it comes to attraction, that things are never black and white, things are very much shades of grey"

Brian Molko

Chapters II, III and IV investigated the effect of attraction and/or luxury on consumer behavior by assessing new understandings and by investigating how different viewpoints influence attraction-related judgments. As a result, the chapters in this dissertation not only contribute to the domain of attraction, but also to other different domains in literature.

Chapter II focused on the effect of attraction on consumers' mind. In fact, this essay investigated consumers' preferences for attractive appearances (more specifically: glossy images) and examined the underlying reason *why* people generally favor glossy. Consequently, this essay introduced and integrated an evolutionary viewpoint in relation to the domain of attraction. In particular, we tested the hypothesis that preference for glossy stems from an innate preference for water as a valuable resource. To begin with, our results correspond with the widespread attraction for visually pleasing appearances (cf. introductory chapter; e.g., Bloch, 1995; Dutton, 2002; Norman, 2002), as consumers showed

a clear preference for glossy over non-glossy objects. Chapter II additionally showed that the visual opinion of 'glossy is pretty' is not the main reason why people generally favor glossy. In fact, the essay demonstrated that people's preference for glossy seems to be innate. Consequently, our findings also contribute to prior research which question the idea that the preference for attractive appearances only stems from a socialization effect (e.g., Langlois et al., 1987). Thirdly, although prior researchers state that positive affect may explain why consumers tend to prefer attractive appearances (cf. introductory chapter; e.g., Coates, 2003; Erk, Spitzer, Wunderlich, Galley, & Walter, 2002; Norman, 2002), we believed that the positive feelings evoked by attractiveness and beauty were not enough to explain why people tend to prefer glossy. Furthermore, most researchers are concerned with superficial conclusions in order to explain consumer behavior, such as preferences and choices, while an evolutionary viewpoint creates a deeper level of explanation and tries to understand the ultimate reasons of consumer behavior (Griskevicius & Kenrick, 2013). Hence, drawing on an evolutionary framework, the reported studies in this chapter (partly) explained why consumers tend to prefer glossy. In fact, results showed that the preference for glossy stems from an innate preference for water, being a valuable resource. Accordingly, next to the various understandings already been demonstrated in the past as a result of the use of evolutionary analyses (Saad, 2007; Saad & Gill, 2000), this chapter contributes to the effectiveness of evolutionary psychology by clarifying why people value glossy objects. It should be noted, however, that we do not claim that socialization is irrelevant concerning people's preference for glossy. Learned and evolved are, in fact, interactionist frameworks (Colarelli & Dettmann, 2003; Confer et al., 2010) rather than competing ones. On the contrary, this essay merely shows a deeper underlying reason for the preference for glossy. Hence, it does not imply that the preference effect might not be reinforced through gradual exposure to glossy appearances over time. As a matter of fact, results from study 4 showed that blindfolded participants rated an advertised product higher in quality when displayed on a glossy than on a non-glossy paper. Hence, due to the fact that marketers increasingly link glossy with luxury, it is not surprising that human's liking for glossy might be enhanced over time or associated with high quality. Fourthly, the introductory chapter mentioned the impact of attraction on human-related preferences. The general liking of glossy might be associated with this stream of literature as well, as prior research has shown that men particularly prefer women with shiny hair—due to its association with youthfulness and

reproductive potential (Hinsz, Matz, & Patience, 2001). In fact, evolutionary analyses posit that someone's hair quality and shininess is a good predictor of parasite resistance, and hence, genetic fitness and a general physical health (Buss, 1987; Oberzaucher & Grammer, 2010). Accordingly, the impact of glossy could be associated with the "what is beautiful is good" effect (cf. introductory chapter; Dion et al., 1972), leading to possible positive discriminations towards people with shiny hair. A final consideration refers to the fact that prior literature has widely focused on topics dealing with food and its importance and consequences (e.g., Bublitz et al., 2012; Chandon & Wansink, 2007; Finkelstein & Fishbach, 2010; Geyskens, Dewitte, Pandelaere, & Warlop, 2008; Shiv & Nowlis, 2004; Thomas, Desai, & Seenivasan, 2011). Given the fact that water is a main resource to survive (Packer, *Scientific American*), it is peculiar that little research has focused on its (evolutionary) importance, especially in relation to consumer behavior.

Chapter III focused on the effect of attraction on consumers' attitudes towards covered versus uncovered products. In fact, this essay introduced the concept of desire, and more specifically, the effect of tangibility on desire. In particular, this chapter reconciled the inconsistent conclusions in literature that suggest that tangibility can both increase and decrease desire for products. As mentioned in the introductory chapter, consumers are attracted to aesthetically appealing product designs (e.g., Bloch, Brunel, & Arnold, 2003; Hassenzahl, 2008; Norman, 2002). Moreover, research has demonstrated that consumers allocate more positive evaluations to products if those products attract their attention, and more specifically, if they differ slightly from the prototype (Meyers-Levy & Tybout, 1989; Schoormans & Robben, 1997). Examples of this are unusual package sizes, bright colors, or other novel and unexpected stimuli (e.g., Garber, 1995; Engel, Blackwell, & Miniard, 1995). As a matter of fact, this essay shows that a display cover or a display window (which could be perceived as an unexpected or slightly different stimulus) enhances consumers' desire for products. However, this conclusion totally depends on the type of product, as some products need to be more haptically examined than others in order to investigate its features (e.g., weight, hardness, ...). Moreover, our results correspond to the concept of desire and unattainability, which states that consumers especially long for those items they cannot readily possess or that are rather 'difficult to obtain'. Indeed, a barrier (e.g., display cover) seems to enhance consumers' desire, however, yet again, only in case of products for which the sense of touch is not important to investigate its characteristics.

The introductory chapter mentioned several examples in which people are attracted to beauty and attractiveness. However, chapter IV challenges this commonly held belief by questioning whether people are still attracted to attractiveness if they cannot attain the beautiful items they are exposed to. Actually, we show that the consequences of exposure to beautiful items, such as luxuries, crucially depend on one's own attainability of these luxuries. Specifically, if people are exposed to luxuries they cannot afford, they tend to downplay the importance of material wealth—in contrast to what is commonly believed. As a result, the final essay contributes to the domain of attraction by showing unexpected effects, and in addition, by demonstrating effects concerning personal values, instead of merely providing perceptions. Furthermore, as advertising frequently displays images of luxuries, our findings might also add to the advertising research. In fact, prior studies have attempted to demonstrate a connection between advertising exposure and materialism, but the causal direction was not always very clear. We posit that this might be—at least partially—due to the more than assumed complexity of the influence of luxury-exposures.

To conclude, chapters III and IV both contribute to the concept of unattainability and “reactance theory” (e.g., Brehm, Stires, Sensenig, & Shaban, 1966). It has been shown that consumers perceive products as more attractive when these products become scarce, restricted or less attainable (Clee & Wicklund, 1980). Put differently, when an individual's freedom to engage in a specific behavior is threatened, for instance when losing the possibility of attaining one of several alternative options, the threatened behavior becomes more attractive (i.e., his/her desire for that alternative option increases). In chapter III, the display cover or window actually served as a barrier, which in turn created a ‘threat’ to one's freedom to obtain or touch the relevant product. As a matter of fact, the covered product became more desirable, but only in case of a geometric type of product. In addition, luxuries are generally perceived as exclusive, unique and rare (i.e., both naturally scarce as subjectively rare; e.g., Caniato, Caridi, Castelli, & Golini, 2009; Catry, 2003; Dubois & Paternault, 1995; Mortelmans, 2005; Nia & Zaichkowsky, 2000; Vigneron & Johnson, 2004), meaning that not everyone can afford them. As a result, luxuries are generally perceived as attractive. However, at this point, the “sour grapes” rationalization (e.g., Clee & Wicklund, 1980; Elster, 1983; Hammock & Brehm, 1966) becomes an issue: barriers cannot be too strong or desirable objects cannot be too unobtainable (Belk, Ger, & Askegaard, 2003), not to decrease the attraction effects. Indeed, chapter IV showed that individuals tend to

downgrade the importance of material wealth after exposure to extreme and unaffordable luxuries, as they bring their preferences in line with their expectations about attainability (Elster, 1983), or in this case affordability.

2. PRACTICAL CONTRIBUTIONS

In general, the findings reported in chapters II, III and IV include valuable suggestions for designers, retailers, marketers and entrepreneurs in general. Chapter II showed a systematic preference for glossy versus non-glossy objects. Consequently, a wide range of designers might benefit from a glossy adoption. Examples of this preference for glossy can be found in the growing kitchen business with rather shiny cupboards, in glossy computer screens (as opposed to matte screens), in the fondness of books with somewhat shiny covers, and in the attraction to sequined clothes and shimmering make-up. In fact, glossy might be used in nearly every consumption area. However, designers need to be cautious about possible interferences regarding certain products, such as issues of readability (Luscombe, Jinks, & Duncan, 1992) or preferences for subtlety (Berger & Ward, 2010).

Chapter III reports on consumer behavior outcomes in response to exposures to product covers. Our findings are useful concerning both online and offline retail environments, because tangibility is becoming an increasingly important topic for the fast-growing business of online shopping websites. We show that, in general, products are better displayed in a traditional retail environment. Similar to prior research (Citrin, Stem, Spangenberg, & Clark, 2003; McCabe & Nowlis, 2003; Grohmann, Spangenberg, & Sprott, 2007), material products indeed need to be haptically explored, and are hence better displayed in an environment providing the opportunity to touch. However, in contrast to prior research (McCabe & Nowlis, 2003), we demonstrate that geometric products might benefit from a traditional retail environment as well, as consumers' desire towards those type of products could be enhanced if the product is displayed in a way that it can nearly (but not quite) be touched (i.e., underneath a display cover or in a display window). Obviously, these latter practices are not possible in an online retail environment. Moreover, our findings show that the covered geometric product needs to be displayed at close proximity in order to enhance desire, something which is clearly not possible in a remote (online) environment.

Chapter IV deals with exposures to (unattainable) luxuries and shows that engaging in mental imagery may change the influence of otherwise unattainable luxuries and thereby change consumers' values. Put differently, while individuals might be daunted by exposures to unaffordable luxuries, mental imagery (e.g., imagining owning these luxuries) can eliminate this effect. As a result, our findings indicate, in line with prior research (e.g., Gregory, Cialdini, & Carpenter, 1982; Mandel, Petrova, & Cialdini, 2006; Peck & Shu, 2009), that processes of imagination might be crucial. Indeed, we show that pretending owning unaffordable luxuries might lead to an adoption of material values. Given that advertising mainly sells dreams and often displays luxuries (which are not always affordable for each and every one), our findings show that engaging consumers in mental imagery might be particularly influential with regard to the adoption of material values and the liking of luxuries displayed. Without this process of imagination, decreased attraction effects might occur. Interestingly, our findings additionally show that charities might benefit from a rather unusual practice as we demonstrate that nonmaterialistic behavior might result from an exposure to unattainable luxuries. Possibly, an initial exposure to extreme and unaffordable luxuries or consumption goods might create a feeling of unattainability amongst consumers, and perhaps the belief that there is more in life than just money and status. As a result, an instant subsequent exposure to images of people in need might be more effective and even result in a higher amount of money donated to the good cause.

3. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In spite of the contributions above, future research is needed to deal with the limitations of our studies and to further extend our understanding of the impact of attraction and luxury in consumer behavior. At the end of each chapter, suggestions and specific issues referring to these limitations have already been dealt with. Therefore, I will focus on the most general limitations and provide suggestions for future research concerning the different chapters.

As mentioned in the introductory chapter, aesthetically appealing and attractive products generally induce positive affect (e.g., Desmet & Hekkert, 2007; Erk, Spitzer, Wunderlich, Galley, & Walter, 2002; Hassenzahl, 2008). Given that visually pleasant appearances trigger emotional responses (e.g., Coates, 2003), we might consider the

absence of appropriate mood measurements as a general limitation with respect to all three essays. As a result, future research might benefit from the adoption of mood to investigate whether this can (partly) explain or perhaps exclude its significance with regard to all three essays. Although we posit that a deeper fundamental reason of why people generally prefer glossy exists, testing mood on top can add value to the research. It remains unclear whether glossy induces a positive mood and whether this might influence (or not) the innate assumption for water (chapter II). In a similar vein, mood can be tested referring to the higher desire towards covered (versus uncovered) geometric products (chapter III) or in relation to the decreased endorsement of material values after exposure to unattainable luxuries (chapter IV).

Furthermore, as visually appealing products or attractive product designs increase consumers' attention (cf. introductory chapter; Berkowitz, 1987; Dumaine, 1991), chapters II and III could also further examine this potential influence. Future research might for instance test whether glossy objects are more eye catching, and therefore, attract consumers' attention. In fact, this increased attention could lead to confusion among consumers: are they attracted to the object itself, or because of its increased attention, which might, in turn, strengthen (or partly explain) their preference for glossy? In chapter III one should also investigate whether a product cover elicits an attractive design, and whether this might contribute to the possible mood account or the positive product evaluations concerning covered geometric products.

A third issue pertains to chapter II, in which the final study does not completely prove the "need for water" account, and hence, is not in every respect conclusive. Moreover, additional interesting issues could be added in future research regarding this chapter. In chapter IV for instance, we introduced the concept of materialism and explained that materialists value luxury consumption (e.g., Richins, 1994; Wong, 1997). Although in chapter II we amended our understanding regarding the preference for glossy in relation with the need for water, it is possible that glossy is perceived as a costly sign, which in turn could imply a higher preference for glossy among materialistic individuals. Probably, the preference for glossy might be strengthened among thirsty materialistic individuals. Furthermore, although chapter II associates the preference for glossy with an innate need for water as a valuable resource, it might be interesting to investigate whether hunger could increase preferences for glossy as well. Perhaps, lack of resources might increase the

preference for anything that is associated with these resources. In fact, similar to the idea that men who feel hungry prefer heavier women (Nelson & Morrison, 2005) or desire for food increases desire for money (Briers, Pandelaere, Dewitte, & Warlop, 2006), hunger could lead to a preference for glossy given that glossy might be perceived as a costly signal (i.e., money resources) due to socialization.

Another interesting issue as regards chapter II refers to the notion of abstract versus concrete processing (e.g., Alter & Oppenheimer, 2008; Liberman & Trope, 2008; Trope & Liberman, 2010; Wakslak, Trope, Liberman, & Alony, 2006)—a concept which was introduced in chapter III. Possibly, glossy (versus non-glossy) advertisements render different processing styles, which consequently might influence, for instance, text recall. Although further research could investigate this proposition, data I collected but did not report in essay 1 could provide some preliminary insight in this matter. In this study, I randomly assigned 100 participants to one of four conditions of a 2 (Type of paper: glossy versus non-glossy) by 2 (Type of advertisement: visual versus verbal) between subjects design. I first conducted four pretests in order to properly select the advertisements that could be used in the study. Specifically, I tested 40 advertisements on its visual versus verbal dominance, attractiveness and effectiveness. For every brand, I selected two comparable advertisements—one verbally and the other visually dominant. Moreover, I tested the optimal number of advertisements to be included in the study. As a result, half of the participants were exposed to eleven visual advertisements, whereas the other half was exposed to eleven verbal advertisements. Obviously, each condition included the same set of brands. In addition, participants either saw the advertisements in a glossy or a non-glossy version. Participants were asked to glance through the portfolio of advertisements. After the manipulation, they were asked to list the brands they remembered and the content of the ads. Interestingly, results revealed that visual advertisements were evenly remembered whether displayed on glossy or non-glossy paper, while verbal advertisements were significantly better remembered when displayed on glossy (versus non-glossy). Possibly, this finding might be partially due to a surprise effect as regards verbal advertisements combined with glossy, leading to a better memorization. Obviously, more research is needed to investigate this research proposition. Perhaps eye tracking can provide useful evidence in the way consumers glance through glossy versus non-glossy advertisements.

In addition, although the introductory chapter mentioned that people exhibit a preference for visually appealing products, even in a context where aesthetics are less important (Townsend & Shu, 2010; Yamamoto & Lambert, 1994), it remains unclear whether glossy can be used at all times. Consider in this case the cover of an intellectual magazine, or advertisements for utilitarian products (e.g., toilet paper, batteries, ...). Moreover, the introductory chapter mentioned that consumers are more likely to prefer an aesthetically appealing mobile phone which is less useful than a predominantly useful, although less beautiful phone (Diefenbach & Hassenzahl, 2009). A similar study could investigate whether consumers would also favor, for instance, a visually appealing and glossy, yet less functional computer screen over a predominantly useful, although non-glossy screen?

To round off research, one could also investigate some other interesting interrelations between these different chapters. For instance, what would happen if extreme and unaffordable luxury goods are presented underneath a glass bell or display cover? Or would the level of desire as regards covered versus uncovered products change in combination with individual differences in materialism? Possibly, the decrease in endorsement of material values after exposure to unattainable luxuries, or the level of desire towards covered versus uncovered products might alter when considering these questions. Secondly, given that the thread running through this dissertation is about attraction and luxury, it would be interesting to replicate our findings in very materialistic cultures (e.g., Japan, USA) versus very non-materialistic cultures (e.g., Africa). In fact, prior research has established positive associations between materialism and status consumption (e.g., Eastman et al., 1997; Fournier & Richins, 1991; Wong, 1997). As a result, materialistic consumers attach more importance to attraction and luxury (e.g., Belk, 1985, 1988; Wong & Ahuvia, 1998) than nonmaterialistic individuals, which could alter our obtained findings. Thirdly, the introductory chapter mentioned that people are more likely to take advice from wealthy than from non-wealthy advisors (Tzioti, 2010; i.e., advisors driving luxurious cars or wearing expensive clothes). Would this effect linger when individuals are first primed with unaffordable luxuries? Fourthly, chapter III mentioned the importance of the sense of touch, as it is the largest sensory organ (Gallace & Spence, 2010) and the most reliable one, because it is the first sense developed in childhood (Krishna, 2012; Miodownik, 2005; Spence & Gallace, 2011). Hence, would touch be particularly influential as regards the obtained effects concerning glossy? Perhaps, the appreciation and liking for glossy is strengthened

when people use their sense of touch (versus not). In fact, participants always touched the glossy and non-glossy stimuli in our studies. Consequently, we do not know whether the significant preference for glossy would linger if people could not use their sense of touch. In addition, would the same results of chapter III apply when studying another sense, such as smell? In fact, smell is more diagnostic in the case of perfume or wine.

So, although different and unexplored research questions were presented in this dissertation, interesting new hypotheses may come up and could be investigated in future research.

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