

Dissertation:

Psychological Ownership and Future Time Perspective as Emerging Topics in Marketing Research

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Verfasserin:	Doreen Neubert
Geburtstag und Ort:	19.04.1984 in Bernburg
Gutachter der schriftlichen Promotionsleistung	Prof. Dr. Marko Sarstedt Prof. Dr. Susanne Enke
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PREFACE

Consumer behavior is a research discipline that has a long established tradition in combining several adjacent research streams such as psychology (Cohen & Areni, 1991; Folkes, 1988; Gardner, 1985), sociology (Coleman, 1983; Nicosia & Mayer, 1976), neuroscience (Kroeber-Riel, 1979; Lichters, Brunnlieb, Nave, Sarstedt, & Vogt, 2016), or organizational research (Jussila, Tarkiainen, Sarstedt, & Hair, 2015). Two of the most salient interdisciplinary research streams that emerged over the last decades are psychological ownership and future time perspective. This dissertation contributes to these two research streams by means of four essays. Essay one and two address psychological ownership in the context of customer empowerment strategies and hence translate a concept originating from organizational research to one of the most prominent strategies in consumer behavior research. Essay three and four provide insights into the influence of an individual's future time perspective on impulsivity and finally product preferences translating a psychological concept to actual consumer behavior.

Research on psychological ownership is rooted in organizational research and describes a feeling of possession for a company, product or even idea without legal entitlement (Pierce & Jussila, 2011; Pierce, Kostova, & Dirks, 2003). The emergence of feelings of ownership is hereby triggered by the satisfaction of four human needs: efficacy and effectance, self-identity, having a place, and stimulation (Pierce & Jussila, 2011; Pierce et al., 2003; Van Dyne & Pierce, 2004). These “roots” of psychological ownership explain its emergence while three factors (“routes”) can explain how psychological ownership emerges: by investing the self into an object, exercising control over an object or coming to know an object intimately (Jussila et al., 2015; Pierce & Jussila, 2011). Individuals that perceive psychological ownership display higher levels of organizational commitment, job satisfaction, and extra-role work behavior (Mayhew, Ashkanasy, Bramble, & Gardner, 2007; Van Dyne & Pierce, 2004). Moreover, several research areas name psychological ownership as an

important driver of behavior. Organizational research for instance showed that, nurses with high levels of psychological ownership (towards the institution they work for) care more for their patients (Kaur, Sambasivan, & Kumar, 2013). In a similar vein students are more likely to sense satisfaction in group tasks when they feel psychological ownership (Wood, 2003).

Marketing research related psychological ownership to the endowment effect. An endowment effect occurs when individuals value objects differently depending on whether they possess them or gain possession (Kahneman, Knetsch, & Thaler, 1991). Psychological ownership hereby mediates the valuation of the object (Shu & Peck, 2011). Another realm of marketing research examines psychological ownership in the context of strategies that integrate customers into value creation processes. Hereby, psychological ownership provides a more nuanced understanding of psychological consequences when consumers actively engage in company processes (Fuchs, Prandelli, & Schreier, 2010). The first essay of this dissertation contributes to this by providing insights into psychological ownership in the context of customer empowerment. Customer empowerment is defined as the integration of customers into value creation processes e.g., by creating products or deciding over the product portfolio and is as such distinct from traditional company lead value creation processes (Ogawa & Piller, 2006; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004, 2008). Although the integration of customers into value creation processes bears some risk of losing control over the company's product portfolio, researchers as well as practitioners acknowledge the advantages of customer empowerment such as lower rates of product failure, potentially lower production costs, and a more thorough understanding of the customers' needs (Fuchs et al., 2010; Fuchs & Schreier, 2011; Ogawa & Piller, 2006). Surprisingly, research has just begun to examine the consequences of this shift in decision power (Fuchs et al., 2010). Fuchs et al. (2010) find that empowering customers to choose over a product portfolio stimulates feelings of psychological ownership and finally leads to higher demand. However, decisions are seldom made alone and the first essay of this dissertation examines

how the interaction with other customers, or more precisely their feedback, affects Fuchs et al.'s (2010) observations. As such, the first essay adds to existing research by showing that the nature of provided feedback (positive versus negative) either boosts the emergence of psychological ownership or harms the effect in the context of customer empowerment to create strategies.

This essay was published in 2016 in the *Journal of Creating Value* 2(2), 194-210 and is co-authored with, Joe Hair Kennesaw State University, Marko Sarstedt and Kati Barth, both Otto-von-Guericke-University Magdeburg. Furthermore, at an early stage of research, first findings from this paper were presented at the *Annual Conference of the Academy of Marketing Science in Indianapolis, USA in 2014*.

The second essay of this dissertation translates findings of essay one, that is, the relevance of psychological ownership in the context of customer empowerment, to the IKEA effect. The IKEA effect postulates that investing labor into an object leads to higher valuation expressed by a higher willingness to pay for the (self-designed) object (Mochon, Norton, & Ariely, 2012; Norton, Mochon, & Ariely, 2012). Mochon et al. (2012) explicitly link these findings to the context of customer empowerment but do not test for this link. Hence, essay two connects the IKEA effect to the findings of essay one. In a large scale experiment essay two stepwise replicates the IKEA effect as a stable phenomenon and then tests for its transferability to the strategy of customer empowerment to create. Furthermore, boundary conditions of the IKEA effect such as a successful completion without interruption are tested. Most prominently, the second essay shows that psychological ownership rather than pride serves as an important factor in the emergence of the IKEA effect as psychological ownership mediates the effect.

This essay is co-authored with Marko Sarstedt and Kati Barth, both Otto-von-Guericke-University Magdeburg and was published in the *Journal of Marketing Behavior*, 2016, 2: 307–312

The second part of this dissertation aims at gaining a more detailed understanding of how time horizons can shape consumer behavior. Although almost every decision in life includes the trade-off between now or later and hence is time dependent, little is known about the relevance of time perception in decision making processes. Research adapted the perception of time left in life in the construct of future time perspective and on an abstract level future time perspective describes how narrow the end of life is perceived (Carstensen, Isaacowitz, & Charles, 1999; Fung, Carstensen, & Lutz, 1999; Lang & Carstensen, 2002). Children typically display an almost unlimited future time perspective while elderly people perceive the end of life as nearer. As such, age and future time perspective are negatively but not perfectly correlated (Fung & Carstensen, 2006). An individual's future time perspective however goes beyond the perception of time horizons as it is accompanied by changes in goals selection processes. These changes are explained by socioemotional selectivity theory (Carstensen, 1992; Carstensen et al., 1999; Fredrickson & Carstensen, 1990; Fung & Carstensen, 2006). Socioemotional selectivity theory states that individuals monitor time left in live especially during adulthood, that they adjust this perception and that this induces changes in goals they pursue (Carstensen, 2006; Carstensen et al., 1999). While a long future time perspective is paralleled by knowledge-related goals, a short future time perspective is accompanied by a preference for emotional goals (Carstensen, 1992; Fung et al., 1999; Lang & Carstensen, 2002). Moreover, preferences for social partners change in a way that individuals seek proximity to partners they associate with emotion related goals under a short future time perspective and to partners they associate with knowledge related goals under a long future time perspective (Carstensen, 2006; Fung & Carstensen, 2006; Fung et al., 1999; Lang & Carstensen, 2002). However, research on future time perspective's influence on

consumer behavior is scarce. Kuppelwieser and Sarstedt (2014) for instance show that future time perspective moderates the link between customer satisfaction and loyalty. In advance, the emphasis on emotion under a short future time perspective is also relevant in the context of advertising: a preference for emotional advertisements and a better memorizing of such advertisements can be observed (Fung & Carstensen, 2003; Williams & Drolet, 2005). Yet, the impact of future time perspective on behavioral variables such as product preferences remains largely unknown. Essays three and four address this research gap. In a series of experiments, time horizons were systematically manipulated and the effect of different time horizons on impulsivity (essay three) and choice preferences (essay four) are depicted. Hereby, essay three provides an exploratory approach to describe variation of impulsivity over a lifespan that cannot solely be attributed to the age of an individual. As such, individuals display higher levels of impulsivity when they face a short future time perspective. This effect occurs independently of an individual's age. Typically impulsivity is measured by means of delay discounting tasks asking participants to choose between a lower reward immediately and a higher delayed reward (Green, Fry, & Myerson, 1994; McKeerchar et al., 2009). In such settings, individuals generally are less impulsive that is, opt for the delayed reward when the size of the reward is perceived as high – a magnitude effect occurs (Green, Myerson, & McFadden, 1997). However, essay three describes that the magnitude effect is diminished under a sort future time perspective. Hence, essay three contributes to research by providing first evidence that a short future time perspective can alter levels of impulsivity and finally choice behavior. Essay four relates to this and focuses on preferences for products considering different levels of future time perspective. Depending on the product type (hedonic vs. utilitarian) and in interaction with the durability (durable vs. non-durable), a short future time perspective leads to significant changes in product preferences. For products that are hedonic, a shift of preferences towards high price and quality products (and hence, highest hedonic value) can be observed. This effect reverses for utilitarian products towards

low price and quality products (highest utilitarian value). However, this effect only occurs, when the utilitarian product is durable. In case of non-durable products individuals surprisingly opt for the high price and quality option (highest hedonic value). Hence, essay four contributes to research as it is the first paper that shows that an individual's future time perspective affects product preferences. This is of relevant as it shows that advertisements that manipulate time horizons and lastly future time perspective can induce higher purchase rates for products that bear a high hedonic value and potentially a price premium.

While essay three is authored solely, essay four is co-authored with Victor, A. Schliwa. Parts of essay four were presented at the 2018 AMS Annual (46th) Conference in New Orleans by me and The 21st AMS World Marketing Congress (WMC) in Porto by Victor Schliwa.

This dissertation provides valuable insights into two of the most relevant topics in consumer behavior research: psychological ownership and future time perspective. As such, essay one and two examine the emergence of psychological ownership in the context of customer empowerment, and hence highlight conditions under which psychological ownership can appear or dissipate. Opening promising insights into boundary conditions these two essays offer a pronounced understanding of the customer experience journey in customer empowerment settings.

Essays three and four shed light on the relevance of future time perspective in the field of customer decision making processes. The perception of time plays a crucial role in impulsive behavior as well as in preferences for rather hedonic opposed to utilitarian products.

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ESSAY 1: EXAMINING THE ROLE OF PSYCHOLOGICAL OWNERSHIP AND FEEDBACK IN CUSTOMER EMPOWERMENT STRATEGIES

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Co Authors

Joe F. Hair
Professor of Marketing & Professional Sales
Kennesaw State University Coles College of Business
Department of Marketing and Professional Sales
KSU Center
560 Parliament Garden Way NW, BB 255, Kennesaw, GA 30144

Kati Barth
Research Assistant
Otto-von-Guericke-University Magdeburg
Faculty of Economics and Management
Chair of Marketing Universitätsplatz 2
39106 Magdeburg, Germany
kati.barth@ovgu.de

Marko Sarstedt
Professor of Marketing
Otto-von-Guericke-University Magdeburg
Faculty of Economics and Management
Chair of Marketing
Universitätsplatz 2
39106 Magdeburg, Germany
marko.sarstedt@ovgu.de

EXAMINING THE ROLE OF PSYCHOLOGICAL OWNERSHIP AND
FEEDBACK IN
CUSTOMER EMPOWERMENT STRATEGIES

Abstract

Customers increasingly seek to engage with companies by actively taking part in the value creation process. Companies have reacted to this trend by integrating customers into product development processes in an effort to better fulfill their needs and simultaneously decrease costs. While research has explored various antecedents and consequences of such co-creation activities, only little is known about psychological ownership's role and its interaction with peer feedback. This research shows that psychological ownership emerges when customers engage with companies in creating the product portfolio. Furthermore, implementing feedback loops accelerates customer engagement's positive effects in terms of product evaluations and customers' willingness to pay. Negative feedback reverses these effects suggesting that companies should pay close attention to feedback options when integrating customers into value creation processes.

Keywords

Value co-creation, customer empowerment, psychological ownership, peer feedback

Introduction

'You are Threadless. You make the ideas, you pick what we sell, you're why we exist.'

Threadless' company philosophy represents the idea behind customer co-creation, specifically customer empowerment: integrating customers into the value creation process (i.e., customer co-creation) by giving them control and decision power over the product portfolio (i.e., customer empowerment), especially in new product development (Bugshan, 2015; Fuchs & Schreier, 2011; Prahalad & Ramaswamy, 2004; Saarijärvi, 2012). Threadless invites its customers to submit designs for T-shirts and to evaluate others' designs. Those with the best ratings are produced and sold to the broader market (Ogawa & Piller, 2006). Instead of employing classical market research to infer products that (presumably) meet customers' tastes, Threadless allows its customers to design the products and to determine the product portfolio (Ogawa & Piller, 2006). Threadless is not alone in its efforts to actively involve customers in the value creation process. An increasing number of companies such as McDonald's, Coca-Cola, or FedEx are following this rationale of customer co-creation and empowerment (Fuchs & Schreier, 2011). By transferring some extent of control and responsibility to their customers, these companies seek to better fulfill customers' needs, develop more innovative products, and simultaneously decrease costs, while reducing their business risks (Ogawa & Piller, 2006).

Not surprisingly, customer co-creation has attracted considerable attention among marketing researchers over the past decade. For instance, a large body of research has discussed the paradigm change in value creation from company-centric to customer co-creation (e.g., Ogawa & Piller, 2006; Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). Other studies have explored options to integrate customers in value creation, for example, via toolkits or virtual customer communities (e.g., O'Hern & Rindfleisch, 2010; Prahalad & Ramaswamy, 2004; Sawhney, Verona, & Prandelli,

2005). In contrast, the consequences of empowering customers have not been researched in greater detail. Specifically, prior research has focused primarily on the impacts of customer integration on satisfaction and loyalty (e.g., Auh, Bell, McLeod, & Shih, 2007; Bendapudi & Leone, 2003; Chan, Yim, & Lam, 2010; Dong, Evans, & Zou, 2008). However, there are few nuanced investigations that go beyond these two consequences of customer empowerment. A notable exception is Fuchs, Prandelli, and Schreier (2010), who examined the consequences of customer co-creation in the context of customer empowerment to select (i.e., asking customers to select from a set of product configurations), using as a framework the concept of psychological ownership, which refers to customers' feelings of possession that are not necessarily connected to physical or legal possession (Pierce, Kostova, & Dirks, 2003). Fuchs et al. (2010) show that psychological ownership plays a crucial role in the context of empowerment to select strategies that facilitate positive customer outcomes such as word-of-mouth. While Fuchs et al. (2010) provide valuable insights into psychological effects of customer empowerment, their study is limited to dyadic company-customer interactions in the context of customer empowerment to select. The roles of other customers and their opinions on co-created products that may affect such interactions remain unexamined.

The shift from traditional value creation to customer co-creation is accompanied by the shift from company-initiated dialog to a forum of ideas and communication (Prahalad & Ramaswamy, 2004; Saarijärvi, 2012), where customers can not only interact faster and more frequently with the company but also with fellow customers (Prahalad & Ramaswamy, 2004; Sawhney et al., 2005). Yet, prior studies have not considered the role of peer feedback, which may have a significant bearing on customers' attitudes and perceptions of a created product. Ample research on the role of social influence suggests that people may change their opinion when encountering incongruence of their opinion and others' opinions (Cohen & Golden, 1972; Deutsch & Gerard, 1955; Raghunathan & Corfman, 2006). This altered evaluation is motivated by the need to belong (having the same opinion as a signal of bonding and

association) and the need for accuracy (having the same opinion as a signal of a confirmed ‘correct’ opinion) (Raghunathan & Corfman, 2006).

In a large-scale experiment, we address this lack of empirical investigation of the influence of peer feedback concerning the effects of customer empowerment strategies. By implementing feedback loops, we examine whether empowered customers designing a new product are more prone to changes in their evaluations of a brand and a product when receiving feedback on their designs. In addition, we add to the literature by employing an *empowerment to create* strategy as opposed to an *empowerment to select* strategy (Fuchs et al., 2010). Finally, prior research relied on product-related variables with unknown brands. In this research, we examine customers’ perceptions of an established brand where they have the power to co-create the final product portfolio.

We find that a feedback loop changes the attitude toward and intentions related to the created product depending on the nature of the feedback. Positive feedback enhances the positive effect of co-creation, while negative feedback undermines the effect. Furthermore, we find support for a more favorable brand attitude when customers are empowered to create. Finally, we show that this form of value co-creation has a significant influence on the emergence of psychological ownership.

Theory and Hypotheses

Customer empowerment as a strategy in a co-creation context

Traditional value creation is seen as a company-led process in which customers assume only a passive role. The distribution of roles in production and consumption is clear-cut: companies produce and create value, while customers only consume the market offerings predetermined by the companies (Saarijärvi, 2012). Although firms have substantively expanded their product portfolio, often they still fail to differentiate themselves from their competitors and fully capture the increasing heterogeneity of customers' needs and wants (Ogawa & Piller, 2006; Prahalad & Ramaswamy, 2004). If consumer inputs are solicited in classical market research, it seldom influences corporate decisions (Prahalad & Ramaswamy, 2004; Sawhney et al., 2005). In recent years, the long established, company-centric value creation process has started to shift to the co-creation of value. Increasingly, value is being created jointly by firms and customers (Prahalad & Ramaswamy, 2004; Saarijärvi, 2012; Vargo & Lusch, 2004). Triggered by the Internet, customers have easier access to a broader range of information and networking opportunities making the markets more transparent and giving voice and power to customers (Bugshan, 2015; Füller, Mühlbacher, Matzler, & Jawecki, 2009; Prahalad & Ramaswamy, 2004; Sawhney et al., 2005). The evolution from company-centric to interactive value creation is referred to as customer co-creation; that is, the integration of customers into the value creation process, thereby giving them a sense of decision power (Fuchs et al., 2010; Prahalad & Ramaswamy, 2004). An increasing number of companies have begun to respond to and make use of this changing customer role, especially in the new product development stage. This shift involves empowering customers to create a company's offerings by suggesting new products (ideas), or empowering them to select which products are produced and marketed (Fuchs et al., 2010; Fuchs & Schreier, 2011).

Although they give decision power to customers, companies can benefit from the loss of power by developing more innovative products that are less costly and risky, and can thus more closely meet customers' needs and wants (Ogawa & Piller, 2006). At the same time, even customers not taking an active part in the value creation process view companies that empower customers in a more favorable light, regard them as more customer-oriented, and, ultimately, show stronger behavioral intentions in terms of purchase intentions, positive word-of-mouth, loyalty and corporate commitment (Fuchs & Schreier, 2011). In line with the above, we hypothesize a co-creation effect that positively affects customers' assessments of a product and a brand as well as their word-of-mouth intentions, willingness to pay and willingness to defend the product in public.

H_{1a}: Customers who are empowered to create show an improved brand attitude compared to non-empowered customers.

H_{1b}: Customers who are empowered to create are more willing to spread positive word-of-mouth than non-empowered customers.

H_{1c}: Customers who are empowered to create feel a greater joy when using the created product than non-empowered customers.

H_{1d}: Customers who are empowered to create are more willing to defend the product in public than non-empowered customers.

H_{1e}: Customers who are empowered to create show a higher willingness to pay than non-empowered customers.

The emergence of psychological ownership in customer empowerment strategies

Originating from the organizational behavior literature, which broaches its role as a predictor of employee attitudes, job satisfaction, and organizational commitment (Van Dyne & Pierce, 2004), marketing scholars have recently begun to transfer the concept of psychological ownership to marketing research (e.g., Folse, Moulard, & Raggio, 2012; Jussila, Tarkiainen, Sarstedt, & Hair, 2015; Reb & Connolly, 2007). *Psychological ownership* entails that individuals consider an (intangible) object as their own, although this sense of possession might not be accompanied by any legal justification (Pierce et al., 2003). Thus, legal ownership is not a necessary condition for psychological ownership to emerge. Individuals may develop feelings of ownership decoupled from legal ownership or indeed be the legal owner of an object without there being feelings of ownership. Furthermore, psychological ownership is both cognitive and affective in nature, encompassing beliefs and thoughts as well as emotions regarding (immaterial) objects (Pierce et al., 2003).

Psychological ownership emerges through three mechanisms (Pierce et al., 2003): (a) exercising control, (b) investing the self into an object, and (c) getting to know an object intimately. Having control over and taking responsibility for an object strengthens feelings of ownership and the connection to that object (Fuchs et al., 2010). Folse et al. (2012) show that psychological ownership can be evoked by ‘psychological ownership message appeals’ (Folse et al., 2012, p. 296) that communicate responsibility for a target or investment in a target, such as ‘YOU have made a difference’ or ‘because of YOU’ (Folse et al., 2012, p. 298). Although participants were not actively engaging in contribution to a target, they assumed a higher level of psychological ownership. To evoke psychological ownership, subjects must perceive themselves as the cause for the outcome (Pierce & Jussila, 2011). By exerting some extent of control over a product portfolio, customers feel as though the decision is theirs (Agarwal & Ramaswami, 1993; Hunton, 1996). Hence, when companies empower their customers by

shifting responsibility and influence in the final product portfolio, and actually follow the decisions made by customers, they can increase their psychological ownership. As Pierce et al. (2003) note, ‘the most obvious and perhaps the most powerful means by which an individual invests himself or herself into an object is to create it’ (Pierce et al., 2003, p. 93). As a result, people develop a strong association to objects they psychologically own and connect them to their self-identity and self-concept (Belk, 1988; Pierce et al., 2003). A large body of research has shown that (feelings of) ownership relate to stronger appreciation, closeness and liking for the (psychologically) owned product (e.g., Kamleitner, 2015; Kirmani, Sood, & Bridges, 1999; Peck & Shu, 2009).

The finding that ownership leads to a higher valuation for an object than non-ownership is not new. Kahneman, Knetsch, and Thaler (1990) demonstrated the endowment effect, showing that people evaluate the possession of a product higher than obtaining a product (see also Carmon & Ariely, 2000; Kahneman, Knetsch, & Thaler, 1991; Reb & Connolly, 2007; Strahilevitz & Loewenstein, 1998). However, in contrast to psychological ownership, the conceptualization of the endowment effect is based on the valuation discrepancy between loss-averse owners and those aspiring to ownership (Folse et al., 2012). Reb and Connolly (2007) sought to relate psychological ownership to the endowment effect. While their results suggest that the endowment effect ‘may be primarily driven by subjective feelings of ownership rather than by factual ownership’ (Reb & Connolly, 2007, p. 112), they differentiate between legal ownership and physical possession of an object by holding it in one’s hands. Hence, Reb and Connolly (2007) definition of psychological ownership does not fully correspond with the definition by Pierce et al. (2003). Similarly, Peck and Shu (2009) state that perceived ownership is linked to possession and touch. However, according to Pierce et al. (2003), the emergence of psychological ownership is independent from (legal) possession and is connected to the investment of a person’s self into an object. Psychological ownership arises when spending time and effort with an object, independent from any buying

decision. In contrast, the endowment effect occurs in purchase settings as the difference between the seller's willingness to accept a price and the buyer's willingness to pay. As such, psychological ownership might mediate the emergence of the endowment effect.

It thus appears that customers who are empowered to create can travel all three routes to psychological ownership: (a) they exert control over a product portfolio (b) invest themselves in generating a product, and in this way (c) come to know a product intimately, which increases the familiarity and identification with the product during the co-creation process.

H₂: Empowered customers show higher psychological ownership levels toward a self-created product than non-empowered consumers.

The role of feedback in customer empowerment strategies

Customer co-creation changes a market from a one-sided communication in which a customer is only a recipient of information selected by a company, to an interaction between customers and companies (Bugshan, 2015; Prahalad & Ramaswamy, 2004). However, this interaction does not occur in a vacuum. Fuchs et al. (2010) found that for empowerment to select strategies, the co-creation effect decreased if the collectively selected product did not match the customers' individual favorites. This finding indicates that the congruence of opinions may play an important role in the co-creation experience.

Marketing research has recognized the influence of others' opinions (Cohen & Golden, 1972; Deutsch & Gerard, 1955; Raghunathan & Corfman, 2006) on, for instance, buying decisions (e.g., Bearden & Etzel, 1982; Cohen & Golden, 1972), the propensity and valence of word-of-mouth (Ryu & Han, 2009), or the self-brand connection (Edson Escalas & Bettman, 2003). Social influence theory suggests that subjects strive to agree with others

(Burnkrant & Cousineau, 1975; Cohen & Golden, 1972), which is motivated by two forms of social influence: the need to belong and the need for accuracy (Deutsch & Gerard, 1955). The former describes a wish or a social norm to identify with others and their evaluations. The latter encompasses a form of informational value—other opinions serve as evident information about a reality (Burnkrant & Cousineau, 1975). Satisfying their need for accuracy, subjects feel confirmed in their own judgments when they are in accordance with others' judgments. However, in case of incongruent opinions, subjects can change their assessment of products solely due to perceived opinions of others—regardless of whether or not they consider these others' judgments to be expert judgments (Raghunathan & Corfman, 2006).

In light of the above, we expect empowered customers designing a new product to be susceptible to changes in their brand and product evaluations when encountering feedback on their designs. We assume that social influence may alter customers' evaluations when facing others' different opinions. Thus, we hypothesize that for empowered customers receiving positive (negative) feedback on their product design, the co-creation effect increases (decreases).

H_{3a}: Positive feedback enhances the co-creation effect for empowered customers; that is, these customers show an improved brand attitude and a higher willingness to pay for the product, feel a greater joy when using the created product, and are more willing to spread positive word-of-mouth and defend the product in public than empowered customers who receive no feedback.

H_{3b}: Negative feedback diminishes the co-creation effect for empowered customers; that is, these customers show a declined brand attitude and a lower willingness to pay for the product, feel lesser joy when using the created product, and are

less willing to spread positive word-of-mouth and defend the product in public than empowered customers who receive no feedback.

Consistent with the above hypotheses, we contend that peer feedback influences the psychological ownership level. Bendapudi and Leone (2003) have examined the effect of the self-serving bias on customer satisfaction when customers and firms produce jointly. According to the self-serving bias, the responsibility level people take for a jointly generated outcome depends on the outcome's success (Wolosin, Sherman, & Till, 1973). If the outcome is successful, people assign more responsibility to themselves and ascribe the success to their contribution. If the outcome is negative, they take less responsibility and blame the other party. We contend that the effects of self-serving bias apply when receiving feedback. Positive feedback equals a successful outcome. Hence, a customer would ascribe more responsibility to himself or herself. Since one mechanism to induce psychological ownership is taking control and responsibility for an object, an increase in responsibility leads to an increase in psychological ownership. In contrast, we assume that empowered customers who receive negative feedback take less responsibility for their design and feel lower psychological ownership.

H_{4a}: The psychological ownership level further increases for empowered customers after receiving positive peer feedback.

H_{4b}: The psychological ownership level decreases for empowered customers after receiving negative peer feedback.

Design, Procedure, and Measures

Pretests

The emergence of both the co-creation effect as well as of psychological ownership depends on characteristics of the target product (Pierce & Jussila, 2011). Specifically, the target product needs to be perceived as attractive, accessible, and manipulable (Pierce & Jussila, 2011). We therefore ran a series of focus groups and face-to-face interviews with undergraduate students from a major German university in which we explored the suitability of different product categories and product types. These analyses showed that designing an inlay for a thermos mug meets the above requirements. Next, we ran a pretest in which we simulated the design process using a toolkit, as Thomke and Von Hippel (2002) suggest. Pretest participants who designed a thermos mug exhibited significantly higher psychological ownership levels than those who did not. In light of these results, we deemed the use of thermos mug inlays for our main experiment to be appropriate.

Design

To test our hypotheses, we conducted a laboratory experiment at a major German university in collaboration with an established coffee bar chain located on the campus. A total of 213 undergraduate students participated in the experiment for course credit or a reimbursement of €5. Participants were randomly assigned to the control group or one of three experimental groups. Members of the experimental groups designed a thermos mug inlay but received either no feedback, positive feedback, or negative feedback. Table 1.1 illustrates the experimental design. The experiment primarily draws on a between-subjects design, with the exception of the analysis of the feedback's effect on participants' willingness to pay in our hypothesis H₃. Here, we draw on the change from the second to the third measurement as a within-subjects analysis of experimental group 2 and 3 respectively.

Table 1.1: Experimental set up

			t ₀	t ₁	t ₂	t ₃	t ₄
Control group n = 45	<i>Market Research</i>	(R)	O ₁		O ₂		
Experimental group 1 n = 59	<i>Empowerment</i>	(R)	O ₁	X ₁	O ₃		
Experimental group 2 n = 56	<i>Positive Feedback</i>	(R)	O ₁	X ₁	O ₄	X ₂ ⁺	O ₅
Experimental group 3 n = 53	<i>Negative Feedback</i>	(R)	O ₁	X ₁	O ₄	X ₂ ⁻	O ₅

Notes:

R – Random assignment

O₁ – First measurement with buying frequency and attitude towards the product category as control variables; attitude towards the brand, psychological ownership, word-of-mouth-intention (WOM), willingness to defend the product in public; enjoyment of using the product, hypothetical WTP as variables of interest

O₂, O₃ – Second measurement of all variables of interest and demographics

O₄ – Second measurement of hypothetical WTP, demographics

O₅ – Second measurement of all variables of interest, third measurement of hypothetical WTP

X₁ – First treatment: Design of a thermos mug

X₂⁺ – Second treatment: Exposure to feedback, with: + indicating positive feedback and - indicating negative feedback

t – Time

Procedure

Hypotheses H₁ and H₂ were tested drawing on experimental group 1 (EG1; 'Empowerment') and on the control group (CG; 'Market Research'). Specifically, subjects in experimental group 1 n = 59) took part in the design process, while participants in the control group (n = 45) were asked to participate in a 'market research project on coffee thermos mugs' in which they were asked to help derive the potential market volume for pre-designed thermos mugs. The latter participants were told that the company had already selected the final thermos mug design. As a result, our experimental design clearly distinguishes the control group from any empowerment strategy.

The procedure started with an initial questionnaire (O_1) containing the first measurement of all variables of interest as well as the two control variables of buying frequency and attitude towards the product category. Next, we announced the design process in EG1 and the market research project in CG, respectively. We then measured the subjects' perceived impacts on corporate decisions, which served as a manipulation check. For an effective manipulation, participants in CG should report a lower level of perceived impact. Afterwards, participants in EG1 designed the thermos mug (X_1), while participants in the control group were asked to rate three pre-designed thermos mugs. Finally, participants in both groups answered the last questionnaire (O_2 in CG and O_3 in EG1), which contained demographics and the second measurement of all variables of interest.

Hypotheses H_3 and H_4 were tested by comparing EG2 ('Positive Feedback') and EG3 'Negative Feedback' to EG1 'Empowerment'. Participants in EG2 and EG3 went through the same initial approach as participants in EG1. Specifically, the process involved obtaining the first measurement of all variables of interest, a co-creation treatment, and then measuring willingness to pay for the second time and demographics. Participants in EG2 and EG3 then received a second treatment containing positive feedback (X_2^+) and negative feedback (X_2^-), respectively. The two sessions ran simultaneously and participants were aware of an experiment in a nearby room to believably communicate this feedback loop. We claimed that the feedback was an online evaluation of the designs that were created by the participants in the nearby room. It means that participants in one room ostensibly rated the designs of the other room, and vice versa. In fact, we manipulated the feedback and randomly assigned the feedback to the participants. Finally, we measured all variables of interest for the second time (O_5) and the willingness to pay for the third time.

Calculating the change from the first to the second measurement of all variables of interest in the positive feedback group (EG2) and the negative feedback groups (EG3), and

then comparing it to the changes in the empowerment group EG1 allowed us to isolate the influence of positive (negative) feedback on the co-creation effect. Peer feedback's effect on willingness to pay is examined by a within-comparison of the second and third measurement in each of the feedback groups. If feedback has an influence on the co-creation effect, an increase (decrease) should occur.

Measures

The operationalization of the constructs draws on measures commonly used in prior research. Since all measures denote manifestations of the underlying construct, this study uses reflective items (as opposed to formative ones; Diamantopoulos, Riefler, & Roth, 2008). Most construct measures draw on multi-item scales. In light of the experiment's complexity, two constructs were measured with single items despite known disadvantages with regard to their predictive validity (Diamantopoulos, Sarstedt, Fuchs, Wilczynski, & Kaiser, 2012; Sarstedt, Diamantopoulos, Salzberger, & Baumgartner, 2016; Sarstedt, Diamantopoulos, & Salzberger, 2016). Table A1 in Appendix A provides an overview of all construct measures.

Results

Control variables

We employed a chi-square test and analysis of variances (ANOVAs), including post hoc tests, to check whether groups differ concerning their structural composition (Hutchinson, Kamakura, & Lynch Jr, 2000; Lynch Jr, 1982; Sarstedt & Mooi, 2014). First, we found that the four groups do not differ significantly concerning gender and income. Next, and more importantly, there was no evidence of differences in buying frequencies and, thus, usage

habits affecting our results. The same holds true for participants' attitudes towards the product category. To summarize, we found no structural differences between the groups.

Manipulation check

The analysis shows that the treatment was successful, since taking part in an empowerment to create process significantly increased the consumers' perceived impacts on corporate decisions. Participants in CG ($M = 2.78$, $SD = 1.11$) report significantly lower levels of perceived impact on corporate decisions ($p < .001$, $F = 6.844$, $df = 3$, post hoc test) than participants in EG1 ($M = 3.64$, $SD = 1.22$), EG2 ($M = 3.70$, $SD = 1.38$), and EG3 ($M = 3.67$, $SD = 1.56$).

Main findings

Our analysis of the change in participants' evaluations of the brand and product-related constructs supports the first set of hypotheses (Table 1.2). Empowered customers display a significantly more favorable brand attitude than non-empowered customers (H_{1a}). Empowerment to create also significantly enhances the participants' willingness to spread positive word-of-mouth (H_{1b}), their enjoyment when using the product (H_{1c}), their willingness to defend the product in public (H_{1d}), and finally, their willingness to pay (H_{1e}). Analyzing the emergence of psychological ownership during the co-creation process shows that empowered participants exhibit significantly higher psychological ownership levels compared to those in the control group (H_2).

Table 1.2: The co-creation effect and increased psychological ownership

Change of dependent variable	Group	M	SD	<i>t</i> -Value
H _{1a} : Attitude towards the brand	EG1	.14	.46	-1.659*
	CG	-.00	.36	
H _{1b} : WOM	EG1	.95	1.63	3.71***
	CG	-1.22	1.20	
H _{1c} : Enjoyment of using the product	EG1	1.53	1.98	-2.42**
	CG	.67	1.64	
H _{1d} : Willingness to defend the product in public	EG1	1.36	1.77	-3.34**
	CG	.29	1.49	
H _{1e} : Willingness to pay	EG1	3.68	5.01	-4.28***
	CG	-.06	3.45	
H ₂ : Psychological Ownership	EG1	1.51	1.83	-5.09***
	CG	-.04	1.27	

* $p < .10$; ** $p < .05$; *** $p < .01$

The final set of analyses examines whether adding a positive (negative) feedback enhances (diminishes) the co-creation effect. Results in Table 1.3 show that receiving positive feedback when taking part in a co-creation process increases the willingness to pay as well as the willingness to defend the product in public significantly (H_{3a}). In contrast, negative feedback significantly lowers participants' attitudes towards the brand and their willingness to spread positive word-of-mouth (H_{3b}). However, most importantly, negative feedback significantly reduces participants' willingness to pay. Thus, we find partial support for hypothesis H₃. However, in contrast to our hypothesized effect of feedback on psychological ownership, we find no support for hypothesis H₄ – peer feedback does not significantly affect psychological ownership.

Table 1.3: The influence of positive and negative feedback

Change of dependent variable	Positive Feedback				Negative Feedback			
	Group	M	SD	<i>t</i> -Value	Group	M	SD	<i>t</i> -Value
Attitude towards the brand	EG1	.14	0.46	-.857	EG1	.14	.46	-3.96***
	EG2	.04	.75		EG3	-.20	.45	
WOM	EG1	.95	1.63	-1.32	EG1	.95	1.63	2.16**
	EG2	1.34	1.54		EG3	.33	1.38	
Enjoyment of using the product	EG1	1.53	1.98	-1.12	EG1	1.53	1.98	-.84
	EG2	1.89	1.51		EG3	1.83	1.83	
Willingness to defend the product in public	EG1	1.36	1.77	-1.75*	EG1	1.36	1.77	.39
	EG2	1.96	1.94		EG3	1.23	1.71	
Psychological Ownership	EG1	1.51	1.83	-1.51	EG1	1.51	1.83	.53
	EG2	1.98	1.45		EG3	1.33	1.84	
Dependent variable	Group	M	SD	<i>t</i> -Value	Group	M	SD	<i>t</i> -Value
Willingness to pay	EG2	1.37	5.43	1.88*	EG3	-.89	3.59	-1.80*

* $p < .10$; ** $p < .05$; *** $p < .01$

Discussion

Summary of results and future research

Customer co-creation and customer empowerment strategies are emerging topics in both marketing practice and research. The shift from traditional value creation to joint value creation of companies and customers encourages consumers to participate in corporate decisions on the product portfolio. However, relatively little is known about the psychological responses of customers actively engaging in customer co-creation processes. Prior research has shown that co-creation settings facilitate positive customer outcomes (Fuchs et al., 2010), which is attributed to an increase in psychological ownership, that is, perceived feelings of possession concerning an (in)tangible object (Pierce et al., 2003).

Our study is the first to consider peer feedback's role in these co-creation settings, thereby addressing the trend of companies allowing open communication among peer customers (Fuchs & Schreier, 2011; Sawhney et al., 2005). In addition, we replicate and extend prior findings by employing an empowerment to create strategy and using an established brand in our experimental setting. We find that customers who are empowered to create report a more favorable attitude towards the brand, enjoy using the co-created product more, and are more willing to spread positive word-of-mouth as well as to pay more. As expected, customer co-creation adds value to the product, as expressed in significantly higher psychological ownership levels. We conclude that managers can rely on both strategies to empower customers in order to respond to the shift in value creation.

Regarding the effects of feedback, this study provides first evidence that managers should be concerned with the possibility of their customers exchanging opinions. We found that receiving positive feedback further increases participants' willingness to pay. However, we could not find support for an increase in brand attitude or willingness to spread positive word-of-mouth. More severely, in case of negative feedback, empowering customers seems to

backfire on the company, since the brand attitude diminishes and willingness to pay declines significantly. We connect feedback's effect to social influence (Raghunathan & Corfman, 2006) and conclude that social influence may have altered the evaluation of the designed product's quality. Our results also suggest that social influence does not affect psychological ownership, as it remains stable in light of positive and negative feedback.)

Future Research

Our results show that the co-creation experience 'turns on' psychological ownership. But, is it possible to turn it off? And if yes, how? Thus, the question is: Why is psychological ownership independent from external influences such as feedback? Future research should shed further light on this issue. In line with Fuchs et al. (2010), future research should also analyze the long-term effects of customer empowerment. Never seeing a favorite or a self-created design being part of the finally selected products may also be a form of negative feedback. Similarly, it would be interesting to examine whether receiving no feedback to a design when other customers have received feedback would also be considered to be negative. Our results indicate the necessity to further examine the consequences of feedback, especially negative feedback, in order to fully capture the potential of customer empowerment and to obtain further managerial implications. Finally, future research should examine the influence of further moderators on customer empowerment activities and feedback. For example, considering age-related phenomena, such as subjects' future time perspectives (Carstensen, 2006), that recent marketing research has investigated (Kuppelwieser & Sarstedt, 2014a, b), would be particularly promising in this context.

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Appendix A

Table A1: Overview of measures

Construct	Items	Cronbach's α	
		1st measurement	2nd measurement
Buying frequency	'How often do you buy products of [brand name]?' 1= never 2= seldom (once a month) 3= occasionally (several times a month) 4= regularly (once a week) 5= frequently (several times a week)	-	
Attitude towards the brand and product category	'My overall impression of the [brand name] is ...' and 'I think thermos mugs in general are ...' bad/ good From: unfavorable/ favorable Martin & Stewart (2001); Goldsmith, Lafferty, & Newell (2009)	.893	.887
Psychological Ownership	'Although I do not legally own this thermos mug yet, I have the feeling that it is "my" thermos mug.' From: 'The thermos mug incorporates a part of myself.' Fuchs et al. (2010) Adapted from Van Dyne & Pierce (2004) 'I feel that this mug belongs to me.' 'I feel connected to this thermos mug.' 'I feel a strong sense of closeness with this thermos mug.' 'It is difficult for me to think of this mug as mine.' (rev.)	.887	.869
Word-of-mouth-intention (WOM)*	'I would recommend the thermos mug to my friends.' 'I would 'talk this mug up' to others.' From: ('I would try to spread the word about the thermos mug.') Fuchs et al. (2010) Adapted from Carroll & Ahuvia (2006)	.814	.892
Willingness to defend the product in public	'If someone said something bad about the mug, I would be more likely to defend it verbally than other products.'	Single item	
From:	Fuchs et al. (2010)		

<p>Enjoyment of using the product</p> <p>From: Fuchs et al. (2010) (Hypothetical)</p> <p>Willingness to Pay</p> <p>Consumers' perceived impact on corporate decisions</p> <p>From: Fuchs et al. (2010) Adapted from Spreitzer (1995)</p>	<p>'Compared to similar mugs from other firms, it would be more fun to use the thermos mug of the [brand name].'</p> <p>'If the [brand name] decided to launch this thermos mug, would what would you be willing to pay for such a mug?'</p> <p>'I see that I have some control in determining which thermos mug will be produced by the [brand name].'</p> <p>'I have some influence in determining which products will be sold by the [brand name].'</p>	<p>Single item</p> <p>-</p> <p>.656</p> <p>-</p>
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ESSAY 2: THE IKEA EFFECT. A CONCEPTUAL REPLICATION

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Co-Authors:

Marko Sarstedt
Professor of Marketing
Otto-von-Guericke-University Magdeburg
Faculty of Economics and Management
Chair of Marketing
Universitätsplatz 2
39106 Magdeburg, Germany
marko.sarstedt@ovgu.de

Kati Barth
Research Assistant
Otto-von-Guericke-University Magdeburg
Faculty of Economics and Management
Chair of Marketing
Universitätsplatz 2
39106 Magdeburg, Germany
kati.barth@ovgu.de

REPLICATION NOTE: THE IKEA EFFECT. A CONCEPTUAL REPLICATION

Abstract

We replicate and extend Norton et al.'s (2012) and Mochon et al.'s (2012) studies on the IKEA effect, according to which consumers show a higher willingness-to-pay when they assemble products themselves. Our results support the robustness of the original effect and indicate that psychological ownership acts as a psychological mechanism that underlies the IKEA effect.

Introduction

Norton, Mochon, and Ariely (2012) framed the IKEA effect, according to which consumers show a higher willingness-to-pay when assembling products themselves. Consumers who assembled and then disassembled their creations, or were not permitted to finish those creations, did not show an increase in willingness-to-pay. In a follow-up study, Mochon, Norton, and Ariely (2012, p. 363) further explore the processes that underlie the IKEA effect and conclude that “by building things themselves, people both control and shape their environments, thereby demonstrating their competence to themselves and to others.” That is, by exercising control over an object and thus satisfying their need for effectance, individuals develop a feeling of responsibility for the object. However, since individuals also invest time and effort in the object, we argue that this feeling of responsibility translates into psychological ownership—a personal sense of possession that individuals feel for a material or immaterial target, which prevails even if they do not legally own the product (Walasek, Rakow, and Matthews, 2016)—and that this psychological ownership mediates the relationship between product creation and willingness-to-pay.

In this replication study, we examine the robustness of the IKEA effect and offer evidence for the *mediating* role of psychological ownership. As such, our study extends Walasek et al.’s (2016) recent research, which shows that product assembly has a positive effect on psychological ownership. Furthermore, extending Norton et al.’s (2012) and Mochon et al.’s (2012) studies, we examine the IKEA effect in a customer co-creation setting, in which companies empower their customers to design and create new products. Our results show that the IKEA effect also prevails when companies integrate their customers into the value creation process by giving them control and decision power over the product portfolio. We also find that psychological ownership and the IKEA effect dissipate when individuals disassemble their creations. Table B1 in the Appendix B compares the differences and similarities among Norton et al.’s (2012), Mochon et al.’s (2012), and our studies.

Procedure

A total of 103 undergraduate students from a major German university participated in our experiment, for which they each received EUR 5.00. The participants were randomly assigned to one of the experimental groups and asked to participate in a market research project of a jewelry start-up company that was planning to launch loom band bracelets.

Similarly to Norton et al. (2012) and Mochon et al. (2012), the participants in experimental group 1 (EG1) did not receive a treatment but were asked to choose one of three predesigned loom bands and to write an essay about their thoughts and feelings when inspecting the loom band. By contrast, participants in EG2 were invited to assemble a loom band with the help of a toolkit (Figure B1 in the Appendix B) and the included assembly instructions (Mochon et al., 2012; Norton et al., 2012). Hence, we replicate the IKEA effect by using a product that offers limited customization options due to the assembly instructions' restrictions. The results from a pretest with 15 participants supported the adequacy of the toolkit and the assembly instructions, showing that assembling a loom band takes a beginner about 20 minutes. To test for structural differences between the experimental groups, we first measured the participants' attitude toward the product category, brand liking, perceived competence to complete the assembly task (in EG1: writing the essay), and the extent to which they would consider themselves "do-it-yourself" people. After either writing the essay or building a loom band, we measured the participants' psychological ownership, pride, demographics, and willingness-to-pay for the loom band by means of the Becker–DeGroot–Marschak (BDM) mechanism. Table B2 (Appendix B) provides an overview of all the construct measures and internal consistency reliabilities.

The participants in EG3 were also asked to assemble a loom band but were told that the start-up company would consider the best designs for batch production, thereby triggering the participants' perception of the impact on corporate decisions (i.e., customer

empowerment). The EG4 and EG5 participants designed a loom band as well, but in EG4, a research assistant interrupted the design process after participants had completed half of the assembly task (incompletion). In EG5, the participants had to disassemble their designs upon completion (destruction). Again, we measured the participants' psychological ownership, pride, demographics, and willingness-to-pay by using the BDM mechanism (Table B2 in the Appendix B). Furthermore, we measured their perception of the impact on corporate decisions, which served as a manipulation check for our empowerment conditions. To ensure that the participants would feel that they had an impact on corporate decisions even if the BDM mechanism rendered their bid payoff relevant, we took photos of the built loom bands and indicated that we would communicate the designs to the start-up company. Table B3 in the Appendix B provides an overview of the study's experimental design.

Summary of Results

First, we tested for structural differences between the experimental groups. Our pre-analyses did not reveal any significant differences between the experimental groups in terms of age, gender, and income ($p > .05$; Table B4 in the Appendix). Similarly, our analyses did not yield any significant differences with regard to their attitude toward the product category (i.e., loom bands), brand liking, perceived competence to complete the assembly task or write an essay, and the extent to which they would consider themselves "do-it-yourself" people ($p > .05$; Table A4 in the Appendix).

Our replication of the original IKEA effect shows that the EG2 participants offered significantly more money for the loom bands than the EG1 participants (mean difference (MD) = 1.36, $p < .01$; see Table B5 for group-specific means and standard deviations and Table B7 covariances). Furthermore, the EG2 participants reported a significantly higher level of psychological ownership than the EG1 participants (MD = 2.19, $p < .01$; see Table B6 for

group-specific means and standard deviations and Table B7 for covariances). The mediation analysis's results (Figure B2 in the Appendix B) indicate that creating an object has a significant indirect effect on participants' willingness-to-pay via psychological ownership ($b = .7628$, 95% BCa CI [.17, 1.46]; $\kappa^2 = .3627$, 95% BCa CI [.0798, .6491]), while the direct effect remains significant. This result suggests a complementary (partial) mediation, which indicates that another mediator, whose indirect path has the same direction as the direct effect, may have been omitted. In contrast to Mochon et al. (2012), we do not find support for pride's mediating role ($b = .0006$, 95% BCa CI [-.095, .120]; $\kappa^2 = .0005$, 95% BCa CI [.000; .0010]; Figure B3 in the Appendix B). Since the direct effect is significant, this result indicates a direct-only (no) mediation.

Our next analyses address the IKEA effect in the context of customer empowerment by using the participants' perceived impact on corporate decisions as a manipulation check. As expected, the EG1 and the EG2 participants report a significantly lower perceived impact than the empowered EG3, EG4, and EG5 participants ($F = 12.734$, $df = 4$, all p -values $< .01$, Hochberg's GT2). We also find support for the IKEA effect in an empowerment context, since the EG3 participants report a significantly higher willingness-to-pay ($MD = 1.77$, $p < .01$) and psychological ownership ($MD = 2.46$, $p < .01$) than the EG1 participants do (Tables B4 and B5 in the Appendix B). In contrast to our expectations, we do not find evidence that empowerment boosts the IKEA effect further, as the empowered EG3 participants report a slightly higher (but not significant) increase in willingness-to-pay ($MD = .41$, $p > .10$) and psychological ownership ($MD = .27$, $p > .10$) than the EG2 participants do.

Our final assessment explores the impact of incompleteness and destruction on participants' willingness-to-pay and psychological ownership. The comparison between EG3 and EG4 shows that failing to complete the creation process leads to a reduced willingness-to-pay and psychological ownership, but that this effect is not significant. By contrast,

comparing EG3 with EG5, the destruction of the created products lowers participants' willingness-to-pay ($MD = -1.40, p < .05$) and psychological ownership ($MD = -1.33, p < .10$) significantly.

Discussion and Limitations

This study replicates and extends Norton et al.'s (2012) and Mochon et al.'s (2012) studies on the IKEA effect. While our results provide evidence for the effect's robustness, they do not support the mediating role of pride. Instead, we find that psychological ownership acts as an underlying mechanism that increases consumers' valuation when they assemble their products themselves. A potential reason for this divergent finding could be the difference in measurement operationalizations of pride. Whereas Mochon et al. (2012) used competence as a proxy for pride, this study draws on Tracy and Robbins's (2007) authentic pride scale. We chose this operationalization because the underlying conceptualization attributes pride to the positive outcomes of specific behaviors. Hence, individuals can affect the cause of pride, which aligns with the concept of psychological ownership (e.g., Kirk, Swain, and Gaskin, 2015). Because of the authentic pride scale's generic nature, however, we cannot rule out that our measure also captured pride in the task, confounding the mediating effect between product creation and willingness-to-pay. Furthermore, our results show that the effect also occurs in a customer empowerment context and that its stability depends on individuals' retention of the created products. The IKEA effect dissipates when individuals disassemble their creations. However, interrupting the creation process does not significantly reduce the IKEA effect in a customer empowerment context.

Future research should explore the role of psychological ownership further by investigating the boundary conditions for its emergence and disappearance in the context of the IKEA effect and co-creation activities in general. For example, future studies should

examine the role of time in the emergence of psychological ownership and pride in the product. Evaluating the impact of peer groups would also be promising in this respect, as feedback likely accelerates or attenuates the emergence of psychological ownership (Fuchs et al. 2010). Finally, recent research shows that affective commitment and identification mediate the relationship between product assembly and product evaluation (Atakan, Bagozzi, and Yoon 2014). Since psychological ownership constitutes an antecedent of commitment and identification, shedding further light on its role in this multiple mediation model would be particularly promising.

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APPENDIX B

Table B1: Differences and similarities between Norton et al. (2012), Mochon et al. (2012) and this study

		Norton et al. (2012) Mochon et al. (2012)	This study
Experimental context		Co-creation	Customer empowerment as a type of co-creation
Willingness-to-pay	Measurement	Elicitation via incentive compatible BDM mechanism with real transactions	
	Result	Increasing willingness-to-pay for products after investing effort in their creation	
Role of incompleteness and destruction		IKEA effect disappears (i.e., the willingness-to-pay decreases)	
Perceived competence (only Mochon et al. 2012)			Lower levels of psychological ownership
	Operationalization	Operationalized via feelings of pride: Average of extent to which individuals feel proud and willing to show off their product	Three items adapted from Fuchs et al. (2010)
	Result	Competence (pride) mediates the IKEA effect	No impact on IKEA effect since no difference between groups
Pride (only Mochon et al. 2012)	Operationalization	Used as proxy for perceived competence	Seven items taken from Tracy and Robbins's (2007) authentic pride scale
	Result	Competence (pride) mediates the IKEA effect	Pride does not mediate the IKEA effect
Do-it-yourself-person	Operationalization	Extent to which individuals consider themselves to be "do-it-yourself" people	
	Result	No impact on the IKEA effect	
Psychological ownership	Operationalization	Six items taken from Fuchs et al. (2010)	
	Result	-	Mediating role for the IKEA effect [†]

[†] This result also extends Walasek et al. (2016) who found a positive relationship between product assembly and psychological ownership.

Table B2: Overview of construct measures

Construct	Items	Cronbach's α
Attitude toward the product category (Martin and Stewart, 2001)	"I think loom bands in general are ..." ...bad / good ...unfavorable / favorable ...negative / positive	.890
Brand liking (Fuchs et al., 2010)	"I like [brand name]."	Single item
Perceived competence to complete the assembly task (in EG1: write an essay about loom bands) (Fuchs et al., 2010)	"I feel competent to design (in EG1: write about) a loom band." "I think I have enough experience and knowledge to design (in EG1: write about) a loom band." "I think I will have difficulties with designing the loom band (in EG1: write about loom bands)" (reverse)	.827
Perceived impact on corporate decisions (Fuchs et al., 2010)	"I see that I have some control in determining which loom band will be produced by the [brand name]." "I have some influence in determining which products will be sold by the [brand name]."	.816
Psychological ownership (Fuchs et al., 2010)	"Although I do not legally own this loom band yet, I have the feeling that it is 'my' loom band." "The loom band incorporates a part of me." "I feel that this loom band belongs to me." "I feel connected to this loom band." "I feel a strong sense of closeness to this loom band." "It is difficult for me to think of this loom band as mine." (rev.)	.919
Pride (Tracy and Robins, 2007)	"Below are a number of words and phrases that describe different feelings and emotions. Read each item and then indicate the extent to which you feel this way using the scale shown below." - accomplished - like I am achieving - confident - fulfilled - productive - like I have self-worth - successful	.911
Do-it-yourself person (Norton et al., 2012)	Please rate the extent to which you consider yourself to be a "do-it-yourself" person.	Single item

Table B3: Experimental design

			t ₀	t ₁	t ₂	Group comparison I	Group comparison II	Group comparison III
Experimental group 1 (EG1) n = 19	<i>Market research</i>	(R)	O ₁		O ₂	Replication of the IKEA effect		
Experimental group 2 (EG2) n = 19	<i>Build, no empowerment</i>	(R)	O ₃	X ₁	O ₄		IKEA effect in the context of customer empowerment	
Experimental group 3 (EG3) n = 19	<i>Build, empowerment</i>	(R)	O ₅	X ₂	O ₆			
Experimental group 4 (EG4) n = 20	<i>Build, empowerment, incompleteness</i>	(R)	O ₇	X ₃	O ₈			Examining the role of incompleteness and destruction
Experimental group 5 (EG5) n = 26	<i>Build, empowerment, destruction</i>	(R)	O ₉	X ₄	O ₁₀			

Notes:

R Random assignment

O_t Measurement in t (t=1,...,10)

X₁ Treatment: Build a loom band

X₂ Treatment: Build a loom band in the context of customer empowerment

X₃ Treatment: Build a loom band in the context of customer empowerment and failing to complete

X₄ Treatment: Build a loom band in the context of customer empowerment and destruction of the loom band

t Time

Table B4: Results of pre-analyses

Construct	Method	Result
Gender	Pearson's χ^2 -test	$\chi^2 = 8.747$, $df = 4$, $p = .068$
Age	Welch test	$F = 1.389$, $df1 = 4$, $df2 = 47.331$, $p = .252$
Income	Pearson's χ^2 test	$F = 5.239$, $df1 = 4$, $p = .264$
Attitude toward the product category	Welch test	$F = 1.382$, $df1 = 4$, $df2 = 47.564$, $p = .255$
Brand liking	ANOVA	$F = .921$, $df1 = 4$, $df2 = 98$, $p = .455$
Perceived competence	ANOVA	$F = 1.369$, $df1 = 4$, $df2 = 3.232$, $p = .250$
Do-it-yourself-type	ANOVA	$F = .576$, $df1 = 4$, $df2 = 98$, $p = .681$

Table B5: Mean differences in willingness-to-pay

	EG1	EG2	EG3	EG4	EG5
Mean	.29	1.65	2.06	1.53	.66
SD	.38	1.11	1.95	1.43	.54
EG1 n = 19	-				
EG2 n = 19	1.36 ^{***}	-			
EG3 n = 19	1.77 ^{***}	.41	-		
EG4 n = 20	1.23 ^{***}	-.12	-.53	-	
EG5 n = 26	.36 [*]	-.99 ^{**}	-1.40 ^{**}	-.87	-

Notes:

SD = Standard deviation;

* $p < .10$; ** $p < .05$; *** $p < .01$

Table B6: Mean differences in psychological ownership

	EG1	EG2	EG3	EG4	EG5
Mean	1.58	3.77	4.04	2.93	2.71
SD	.76	1.71	1.74	1.04	1.21
EG1 n = 19	-				
EG2 n = 19	2.19***	-			
EG3 n = 19	2.46***	.27	-		
EG4 n = 20	1.35***	-.84	-1.11		
EG5 n = 26	1.13***	-1.06	-1.33*	-.22	-

Notes:

SD = Standard deviation;

* $p < .10$; ** $p < .05$; *** $p < .01$

Table B7: Covariance matrix

		Psychological ownership	Willingness-to-pay	Pride
Overall n=103	Psychological ownership	2.423		
	Willingness-to-pay	.623	1.786	
	Pride	.514	.263	1.922
EG1 n=19	Psychological ownership	.581		
	Willingness-to-pay	.107	.145	
	Pride	.135	.024	1.150
EG2 n=19	Psychological ownership	2.914		
	Willingness-to-pay	1.109	1.232	
	Pride	1.028	-.001	2.544
EG3 n=19	Psychological ownership	3.015		
	Willingness-to-pay	-1.098	3.785	
	Pride	-.421	.531	1.966
EG4 n=20	Psychological ownership	1.086		
	Willingness-to-pay	.438	2.039	
	Pride	.097	.556	1.011
EG5 n=26	Psychological ownership	1.468		
	Willingness-to-pay	.054	.290	
	Pride	1.041	.185	2.183

Figure B1: Toolkit



Figure B2: Mediation Analysis of Psychological ownership (EG1 vs. EG2)

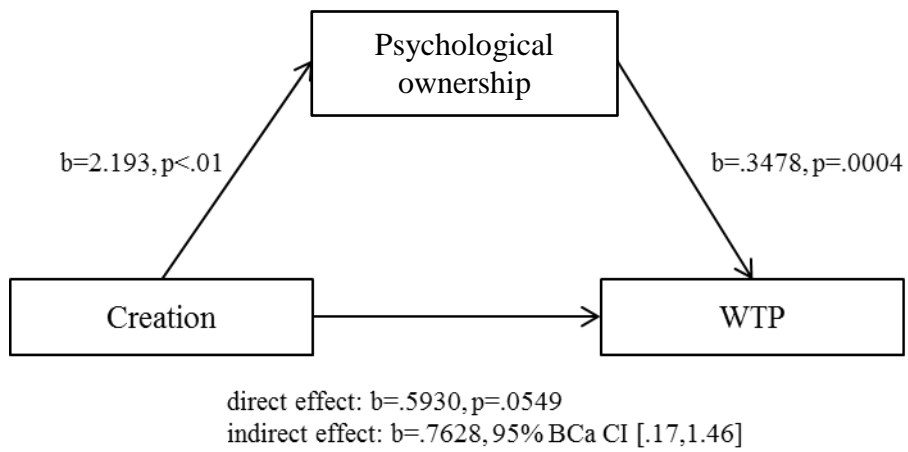
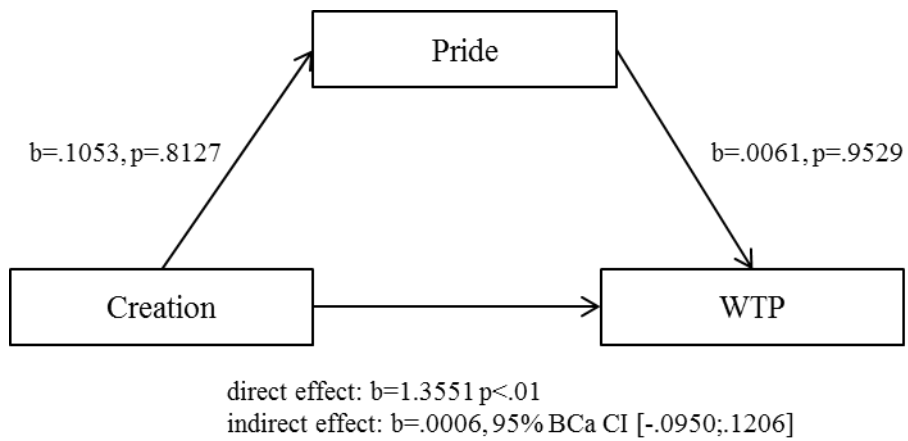


Figure B3: Mediation analysis of pride (EG1 vs. EG2)



**ESSAY 3: THE INFLUENCE OF FUTURE TIME PERSPECTIVE ON IMPULSIVITY
AND THE MAGNITUDE EFFECT**

Single Authorship

THE INFLUENCE OF FUTURE TIME PERSPECTIVE ON IMPULSIVITY AND THE MAGNITUDE EFFECT

Abstract

An individual's impulsivity shapes decisions in everyday life. Impulsive decisions incorporate a time component and a preference for sooner over later rewards, that is, steeper delay discounting. This paper addresses how the perception of time left in life, namely future time perspective, affects impulsivity measured by means of a delay discounting task. Socioemotional selectivity theory hereby serves as the conceptual framework proposing a higher emphasis on affect under short time horizons. This paper argues that for adult participants, a short future time perspective leads to higher levels of impulsivity induced by an emphasis on affective decisions. Furthermore, this paper extends existing literature by shedding light on the relevance of reward sizes under short time horizons in a way that a short future time perspective leads to a focus on the present and not on the amount of the potential gain in the future and hence, leads to a lowered magnitude effect. Two studies were conducted to examine these hypotheses.

Keywords: Future time perspective, impulsivity, choice behavior, magnitude effect

Introduction

In the famous “marshmallow experiments” of Mischel, Shoda, and Rodriguez (1989) children face a decision situation in which they either choose a marshmallow immediately or wait until they receive two. According to GoogleScholar the studies of Mischel et al. (1989) were cited over 3,400 times and gained tremendous interest in various fields as they nicely depict a challenging situation humans face every day across a variety of contexts: to decide between acting or waiting. The inability to wait is typically referred to as “impulsivity”, “delay of gratification”, “delay discounting”, or a lack of “self-control” (Ainslie, 1975; Frederick, Loewenstein, & O'Donoghue, 2002; Loewenstein & Prelec, 1992; Mischel et al., 1989; Rachlin & Green, 1972) and is expressed in a general tendency to prefer immediate outcomes over delayed ones. Most studies measure this tendency with the help of delay discounting tasks that vary the amount of immediate outcomes (rewards), delayed outcomes (rewards), and the delay itself. Hereby a discount parameter that serves as an estimate for impulsivity can be derived.

Individuals typically prefer sooner over later rewards (Ainslie & Herrnstein, 1981; Frederick et al., 2002; Green et al., 1997) and only wait when it pays off in, for example, a better condition or a higher reward such as a second marshmallow. Additionally, although impulsivity is relatively stable in the short run (Kohlbacher & Chéron, 2012; Odum, 2011b), children, adults, and late adults display varying levels of impulsivity indicating impulsivity's susceptibility for changes. However, it is not clear cut if age is a good predictor for these variations. The vast majority of studies finds highest levels of impulsivity during childhood, afterwards observe a decline from young adulthood to adulthood and at late stages of adulthood an increase of impulsivity can be observed (Green et al., 1994; Green, Myerson, Lichtman, Rosen, & Fry, 1996; Green, Myerson, & Ostaszewski, 1999; Harrison, Lau, & Williams, 2002). However, at later stages in live impulsivity and income interact (Green et al.,

1996; Green et al., 1999) leading to confounding results. Moreover, researchers call for a more nuanced investigation of predictors for behavioral changes over a lifetime besides age (Kohlbacher & Chéron, 2012; Kuppelwieser & Sarstedt, 2014; Sudbury & Simcock, 2009; Teuscher & Mitchell, 2011). Impulsivity or delay discounting is conceptually related to time and the perception of time as it displays a tendency of reacting towards stimuli that incorporate a “now” and a “later”. Hence, including a measure of how time is perceived, that is, the perception of time horizons into the context of impulsivity is plausible. Surprisingly, only a few studies address this research gap (Daugherty & Brase, 2010; Joireman, Shaffer, Balliet, & Strathman, 2012; Steinberg et al., 2009) and none of these studies explicitly examine the influence of time perspective on impulsivity. This paper addresses this issue by implementing future time perspective into the context of impulsivity.

Over a lifetime and during aging processes humans undergo individual changes as well as shifts in their goal selection processes (Carstensen et al., 1999; Fung et al., 1999; Lang & Carstensen, 2002). Future time perspective, i.e., the amount of time individuals assume to be left in their lives, refers to this by providing an explanation for the changes in goal selection processes in a way that a limited future time perspective induces preferences for affective content or emotional meaning (Fung & Carstensen, 2003, 2006; Fung et al., 1999). This shift towards affect and emotion is likely to trigger changes in impulsivity in a way that the present becomes more relevant and hence induces higher levels of impulsivity. Moreover, impulsivity varies with the amount that is evaluated in a delay discounting task. Research refers to this as magnitude effect postulating lower levels of impulsivity when the future reward is perceived as high, that is, individuals react less impulsively when they perceive waiting as valuable (Green et al., 1997; Kirby & Maraković, 1996; Raineri & Rachlin, 1993). Surprisingly, research has not yet considered if the magnitude effect is stable for different

time horizons. This is striking as it is plausible that the perception of time is crucial for the evaluation of an outcome.

By means of two studies, this paper makes at least three important contributions. First, it extends the existing literature on influencing context factors of impulsivity to future time perspective. Second, by eliminating age as a confounding factor in delay discounting tasks, it allows to directly observe the influence of future time perspective as a driver of shifts in impulsivity, and third, it focuses on the stability of the magnitude effect in dependence of an individual's future time perspective.

Study one addresses age differences in temporal discounting for young and elderly participants and finds higher levels of impulsivity associated with elderly participants and a correlation of this result with future time perspective. Study two exclusively focusses on young participants (students) to rule out age and income effects in the context of variations in impulsivity. The induction of a shortened and an extended future time perspective serves as the manipulating factor and allows to simultaneously control for changes in the valuation of outcomes in a way that a shortened time horizon reduces the magnitude effect.

Literature Review and Hypothesis Development

Impulsivity and delay discounting

Impulsivity is a personality trait as well as a predictor for action whereas simultaneously can be maladaptive and is hence of interest for a broad range of research areas such as psychology, psychiatry, and behavioral research. This broad range of different research streams expresses the important yet, challenging definition of impulsivity. All research streams share the basic idea that impulsivity is a (human) tendency to react towards a stimulus in a way that appears to be spontaneous or unplanned. Furthermore, impulsivity seems to be multidimensional and affects behavior in a manner that impulsive humans act without thinking (de Wit, Flory, Acheson, McCloskey, & Manuck, 2007; Flory et al., 2006), display a lack of self control, and are willing to take higher risks (de Wit et al., 2007; Ostaszewski, 1996).

Impulsivity manifests itself in delay discounting, sometimes also referred to as intertemporal choice or intertemporal discounting. In its simplest form, individuals are asked to choose between a sooner (and smaller) reward and a delayed (higher) reward. The tendency with which humans prefer either the one or the other provides information about their impulsivity that is, the inability to wait or the lack of control to wait is an expression of impulsive behavior (Ainslie, 1975).

An individual's level of impulsivity affects several areas of its personality and behavior. From a personality perspective, extraversion and higher levels of impulsivity (expressed in higher discount rates) are interrelated and can be further boosted by positive mood (Hirsh, Guindon, Morisano, & Peterson, 2010). From a behavioral perspective, impulsivity and addictive behavior are closely connected. Heroin abusing humans display higher discount rates than non-users (Kirby et al., 1999). Similar result can be observed for alcohol abuse (Vuchinich & Simpson, 1998), smoking (Bickel, Odum, & Madden, 1999), and

gambling (Petry & Casarella, 1999). One attempt to explain these findings is that addictive individuals seem to lack the ability to include the importance and interdependence of time into their decision-making processes (Daugherty & Brase, 2010). Moreover, it is plausible that the individual perception of time influences decision making processes that include a time component. Consequently, a more nuanced investigation of the interplay of time perception and delay discounting is necessary. Surprisingly research on this topic is scarce (Daugherty & Brase, 2010). For example, Steinberg et al. (2009) find first evidence that a preference for a delayed reward over an immediate one is linked to the perception of time rather than the ability of planning ahead. Teuscher and Mitchell (2011) call for a more nuanced investigation of this topic especially since the existing literature (Daugherty & Brase, 2010; Joireman et al., 2012; Steinberg et al., 2009) focuses on different, yet overlapping concepts of time perception such as Zimbardo's time perspective inventory (Zimbardo & Boyd, 1999) or the consideration of future consequences scale (CFC) of Strathman, Gleicher, Boninger, and Edwards (1994). This opens a new research area that links impulsivity to a concept that accounts for underlying mechanisms of changes in time horizons over a lifetime. An individual's future time perspective is hereby a promising concept as it conceptually frames time perception into goal selection processes and is known to influence changes in behavior over a lifetime (Carstensen et al., 1999; Fung et al., 1999; Lang & Carstensen, 2002).

Future time perspective (FTP)

While aging individuals notice that time left in life is finite. Therefore, humans adjust their preferences for social ties and social partners in later adulthood (Lang & Carstensen, 2002). They do so by focusing on relationships that are able to fulfill emotional meaningful goals (Carstensen et al., 1999). Moreover, social networks decline and family members or close friends become more important (Lang & Carstensen, 2002). This shift is embedded in and

explained by socioemotional selectivity theory (SST). Socioemotional selectivity theory postulates changes in an individual's goals and a focus on social partners depending on the perception of time left in life (Carstensen et al., 1999). Furthermore, socioemotional selectivity theory suggests that future time perspective influences goal selection processes and functions as a predictor for action (Carstensen, 2006). Additionally, future time perspective has an important bearing on age differences in positive behavior and conflict strategies towards social partners. As such, an individual is overall likely to treat an older social partner less confrontational compared to a young counterpart. The perception of the counterpart's future time perspective hereby serves as a mediating factor (Fingerman, Miller, & Charles, 2008). Individuals with an expanded future time perspective focus on knowledge-related goals whereas a shortened future time perspective leads to an orientation towards emotionally meaningful goals (Carstensen, 2006; Carstensen et al., 1999). Although future time perspective usually declines over a lifetime and is negatively correlated with age this correlation is not necessarily causal. The nature of the experiences made in life shapes the extent of the future time perspective. Dramatic events such as terroristic attacks or severe diseases can induce a shortened future time perspective in young adults (Fung & Carstensen, 2006). Hereby, it is not even necessary to personally experience the dramatic event. As Västfjäll, Peters, and Slovic (2008) show the mere imagination of a tsunami can induce a short future time perspective.

Future time perspective is hence, manipulable and can be investigated in controlled settings. Research responded to this by systematically examining the influence of future time perspective on goal selection processes, social preferences, marketing, and consumer behavior (Table 3.1). Findings suggest that a short future time perspective is related to a focus on emotional meaning and social partners that are able to provide this meaning (Fredrickson & Carstensen, 1990; Fung et al., 1999) and that age-related and cultural differences in

preferences for social partners can be manipulated by the induction of a short future time perspective (Hoppmann & Blanchard-Fields, 2010). Similarly, manipulating time horizons alters preferences for goals to solve strategic problems. An expanded future time perspective thereby leads to a preference for autonomy goals independently of an individual's age (Hoppmann & Blanchard-Fields, 2010). These findings are in line with the argumentation of Carstensen et al. (1999) that an expanded future time perspective puts emphasis on knowledge and a short future time perspective on emotion. Market research adapted these findings in the context of advertising. Activating a mindset of short time horizons elicits preferences for advertisements bearing emotional content and abstract affective appeal in contrast to preferences for concrete affective appeal and a focus on information under an extended time horizon (Bülbül & Menon, 2010; Fung & Carstensen, 2003; Micu & Chowdhury, 2010; Williams & Drolet, 2005). In the context of preferences for product attributes, Wei, Donthu, and Bernhardt (2013) showed that hedonic characteristics are favored under a short future time perspective. However, research on the translation of these findings into behavioral intentions and finally behavior is surprisingly scarce. First evidence exists that different states of time horizons influence health-related choices in a way that individuals prefer health care options that provide some emotional or affective value under a short future time perspective (Jiang, Fung, Sims, Tsai, & Zhang, 2016; Löckenhoff & Carstensen, 2007). Health care choices are decisions that incorporate a current decision that influences a future outcome and thus, are closely related to impulsivity and delay discounting.

Based on the above, I argue that higher rates of impulsivity are accompanied by rather affective behavior (Baker et al., 2003; Bickel et al., 1999; Kirby et al., 1999) and that a shortened future time perspective induces a focus on emotional meaning, affective value, and goals that are coherent with these. Hence, I postulate that a short time horizon should trigger higher levels of impulsivity.

H₁: Individuals with a short future time perspective display higher levels of impulsivity compared to individuals with a long future time perspective

One aspect often discussed in the context of impulsivity is the valuation of money (rewards). Strough, Schlosnagle, Karns, Lemaster, and Pichayayothin (2014) were the first to examine the interplay of future time perspective and valuation of money. They find that the sunk cost fallacy is reduced under a short future time perspective that is, individuals focus on (future) rewards rather than sunk costs. Hence, there is first evidence that future time perspective influences the valuation of money. In the context of impulsivity a relevant phenomenon dealing with this issue is referred to as the magnitude effect.

Table 3.1: Overview of studies regarding future time perspective

Impact of future time perspective on	Study	Time horizon manipulation			Sample	FTP scale	Findings
		Shortened	Control	Extended			
<i>Goals selection/ social preferences</i>							
	Fredrickson and Carstensen (1990)	x	x	./.	Total age range: 11-95	./.	Older participants show preference for social partners that bear emotional/ affective meaning, young participants with a short future time perspective display similar preferences
	Fung and Carstensen (2004)	X ^a	X	X	Young (16-30), old (50-97)	4 items	perception of a limited time left leads to a favor for social partners that provide emotional meaning to oneself
	Fung et al. (1999)	X	X	X	Total: 8-93	./.	Older people display a preference for close social partners, the extension of time horizons diminished this preference, conversely young participants with a short future time perspective were more likely to opt for close social partners
	Fung, Lai, and Ng (2001)	X	X	./.	Young (18-30), old (60-90)	./.	age-related and cultural differences in preference for social partners can be manipulated by inducing a short future time perspective
	Hoppmann and Blanchard-Fields (2010)		X	X	Young (M = 20.44), old (M = 69)	10	In general, young adults show preferences for autonomy goals while older participants prefer generative goals; the extension of future time perspective of older adults induced a change towards goal preferences similar to young un-manipulated individuals
	Kellough and Knight (2011)	X		X	Young (18-24), old (64-91)		The manipulation of future time perspective affects the perception of positive mood but not negative mood
<i>Advertising/ marketing</i>							
	Bülbül and Menon (2010)	X	./.	X	Undergraduate	./.	Under a short time horizon behavioral intentions are more strongly related to concrete affective appeal, under a long time horizon

	Fung and Carstensen (2003)		X	X	students Young (15-37) and old (55-89)		behavioral intentions relate to abstract affective appeal older participants and participants with a short future time perspective favor emotional advertisements
	Micu and Chowdhury (2010)	X	X	X	Young (18-28), old (60-88)		A short future time perspective leads to a higher preference for prevention focus advertisements, extended future time perspective leads to a preference for promotion focus advertisements, control group: young participants prefer both, older participants prefer prevention focus advertisements
	Wei et al. (2013)	X		X	20 - 75	10	Older people: limited time view manipulation associated with hedonic product attributes will increase the desire for the product
	Williams and Drolet (2005)	X	X	X	Young (17-24), old (63-98)		Expansive condition: both age groups preferred promotion focus appeal
<i>Behavior related</i>							
	Jiang et al. (2016)	X		X	18-80 years	10	Limited situation: Higher value in calm than in expanded situation, short future time perspective leads to preference for health care options that provide low arousal affective treatment
	Löckenhoff and Carstensen (2007)	X ^b	X	X	Young (22-39), old (62-93)	10	Older participants in comparison to young participants are more easily able to recognize health care related information when they are in an emotion related context; this effect can be eliminated when statistically controlling for future time perspective
	Strough et al. (2014)	X	X	X	18-80 years	10	A short future time perspective reduces sunk cost fallacy

^a additional experimental groups were aiming at limitation of goals and time in combination with goals; ^b groups were framed into information-focus, emotion-focus, and control group

Magnitude effect

A magnitude effect occurs when individuals discount higher later rewards less steeply than lower ones (Baker et al., 2003). In other words: people are more likely to wait for a higher reward (Green & Myerson, 2004; Green et al., 1997). The magnitude effect is a phenomenon that has been researched in several contexts such as drug abuse and career decisions (Baker et al., 2003; Kirby et al., 1999; Raineri & Rachlin, 1993).

These studies predominantly focused on samples with participants under the age of 40. At this age, individuals typically display an extensive future time perspective. Hence, the second hypothesis is as following:

H₂: A longer future time perspective leads to a greater magnitude effect compared to a short future time perspective.

However, it is plausible that with changes in time horizons the individual evaluation of the reward size might change (Strough et al., 2014). This paper argues that the emphasis on the present under a short future time perspective leads to a focus on the immediate reward and finally in a diminished magnitude effect. Hence, the third hypothesis is as following:

H₃: The magnitude effect reduces when the future time perspective becomes shortened.

This paper first measures the general influence of future time perspective on impulsivity and the magnitude effect when individuals display their “natural” future time perspective by comparing young adults with elderly adults (study 1). Second, it manipulates time horizons for young adults in both directions to gather a complete impression of the manipulability of future time perspective (study 2). Finally, this paper compares results from young participants with short (EG 1) and extended time horizons (EG 2) to a control group

(natural future time perspective) and hence eliminates age effects to finally provide insights into future time perspectives' influence on impulsivity and the magnitude effect.

Study 1

Design and measures

Study one aims at finding differences in impulsivity between participants that display different states of future time perspective induced by their chronological age. In a controlled setting, we asked two groups of participants (old and young) to answer a questionnaire. Both groups were residents of a German city and either studying at a major university (young participants) or an adult education center (old participants). Hence, the context was similar in both groups. We conducted a questionnaire that first asked participants to indicate their future time perspective. Second, we conducted a delay discounting task as Kirby and Maraković (1996) suggest and asked for demographics.

Delay discounting as a measure of impulsivity

Although individuals know that waiting pays off the valuation of immediate and future outcomes differs. Generally, individuals prefer a sooner over a later reward of the same size and hence, discount delayed rewards of higher sizes to a specific individual degree. Nowadays, research on delay discounting predominantly relies on the approach of Mazur (1987) in a variety of research streams (Baker, Johnson, & Bickel, 2003; Green et al., 1994; Green et al., 1996; Kirby, Petry, & Bickel, 1999). This approach, originally formulated to predict pigeons' behavior, can be described as depicted in the following equation. Put generally, a discount rate/ parameter defines a situation, or more specifically a combination of alternatives, in which is the decision maker is indifferent between an immediate and a delayed reward (Odum, 2011a).

$$V = \frac{A}{(1 + kD)}$$

V denotes the net present value of a delayed reward A under the consideration of the delay D and a discount parameter k. This model accounts for preference reversal (Thaler, 1981) and is the most frequently used approach to indicate how steeply individuals discount future rewards (for an overview of the different variations of modeling intertemporal choice situations see Frederick et al. (2002)). Consequently, delay discounting tasks derive a discount parameter k that depicts an individual inability to wait and hence, serves an indicator for impulsive behavior or, as it is its counterpart, as a lack of self-control (Ainslie, 1975; Kirby & Maraković, 1996; Löckenhoff, O'Donoghue, & Dunning, 2011; Mazur, 1987; Odum, 2011b). When focusing on the technical derivation of this parameter, several approaches are at hand. They all aim at finding the switching point from immediate to delayed reward by asking participants to vote for one or the other over several rounds or trials. Although it is possible to operationalize a delay discounting task in several ways (for an extensive overview refer to da Matta, Gonçalves, and Bizarro (2012)) the approach of Kirby et al. (1999) is convincing. They vary the amount of money for the alternatives (now and then), and at the same time the latency for the later reward in a very elegant way with only 27 choice situations. Hence, the estimation of the k-value is possible in a short period of time (Kirby & Maraković, 1996; Kirby et al., 1999). This makes this approach a promising operationalization of delay discounting tasks in experimental research.

Results

A total of 105 participants answered the questionnaire. 50 participants were students from a major German university (group 1) and 55 participants were recruited at an adult education

center (group 2). The mean age was 22 for young participants ($SD=1.4$) and 73 ($SD=4.4$) for older participants. Women were overrepresented in both groups (70.9% in group 1 and 67.35 in group 2). However, there is no evidence for an unequal distribution of men and women between groups since the applied chi-square test was not significant $\chi^2(1)=.154, p=.694$. Cronbach's alpha for the future time perspective scale yielded a value of .867 and hence the scale was measured reliably as Cronbach's alpha lies above the suggested threshold of .7 (Sarstedt & Mooi, 2014). As expected, I observed a strong negative and significant correlation between future time perspective and age ($r=-.73, p<.01$). Furthermore, future time perspective differed significantly between the two groups. An independent sample t-test reported a significantly longer future time perspective for young participants ($M=4.95, SD=.71$) compared to older participants ($M=3.04, SD=1.04$); $t(95.7)=11.05, p<.01$).

Table 3.2 provides an overview of the main results of study one. All k-values were estimated following the rationale described in the appendix C. For all reward sizes senior adults discount future rewards at significantly higher levels than younger adults. In line with the argumentation this supports the first hypothesis: participants with a short future time perspective are significantly more impulsive. Next, the analysis using repeated measures ANOVA focuses on the magnitude effect by comparing k-values for different reward sizes within groups. A significant magnitude effect only occurs for young participants with an extended future time perspective. Each reward size differs significantly at any possible combination with highest discount rates for small rewards and lowest discount rates for high rewards. Finally, there is support for the second hypothesis: A magnitude effect occurred for participants with a long future time perspective (partial $\eta^2=.472$).

Table 3.2 Main results study 1

	Young adults Mean (SD)	Senior adults Mean (SD)
overall	-5.10 (1.41)	-3.32 (1.60)
small reward (ln_s)	-4.66 (1.47)	-3.23 (1.92)
medium reward (ln_m)	-5.03 (1.52)	-3.29 (1.76)
large reward (ln_l)	-5.61 (1.41)	-3.43 (1.90)
partial η^2	.472	.008

Notes:

SD = Standard deviation;

dotted lines indicate non-significant comparisons, bold lines indicate significant comparisons with $p < .01$, lines indicate significant comparisons with $p < .05$

Study 2

Study two exclusively focuses on young participants and manipulates their future time perspective in both directions (extension vs. limitation) by applying two experimental groups and a control group (EG1=short future time perspective, EG2=long future time perspective, CG=neutral future time perspective). The measures used in study 1 are enhanced by self-reporting measures of impulsivity and personality in order to control for potentially influencing factors.

Although the concept of impulsivity seems intuitive, the operationalization via self-reporting scales is challenging. One attempt to measure impulsivity is the Barratt impulsiveness scale. Since the 1970's Barratt and colleagues (Barratt, 1993; Patton & Stanford, 1995; Stanford & Barratt, 1992) pursue to measure impulsivity independently from personality models and propose that impulsivity should be seen as a higher order model with 3 sub-dimensions (attentional impulsiveness, motor impulsiveness, and non-planning) (Whiteside, Lynam, Miller, & Reynolds, 2005). In contrast, Eysenck and Eysenck (1978) argue that impulsivity and venturesomeness are correlates of the distinct personality dimensions extraversion, neuroticism, and psychoticism. In attempt to clarify the confusing situation of conflicting measurement approaches, Whiteside and Lynam (2001) aimed at finding aspects that are similar between the approaches and assigned them in a model that

included personality traits that find their roots in the five factor model of personality (McCrae & Costa, 1987; Whiteside et al., 2005). As a result Whiteside and Lynam (2001) established the UPPS scale measuring impulsivity as a higher order construct consisting of the four discrete factors urgency, (lack of) premeditation, (lack of) perseverance, and sensation seeking. Hence, the UPPS scale was integrated as a further measure in study 2.

Participants were recruited on the campus of a German university and took part for either 7€ reimbursement or course credit. After randomly assigning participants to one of the groups participants received the first questionnaire. This questionnaire contained information on personality and demographics such as gender, age, country of origin, and course of studies. Afterwards, I applied the experimental factor, respectively a neutral setting for the control group, checked for the success of the manipulation, measured by participants' future time perspective, applied a delay discounting task, and debriefed participants. Table 3.3 provides an overview of the experimental set up and measured constructs. Furthermore, a detailed description of the parameter estimation procedure for the k-values that serve as measures for impulsivity can be found in the appendix C.

Table 3.3: Overview of measures

Construct	Author (s)	Items
Personality ¹ Big 5 inventory ¹	Rammstedt and John (2007)	10 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) with 5 sub-dimensions <ul style="list-style-type: none"> - extraversion - neuroticism - agreeableness - conscientiousness - openness
Impulsive behavior ¹	German version of UPPS Scale of (Whiteside & Lynam, 2001) by Kovaleva, Beierlein, Kemper, and Rammstedt (2014)	8 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) with 4 sub-dimensions <ul style="list-style-type: none"> - urgency - (lack of) premeditation - (lack of) perseverance - sensation seeking
Gender ¹	n.a.	
Age ¹	n.a.	
Federal state of birth ¹	n.a.	
Faculty ¹	n.a.	
Goals ¹	n.a.	
Things to learn ²	n.a.	
Supporters in personal development ²	n.a.	
Preferred social partner ²		
Future time perspective (German version) ²	Lang and Carstensen (2002)	10 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree).
Delay discounting ²	Kirby et al. (1999)	Intertemporal choices with 27 decisions in delay discounting situations

¹ Questionnaire No1, ² Questionnaire No2

Manipulation of future time perspective in Study 2

The success of the manipulation of an individual's future time perspective refers to the ability of priming participants in a way that they are enabled to make prospects about themselves in the future. Conversely, the artificial character of an experimental setting is a challenge in this study because the clean and sterile atmosphere in the room potentially makes it difficult for participants to put them into the situation. Hence, I created a setting that lessens the artificial character of the situation whilst, I showed participants a picture of a bench and invited them to imagine sitting on it and thinking about their lives. Pretests showed that sitting on a bench represents a situation in which humans tend to think about relevant issues in their life. Simultaneously, sitting on a bench is common to most people and symbolizes a place that is suitable to relax and calm down. An instructor spoke calmly to them and asked them to take a deep breath and settle into the mental picture of sitting on the depicted bench. Afterwards participants' future time perspective was manipulated by varying the picture as well as a cover story the instructor told the participants. Participants in EG1 saw a picture of a bench in an urban context that depicted a limited horizon. The cover story described a situation in which participants had to imagine that they only had one year left to live. In case of EG2, the picture included a bench in front of a landscape with a wide horizon and several mountains. This picture symbolized an extended time horizon. The cover story asked participants to imagine that their expectation of life expands for 15 additional years. Participants in the control group saw a picture of a bench located in a park with the skyline of a city in the background and the cover story invited them to imagine that they have some time to think about their life because an appointment they made suddenly was canceled. The rationale of the future time perspective manipulation with the help of pictures followed the logic of Berry et al. (2015) who found that pictures of landscapes with broad horizons can expand time horizons while pictures of buildings induce shorter time horizons.

Results

Study 2

An overall of 176 participants took part in the experiment. There is no evidence for an unequal distribution of male (overall 91) and female (overall 85) participants as well as age (overall: $M=22.30$; $SD=2.907$) between groups (see appendix table C4 and C5). The measurement of personality dimensions was only sufficiently reliable in case of extraversion. This dimension does not significantly differ between groups (see appendix table C 6). Hence, it was only possible to control for other confounding factors induced by the personality of the participants for the dimension of extraversion. All sub-dimensions of the UPPS-scale yielded sufficient Cronbach's alphas and were reliable. They do not differ between groups (see appendix table C7) and hence, there is no evidence that the results are biased by ex ante systematic differences in impulsivity.

The next part of the analyses aims at replicating the findings of study one and the extension towards the systematic elicitation of the influence of future time perspective on impulsivity and the magnitude effect independently of the age of participants. First, the reliability of the future time perspective scale is tested is found sufficiently reliable with a Cronbach's alpha of .883. The next step focuses on the effectiveness of the manipulation of the future time perspective. An ANOVA including Games-Howell post hoc test shows the intended manipulation. Future time perspective is significantly lower for participants in EG1 when compared with CG and EG2. Furthermore, participants in EG2 reported a significantly higher future time perspective compared to participants in the control group (Table 3.4). Hence, the manipulation of future time perspective was successful for all experimental groups.

Table 3.4: Mean differences FTP between groups

	EG1	CG	EG2
Mean	2.9318	4.2240	4.6390
SD	1.1523	1.26349	.8965
EG1 n = 66	-		
CG n = 50	1.2922***	-	
EG2 n = 60	1.7072***	.41498*	-

Notes:

SD = Standard deviation;

* $p < .10$; ** $p < .05$; *** $p < .01$

The next step of the analyses sheds light on the differences between groups regarding impulsivity under consideration of the reward size. The estimation of the k-value is in line with Kirby and Maraković (1996) and the same as in study one. Table 3.5 shows that participants with a limited time horizon are significantly more impulsive. Overall, participants in EG 1 display significantly higher k-values compared to the control group and participants in EG 2 with an extended future time perspective. Hence, there is support for the first hypothesis.

Next, the focus lies on the magnitude effect between groups. A magnitude effect occurs when participants discount small rewards more steeply than large rewards. First, a MANOVA checks for differences between groups for the three reward sizes. Considering Pillai's trace there is a significant effect between groups, $V=.217$; $F(6;344)=6.963$, $p<.001$ supporting the hypothesis that a magnitude effect between groups exists. Table 3.6 shows that the sums of squares for the error SSCP matrix yield higher values than in the group SSCP matrix and that the absolute values of the cross-products are quite similar.

These results make it worth having a closer look at the reward sizes within each group as the between group effect seems to be less important than the within group effect (Field, 2013). Hence, three repeated measure ANOVAs were applied to gain a deeper understanding of the size of the magnitude effect within groups. As displayed in Table 3.5 there is a magnitude effects for all of the three groups. Especially participants in EG 2 displayed significant differences in discounting for each of the reward sizes. These participants had the longest future time perspective. Hence, there is support for the second hypothesis. Furthermore, when considering effect sizes a decrease of the magnitude effect can be observed. Participants in EG1 had the shortest future time perspective and simultaneously showed lower effect sizes for the magnitude effect. This supports the third hypothesis that the magnitude effect is likely to be reduced by the induction of a short future time perspective.

Table 3.5: Main results study 2

	EG 1 Short FTP Mean (SD)	Control Group Mean (SD)	EG 2 Extended FTP Mean (SD)
Overall	-3.46 (.98)	-4.89 (1.53)	-4.81 (1.56)
Small reward (ln_s)	-3.19 (1.16)	-4.57 (1.63)	-4.37 (1.68)
Medium reward (ln_m)	-3.47 (1.20)	-4.83 (1.59)	-4.90 (1.64)
Large reward (ln_l)	-3.73 (1.15)	-5.28 (1.60)	-5.17 (1.67)
Partial η^2	.217	.352	.377

Notes:

SD = Standard deviation;

dotted lines indicate non-significant comparisons, bold lines indicate significant comparisons with $p < .01$, lines indicate significant comparisons with $p < .1$

Table 3. 6: SSCP matrix between subjects

			ln_k_s	ln_k_m	ln_k_l
Hypothesis	intercept	ln_k_s	2837.439	3087.896	3319.216
		ln_k_m	3087.896	3360.461	3612.199
		ln_k_l	3319.216	3612.199	3882.795
Group	ln_k_s	68.255	73.204	78.974	
	ln_k_m	73.204	80.961	85.761	
	ln_k_l	78.974	85.761	91.835	
Error	ln_k_s	384.549	280.447	287.503	
	ln_k_m	280.447	375.914	308.108	
	ln_k_l	287.503	308.108	374.391	

Based on type III sum of squares

Discussion

Impulsivity, i.e., the inability to wait or lack of self-control, has been focus of diverse research streams such as the interplay with addictions (e.g., Petry & Casarella, 1999, Bickel et al., 1999), personality (Ainslie, 1975; Mischel et al., 1989; Ostaszewski, 1996; Odum, 2011a,) or cognitive abilities (de Wit et al., 2007, Hirsh et al., 2008). Over a lifespan, impulsivity changes. In that, this paper replicates existing findings that impulsivity is higher for older participants (Green et al., 1994; Green et al., 1996) when compared to young adults (study one). However, it also provides first evidence that future time perspective has an important bearing in the context of impulsivity. Study two shows that the induction of a short future time perspective leads to levels of impulsivity in young adults that are similar to older participants suggesting that future time perspective is crucial for variations of impulsivity at later stages in life. Finally, this paper shows that the induction of a short future time perspective leads to a diminished magnitude effect. Typically, higher rewards are accompanied by lower levels of impulsivity or put differently, individuals are able to act more self-controlled when it pays off (Loewenstein & Prelec, 1992). This paper provides evidence that under a short future time perspective this effect dissipates.

These results open a new research avenue towards construal level theory. Construal level theory postulates that people are likely to behave more controlled when they consider the larger meaning and probable consequences of a certain action (high level construal) (Fujita, Trope, Liberman, & Levin-Sagi, 2006; Trope & Liberman, 2003). This is typically associated by higher levels of self-control that is, lower levels of impulsivity (Trope & Liberman, 2003). Accordingly, a short future time perspective induces a focus on the present and hence, it is logical to consider the value of the present in more detail. The consideration of the value of the present therefore, leads to a preference for immediate rewards, and consequently higher

levels of impulsivity. A more nuanced investigation of the conceptual triangle of impulsivity, future time perspective, and construal level theory are promising.

The findings of this paper have important bearings for market researchers as well as practitioners. First, priming a short time horizon can induce higher levels of impulsivity and maybe impulse buying. This seems plausible because impulse buying and a focus on affect are related (Silvera, Lavack, & Kropp, 2008) and a short future time perspective goes in line with affective behavior or preferences for affective advertisements (Drolet, Williams, & Lau-Gesk, 2007; Fung & Carstensen, 2003; Micu & Chowdhury, 2010). A related study of Pyone and Isen (2011) focused on triggering positive affect and found correlations between affect and future time perspective. Hence, future research should address the interplay of affect, time horizons and impulse buying in greater detail. Wei et al. (2013) provide first evidence that the perception of time alters product evaluation (hedonic vs. utilitarian). This might also affect product choice. Future research should focus on this issue.

In addition, future research could examine unidimensional strategies to effectively manipulate future time perspective. Although future time perspective was manipulated successfully in this study, the procedure bears some drawbacks. The simultaneous application of verbal and visual support to induce a different state of future time perspective makes it impossible to dedicate the effectiveness of the manipulation to either one or the other. However, pretests showed that neither verbal descriptions nor pictures solely were sufficient to manipulate future time perspective. Hence, both were used coherently. Next, this paper only considered young adults in the second study. It would also be promising to examine how for example an induction of a long time horizon in older adults affects impulsivity. It seems plausible that under this situation participants should display lower levels impulsivity similar to those of young adults. Finally, participants in the studies made hypothetical decisions in delay discounting tasks. Although delay discounting tasks are predominantly not sensitive to

hypothetical bias (Dixon et al., 2013; Lagorio & Madden, 2005; Madden et al., 2004) one could argue that the manipulation of time horizons shifts the foundation on which decisions are based. Emphasizing a short time horizon, the option to really gain money shortly alters choice behavior leading to even higher levels of impulsivity. Hence, future studies should also focus on scenarios with real payments in delay discounting tasks.

At first glance, a delay discounting task shares similarities with a typical self-reporting procedure and therefore, may be susceptible for biases. However, Odum (2011a) states that in a delay discounting task people are neither asked to rate past behavior, nor do they know what the desired or “right” answer is. Moreover, the indication of a situational preference for a reward is not connected to past behavior or reference points, nor are there “punitive contingencies“ (Odum, 2011a, p. 430) for the participants. All these aspects undermine the argument that participants are unlikely to show strategic behavior or act in a social desirable manner in a delay discounting task and hence, results appear to be relatively trustworthy (Odum, 2011b). Hence, results found in these studies advance the understanding of the impulsivity construct in a theoretical perspective and add, for example, touchpoints in the advertising communication policy for marketing practitioners.

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APPENDIX C

Discount parameter estimation Study 1 and Study 2

An individual discount parameter k can be derived by analyzing the pattern of choices made in 27 delay discounting questions as Kirby et al. (1999) propose. Table C 1 provides an overview of these choices. Please note that the order of choices in the questionnaire varied to rule out order effects.

Table C1: Choices in the delay discounting task

No	Reward values			k at indiff.	k rank	Reward size
	IR	DR	Delay			
1	34	35	186	0.00016	1	S
2	54	55	117	0.00016	1	M
3	78	80	162	0.00016	1	L
4	28	30	179	0.00040	2	S
5	47	50	160	0.00040	2	M
6	80	85	157	0.00040	2	L
7	22	25	136	0.00100	3	S
8	54	60	111	0.00100	3	M
9	67	75	119	0.00100	3	L
10	25	30	80	0.0025	4	S
11	49	60	89	0.0025	4	M
12	69	85	91	0.0025	4	L
13	19	25	53	0.006	5	S
14	40	55	62	0.006	5	M
15	55	75	61	0.006	5	L
16	24	35	29	0.016	6	S
17	34	50	30	0.016	6	M
18	54	80	30	0.016	6	L
19	14	25	19	0.041	7	S
20	27	50	21	0.041	7	M
21	41	75	20	0.041	7	L
22	15	35	13	0.10	8	S
23	25	60	14	0.10	8	M
24	33	80	14	0.10	8	L
25	11	30	7	0.25	9	S
26	20	55	7	0.25	9	M
27	31	85	7	0.25	9	L

Clear advantages of the application of this procedure are the relative shortness and the comprehensive presentation of the choices as well as the consideration of different reward sizes to account for magnitude effects (Kirby & Maraković, 1996; Kirby et al., 1999). Furthermore, the calculation of k at the indifference points is straight forward when following equation 2. In contrast, the analysis of individual answering patterns and hence calculation of a discount parameter for each participant is more complex. As a first step, only choices No 1 and No 4 and small reward sizes are considered to clarify the idea of estimating individual discount rates. If an individual is indifferent between an immediate reward of 34€ today or 35€ in 186 days a discount parameter of $k = .00016$ would result as it equals equation 2 under given rewards and delay. Accordingly, an individual discount parameter of $.0004$ can be assigned to an individual that is indifferent between the two alternatives in choice No 4. Higher k values at the indifference points indicate steeper discounting and hence higher impulsivity. Understanding the idea of calculating the k values at indifference points the concrete choices need to be translated into individual discount parameters. The general idea is that a highly impulsive (unimpulsive) individual would show a great tendency towards immediate (delayed) rewards and always (never) choosing the immediate (delayed) reward would indicate the highest (lowest) level of impulsivity. Now one can assume that for choice No 1 the individual chooses the immediate reward of 34€ and for decision No 4 the delayed reward of 30€. In this situation its individual discount parameter has to be above $.00016$ but below $.0004$. However, an accurate value for the individual discount rate for the choices described above cannot be inferred. Hence, the geometric midpoint, calculated with the help of the geometric mean of both values, serves as the estimation of this individual discount parameter. Applying the geometric mean is beneficial as it accounts for underweighting the smaller ($.00016$) of the two parameters (Kirby et al., 1999). In this example, an individual k value of $.00025$ results. If the individual was completely consistent with the individual k value of $.00025$, she would display a preference for immediate rewards in the decisions No1, and a

preference for the delayed reward for all other situations (see table C2). Actually, humans tend to vary in their choice behavior. Thus, solely looking at switching points from immediate to delayed rewards is insufficient for estimating an individual k value. The approach of Kirby et al. (1999) hence suggests looking for “maximum consistency” between the individual choice patterns and the array that occurs when consistent or “ideal” choices are made for each of the possible discount parameters. Table C2 provides an overview of such choice patterns for small rewards. A value of zero indicates that the individual chose the immediate reward whereas a value of one indicates a preference for the delayed reward. One can see that the two k values .00016 and .25 build the floor and ceiling of potential individual discount parameters. All other parameters are derived as the geometric mean of the k values at the indifference points as they were determined by the choice sets in table C1.

Table C2: Table of “ideal” choice patterns and resulting individual k values for small reward sizes

Choice No	No 1	No 4	No 7	No 10	No 13	No 16	No 19	No 22	No 25
k= .25	0	0	0	0	0	0	0	0	0
k=geomean(.25;.1)	0	0	0	0	0	0	0	0	1
k=geomean(.1;.041)	0	0	0	0	0	0	0	1	1
k=geomean(.041;.016)	0	0	0	0	0	0	1	1	1
k=geomean(.016;.006)	0	0	0	0	0	1	1	1	1
k=geomean(.006;.0025)	0	0	0	0	1	1	1	1	1
k=geomean(.0025;.001)	0	0	0	1	1	1	1	1	1
k=geomean(.001;.0004)	0	0	1	1	1	1	1	1	1
k=geomean(.0004;.00016)	0	1	1	1	1	1	1	1	1
k=.00016	1	1	1	1	1	1	1	1	1

Table C3: Example of choice pattern including determination of maximum consistency

Choice No	No 1	No 4	No 7	No 10	No 13	No 16	No 19	No 2	No 25	Consistency
Individual choice pattern	0	1	1	1	1	0	0	1	1	
k=0.25	Y	N	N	N	N	Y	Y	N	N	3/9
k=geomean(.25;.1)	Y	N	N	N	N	Y	Y	N	Y	4/9
k=geomean(.1;.041)	Y	N	N	N	N	Y	Y	Y	Y	5/9
k=geomean(.041;.016)	Y	N	N	N	N	Y	N	Y	Y	4/9
k=geomean(.016;.006)	Y	N	N	N	N	N	N	Y	Y	3/9
k=geomean(.006;.0025)	Y	N	N	N	Y	N	N	Y	Y	4/9
k=geomean(.0025;.001)	Y	N	N	Y	Y	N	N	Y	Y	5/9
k=geomean(.001;.0004)	Y	N	Y	Y	Y	N	N	Y	Y	6/9
k=geomean(.0004;.00016)	Y	Y	Y	Y	Y	N	N	Y	Y	7/9 ^a
k=0.00016	N	Y	Y	Y	Y	N	N	Y	Y	6/9

^a Maximum consistency; Y=Consistent with “ideal” choice pattern, N=inconsistent with “ideal” choice pattern

The next step is to clarify the procedure of finding maximum consistency (Table C3). The comparison between the individual choice pattern for each decision and the “ideal” choice pattern provides information about the congruence between them for each of the possible ten k values. An individual is assigned with that individual k value that yields the highest proportion of congruent, that is, consistent answers with the “ideal” choice pattern. In this example, the geometric mean between .0004 and .00016 fits best as the maximum consistency is 7/9. In cases of two or more identical maximum consistency values the geometric mean values for the according k values are calculated. This procedure allows the calculation of three different discount parameters (k_small, k_medium, k_large) that enable to control for magnitude effects as well as the derivation of an overall discount parameter (k_overall) described by the geometric mean of the three aforementioned discount parameters. To normalize the resulting k values a natural logarithm was applied.

Table C4: Between group comparison regarding age

Age			
Group	Mean Age	SD Age	Difference between groups
EG 1 (short FTP)	21.98	2.490	n.s. ANOVA
EG 2 (long FTP)	22.65	3.602	F(2;175)=.821
CG (Control group)	22.30	2.460	p=.442
Overall	22.30	2.907	

Table C5: Between group comparison regarding gender

Gender			
Group	Female	Male	Difference between groups
EG 1 (short FTP)	31	35	n.s. Chi-Square-Test
EG 2 (long FTP)	32	28	$\chi^2(2)=1.026$
CG (Control group)	22	28	p=.599
Overall	85	91	

Table C6: Between group comparison regarding personality

Personality			
Personality dimension	Cronbach's α	Mean (SD)	Difference between groups
Extraversion	.779	3.4403 (.9308)	n.s. ANOVA $F(2;175)=.414$ $p=.662$
Agreeableness	.153		not reliably applicable
Conscientiousness	.531	3.3068 (.8347)	not reliably applicable
Neuroticism	-.047		not reliably applicable
Openness	.408	3.34063 (.9745)	not reliably applicable

Table C7: Between group comparison regarding UPPS-scale

Subdimension	Cronbach's α	Mean (SD)	Difference between groups
Urgency	.603	3.2330 (1.0141)	n.s. Welsh-Test $F(2;175)=1.505$ $p=.227$
(Lack of) Premeditation	.717	3.3892 (1.04769)	n.s. Welsh-Test $F(2;175)=.865$ $p=.424$
(Lack of) Perseverance	.519	3.4602 (.89513))	n.s. ANOVA $F(2;175)= 2.082$ $p=.128$
Sensation seeking	.904	3.4489 (.95630))	n.s. ANOVA $F(2;175)= .189$ $p=.828$

**ESSAY 4: FUTURE TIME PERSPECTIVE RELATED DIFFERENCES IN
CONSUMER CHOICES OF HEDONIC VS. UTILITARIAN PRODUCTS**

working paper

Co Author:

Victor Schliwa
Research Assistant
Otto-von-Guericke-University Magdeburg
Faculty of Economics and Management
Chair of Marketing
Universitätsplatz 2
39106 Magdeburg, Germany

FUTURE TIME PERSPECTIVE-RELATED DIFFERENCES IN CONSUMER CHOICES OF HEDONIC VS. UTILITARIAN PRODUCTS

Abstract

Future time perspective refers to the perception of remaining lifetime and the opportunities left in life. Variations in future time perspective have an important bearing on consumers, for instance by shifting the focus from factual to emotional appeal of advertisements. This paper examines whether this focus shift translates into changes in consumption behavior in the form of extremeness aversion and extremeness seeking. We argue that the emphasis on affective appeal under a short future time perspective results in importance shifts in perceived product attribute value and causes opposite behavioral consequences for hedonic and utilitarian goods that are further moderated by a product's durability. We generally find that a shortened future time perspective results in more extreme choice behavior as opposed to the control group with an un-manipulated future time perspective. With regard to durable hedonic products, we find that participants with an experimentally manipulated lower future time perspective display a preference for choice options that offer the highest hedonic value (extremeness seeking for high value options), while this effect is reversed for durable utilitarian products (extremeness seeking for low value). Surprisingly, in case of non-durable hedonic and utilitarian products we find significant effects that point into the same direction (high value extremeness seeking in both instances).

Keywords: future time perspective, extremeness seeking, hedonic, utilitarian,

Introduction

“My favorite things in life don’t cost any money. It’s really clear that the most precious resource we all have is time.” – Steve Jobs

When the founder of one of the world’s leading multinational technology companies emphasizes the importance of time as a resource while simultaneously accounting for millions of purchases every year, the interplay of (life) time and consumption becomes apparent. The perception of time as a limited resource and hence, the awareness of a growing scarcity of remaining chances in life is referred to as future time perspective (Carstensen, Isaacowitz, & Charles, 1999). Over a lifespan individuals typically perceive their time left in life as more and more limited and this has important bearings on goals people pursue (Carstensen et al., 1999; Fung, Carstensen, & Lutz, 1999; Lang & Carstensen, 2002). Research shows that the future time perspective (FTP) influences the hierarchy of oftentimes conflicting individual goals in a way that, the more limited humans perceive their time, the more they focus on emotion related goals in contrast to knowledge related goals (Carstensen, 2006; Fung & Carstensen, 2006). From a marketing perspective the variation in future time perspective affects attitudes towards advertisements and products (Micu & Chowdhury, 2010; Wei, Donthu, & Bernhardt, 2013; Williams & Drolet, 2005) and further acts as a moderating factor for the well-established link between customer satisfaction and loyalty (Kuppelwieser & Sarstedt, 2014). However, our understanding of consequences of time horizon manipulations with regard to varying consumption decisions is still very limited and the underlying mechanisms largely remain a black box. We address this research gap and offer three novel contributions.

First, we show that the manipulation of future time perspective leads to variations in choice behavior for hedonic and utilitarian products. In study 1, we shed light on this issue by examining the consequences of future time perspective manipulations with regard to a range

of products that identify as either hedonic or utilitarian as this is a differentiation known to influence consumer preferences and decision making (Dhar & Wertenbroch, 2000; Khan, Dhar, & Wertenbroch, 2005; Okada, 2005). Drolet, Williams, and Lau-Gesk (2007) were the first to provide evidence that such preferences are moderated by affective content of information in advertisements. Stemming from the contradictory nature of long and short future time perspectives concerning the receptiveness to affective and rational goals (Williams & Drolet, 2005), we argue that consumption preferences depend on the primarily important goal individuals pursue. Accordingly, we propose to examine the behavioral outcomes of manipulated future time perspective using products that can be categorized as hedonic or utilitarian, in order to address changing prioritization of affective goals.

As our second contribution we offer insights into how the durability of a product, essentially whether it is used (durable) or used up (non-durable, like fast moving consumer goods) moderates the impact of future time perspective on choice behavior involving hedonic and utilitarian goods. Accordingly, in study 2 we examine how a products' consumption life-span reflects on the manipulated future time horizons of decision makers.

Third, we shed first light on potential moderators of the choice behavior rooted in the person of the decision maker. To this end, we also explore in study 2 the role of changing preoccupation with prediction uncertainty, rationality versus feeling-driven decision making as a motivator of decisions, and mood as consequences of an altered future time perspective.

In all of our studies, we use principles known from context effect research we deem particularly fitting for the purpose to demonstrate the diametrically opposing effects time horizon manipulations can have on normative decision making and preference construction. Specifically, in referring to extremeness aversion and its natural counterpart extremeness seeking (Neumann, Böckenholt, & Sinha, 2016; Simonson, 1989), we not only demonstrate

time horizon-dependency of preferences for varying product types, but further qualify our research with a directional component of the observed effects.

Theoretical Background

Future time perspective

Future time perspective, that is, the perception of how much time one has left in life, shapes the goals individuals strive to achieve (Carstensen, 2006; Carstensen et al., 1999; Lang & Carstensen, 2002). At early stages in their lives individuals seek knowledge and hence, choose social partners that are likely to fulfill knowledge related goals. Over the course of a lifetime, and while time is more and more perceived as limited, that is, a scarce resource, a shift of preferences from knowledge related goals to emotion related goals can be observed (Carstensen, 1992; Carstensen et al., 1999; Fung & Carstensen, 2006; Fung et al., 1999). Chronological age and future time perspective are typically negatively correlated (Fung et al., 1999). However, from a consumer research perspective, focusing on future time perspective instead of chronological age is more promising as the former can explain variations in an individual's perspective on time that are caused by external, and oftentimes uncontrollable forces in life (Drolet et al., 2007). For example, severe diseases or catastrophes cause a significant decline in future time perspective and induce changes in attitude and consideration of opportunities even in young adults (Fung & Carstensen, 2006; Västfjäll, Peters, & Slovic, 2008). In addition to that, a limited future time perspective induces changes in the perception of positive affect (Kellough & Knight, 2011). Marketing and consumer behavior research shows that the limitation of future time perspective leads to a preference for emotional advertisements and, in contrast, a long future time perspective leads to a preference for rational advertisement (Williams & Drolet, 2005). In a similar vein, Bülbül and Menon (2010) show that this preference for emotional advertisements in settings with limited future time

perspective is induced by concrete emotional content rather than abstract emotional content. These findings are in line with predictions of socioemotional selectivity theory claiming that under a limited future time perspective individuals prioritize emotional meaning and affective goals higher than knowledge and vice versa (Carstensen, 2006). It is plausible that these diverging goal selection processes, induced by future time perspective, also affect product evaluation. Wei et al. (2013) provide a first reference indicating that a shortened future time perception causes attitudinal changes in favor of hedonic goods. In contrast, an expansive future time perception benefits the attitude towards utilitarian products.

Living in the moment: Extremeness aversion and extremeness seeking under a shortened future time perspective

Numerous studies have found that consumption decisions are greatly affected by context such as the number and range of choice options present when facing a decision (Dhar & Simonson, 2003; Milberg, Silva, Celedon, & Sinn, 2014; Simonson & Tversky, 1992). For instance, one frequently cited effect known as extremeness aversion, marks the tendency of decision makers to avoid choice options with extreme attribute values (Neumann et al., 2016; Simonson & Tversky, 1992). The rationale behind this is rooted in prospect theory, specifically the notion that potential losses outweigh potential gains (Kahneman & Tversky, 1979). When facing a decision scenario under uncertainty, individuals focus on what they stand to lose rather than on potential gains and in consequence foremost try to minimize the potential loss. In a choice set containing several product options of which none seem clearly superior, this loss aversion motivates individuals to choose the middle option because it comes with smaller risks than options with extreme values (Neumann et al., 2016; Sheng, Parker, & Nakamoto, 2005; Simonson & Tversky, 1992). To use a practical example, one can easily see how the most expensive coffee maker bears a high financial risk of overpaying for features one will never use. A budget version on the other hand, might produce awful-tasting

coffee or even pose a health hazard due to low-quality of materials used in the construction. A model from the mid-price range might seem like a less risky choice option over all, minimizing the chance of overpaying or having to drink awful coffee. However, this rationale is not always applicable, but is affected for instance by the product category (Neumann et al., 2016), time pressures (Lin, Sun, Chuang, & Su, 2008), the decision makers' level of decision uncertainty (Sheng et al., 2005) desire to be unique (Simonson & Nowlis, 2000), and possibly their future time perspective.

A short future time perspective is associated with a greater focus on affect and emotional appeal (Williams & Drolet, 2005). Applied to the context of consumption decisions, this suggests that individuals whose future time perspective is shortened, prefer choice options that have a greater emotional appeal, meaning their predominant attributes address the affective sphere and offer emotional, rather than a functional value (Drolet et al., 2007). This indicates a shift in personal goals and in consequence in preferences towards products and product attributes that provide emotional value to satisfy the newly formed or uncovered preferences (Simonson, 2008). Choice options which offer particularly great emotional value and which therefore had no particular relevance under a long future time perspective, gain favor under a shortened future time perspective. While some individuals may have clear preferences, ample evidence suggests, that consumers often find it hard to clearly weigh attributes against one another and reach an absolute conclusion (Simonson, 2008). In consequence, a loss-minimizing middle choice option often appeals to these consumers (Sheng et al., 2005). Ryu, Suk, Yoon, and Park (2014) for instance, find that extremeness aversion results from equally weighted product attributes, that is, when all attributes equally provide goal-congruent value. In contrast, extremeness seeking is the consequence of asymmetrically weighted attributes. However, attribute weights are subjective and change with the circumstances and decision makers' priorities (Okada, 2005; Simonson,

2008). The desire for affective value, made salient by the shortened future time perspective, for instance, can increase the importance weight ascribed to the quality attribute (as opposed to the price). This disrupts the attribute weight equilibrium and debilitates the simple loss aversion rationale in favor of whatever choice option scores highest with respect to the experiential product attribute and thus offers the most experiential value. Since they are defined by a dichotomy of high and low experiential value, hedonic and utilitarian goods provide a particularly fertile ground to research the behavioral consequences of future time perspective alterations (Chernev, 2004; Chitturi, Raghunathan, & Mahajan, 2008; Hirschman & Holbrook, 1982).

Specifically, we expect that in choice sets involving product categories, that are predominantly hedonic in nature, a short future time perspective leads to the choice of the extreme option (e.g. a high quality option) offering the greatest affective (hedonic) value and thus resulting in greater extremeness seeking. With utilitarian goods on the other hand, there is no clear advantage of any option with regard to the affect and pleasure oriented consumption goals. In consequence, decision makers with a short future time perspective seek out the option which offers the least of an unwanted attribute, and thus incurs the lowest cost, resulting in extremeness seeking in an opposite direction (e.g. a cheap option). Alternatively, individuals may have no clear preference within a product category that offers no goal congruent value and observe normative decision making. These behavioral consequences would be in accordance with the “pick-your-poison-effect” identified by Levav, Kivetz, and Cho (2010).¹

¹Related research concerning pain avoidance and pleasure seeking goals supports the effects proposed here by evidencing extremeness seeking tendencies when only one product attribute is goal congruent, and extremeness aversion tendencies when all product attributes are equally congruent or equally incongruent to personal goals (Higgins, 1997; Levav et al., 2010; Mourali, Böckenholt, & Laroche, 2007)

Hence, we expect to observe extremeness seeking in two opposing directions:

H_{1a}: A shortened future time perspective leads to extremeness seeking in favor of options *with a high hedonic value*

H_{1b}: A shortened future time perspective leads to extremeness seeking in favor of options *with a low utilitarian value*

Meta-analytical findings indicate that extremeness aversion is regularly more pronounced in durable goods than in non-durable goods (Neumann et al. 2016). Durable goods typically involve greater financial risk (Derbaix, 1983) which gains further importance due to the long lifetime of these products and the concurring long period one will have to live with the consequences of a possibly poor choice (Simonson, Nowlis, & Lemon, 1993). Similarly, the greater longevity of durable products results in less frequent purchase situations and unfamiliarity with the product category, known drivers of extremeness aversion (Sheng et al., 2005). Furthermore, such purchases incorporate choice situations that commonly involve great complexity with regard to the product itself. This results in greater uncertainty and cognitive processing, which both favor extremeness aversion consequentially mitigate extremeness seeking behavior (Lichters, Müller, Sarstedt, & Vogt, 2016; Sheng et al., 2005). This indicates that the effect hypothesized in H_{1a} is potentially moderated by durability to the effect of stronger extremeness seeking in non-durable products than in durable products. This would be the consequence of generally greater willingness to diverge from a “safe” middle option in favor of the option that offers the greatest hedonic value, and thus maximizes the desirable value under a short future time perspective. Contrary to this, the effect expressed in H_{1b}, is motivated by the desire to minimize an undesirable value, a goal achieved by choosing a low utilitarian value option. The effect is thus reversed. The longevity of a chosen option

makes the “lesser-evil” rationale behind choosing a low utilitarian value option even more salient. Accordingly, the preference for non-durable low utilitarian value goods is smaller than for durable low utilitarian value goods.

Accordingly, we hypothesize:

H_{2a}: Extremeness seeking is stronger in *non-durable hedonic goods* than in *durable hedonic goods*.

H_{2b}: Extremeness seeking is stronger in *durable utilitarian goods* than in *non-durable utilitarian goods*.

In study 1 we test the occurrence of extremeness seeking and extremeness aversion behaviors under shortened and extensive future time conditions. Specifically we provide an initial examination of opposing effects of future time perspective on products that are hedonic and utilitarian in nature.

Study 1

Methodology study 1

The experiment took place at a German university. Participants received course credit or a 7€ reimbursement after taking part in the experiment. Participants were randomly assigned to one of the experimental groups (EG1=limited future time perspective, EG2=extended future time perspective) or the control group (CG). First, to control for potential covariates, we measured personality related items via a short version of the Big 5 inventory, impulsivity related behavior via the UPPS-scale, mood, and demographics (for an overview of measures in study

1 and 2, see appendix D). Next, we applied our experimental factor with the help of a verbal manipulation of the future time perspective. For EG 1 we invited participants to imagine they had only one year left in life. For EG 2 we invited them to visualize a life that lasts 20 years longer than normally under suitable health conditions (Fung & Carstensen, 2003). In a similar vein as Berry et al. (2015), we supported the manipulation by pictorial impressions of landscapes that depicted a wide or shortened horizon in a natural landscape, respectively an urban background or a mix of both for the control group. Afterwards, we measured the individual future time perspective using a German version of the scale proposed by Lang and Carstensen (2002). Afterwards, we asked participants to provide information about their choice behavior. Study participants chose one option from a set of three choice options in the product categories wine (hedonic) and refrigerators (utilitarian). Previous research had specifically identified these particular product categories as examples of hedonic products in case of wine, and utilitarian products in case of refrigerators (e.g., Bruwer & Alant, (2009); Khan, Dhar, and Wertenbroch (2005); Park & Kim, (2012). However, products are typically not exclusively hedonic or utilitarian, but are identified by their more prominent qualities or product attributes (Dhar & Wertenbroch, 2000; Okada, 2005). For instance, chocolate offers both, nutrition (utilitarian value) and indulgence (hedonic value) (Chernev, 2004; Voss, Spangenberg, & Grohmann, 2003). For this reason we henceforth refer to the various hedonic choice options in a choice set as high, medium or low hedonic value options and to utilitarian products accordingly as high, medium, and low utilitarian value option. Products were described in terms of typical attributes indicating each option's respective quality and price. For each product category we offered a low option A, a medium option B, and a high option C (in terms of price and quality). Each product in every category was depicted with its individual price and a quality rating, which we controlled by asking participants for their perception of price and quality for each of the products. Table D1 in the appendix provides information on all relevant measures in our studies.

Results Study 1

A total of 190 participants took part in the experiment. We did not find evidence for an unequal distribution of male (overall 96) and female (overall 94) participants as well as age (overall: $M= 22.36$; $SD= 2.91$) between groups. Furthermore, several repeated measure ANOVAs showed that all products were perceived as differing in der quality and price dimensions (A, B, C). First, we checked for the reliability of the future time perspective scale and found it sufficient with a value of .880. We averaged the 10 items and applied an ANOVA including Games Howell post-hoc test. Table 4.1 shows that we successfully limited future time perspective as participants in EG 1 display significantly lower values compared to CG and EG 2. Although participants in EG2 display a nominally higher future time perspective compared to CG, this difference is not significant. Hence, the extension of future time perspective was not successful. This is not entirely surprising, as young adults typically display an extensive time horizon and are rather prone to manipulations that shorten this perspective than the other way around (Wei et al., 2013). Nevertheless, a potential effect in EG2 cannot be solely attributed to our manipulation. Hence, we do not consider this experimental group in our further analysis.

Table 4.1: Future time perspective between groups

	EG1	CG	EG2
Mean	2.9318	4.4813	4.6390
SD	1.1523	.8165	.8965
EG1 n = 66	-		
CG n = 64	1.5495***	-	
EG2 n = 60	1.7072***	.1577	-

Notes:

SD = Standard deviation;

* $p < .10$; ** $p < .05$; *** $p < .01$

Next, we examine the differences in choices between experimental groups for hedonic and utilitarian products. We only find significantly different choice frequencies for the hedonic product (Table 4.2). In the hedonic category (wine), option C (high hedonic value) is most popular in the *short* future time perspective group (34.8%) as opposed to the control group with a more *extensive* future time perspective (10.9%), while the A-option (low hedonic value) is chosen less frequently (36.4% vs. 71.9%). This offers support for our hypothesis H_{1a}. While the choice share of the cheapest option in the utilitarian product category nominally increases under a shortened future time perspective (Table 4.2), as we expected under H_{1b}, this increase is not statistically significant.

Table 4.2: Results Study 1

	Hedonic (wine)* $\chi^2(2)=17.55, p<.01$			Utilitarian (refrigerator)* $\chi^2(2)=3.981, p=.137$ (n.s.)	
	Short FTP (a)	Control Group (b)		Short FTP (a)	Control Group (b)
A	24 (36.4%)	46^(a) (71.9%)	A	36 (54.5%)	25 (39.1%)
B	19 (28.8%)	11 (17.2%)	B	18 (27.3%)	19 (29.7%)
C	23^(b) (34.8%)	7 (10.9%)	C	12 (18.2%)	20 (31.3%)
Σ	66	64	Σ	66	64

(a), (b) Results are based on two-sided tests with significance level .05. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion.

*Percentages denote shares within groups

Findings Study 1

Study 1 shows that the manipulation of future time perspective is possible and potentially can affect consumers' preferences in hedonic goods and their choice behavior accordingly. Demand for the high quality product is indeed highest for participants with a short future time perspective as opposed to the control group with a more extensive future time perspective, which supports our H_{1a}.

The aim of study 1 was to provide an initial test for differential behavioral outcomes of hedonic and utilitarian consumption situations with respect to varying time horizons. As

such, study 1 produced support for H_{1a} and warrants further examination of the consequences of future time perspective with respect to choice behavior.

Study 2 establishes the presence of the hypothesized effects more broadly. It does so by testing a greater variety of products, and examining the further dependency of the results from study 1 on product durability. Study 2 thus aims in particular at retesting H_{1a} and H_{1b} and examining the potentially moderating effect of product durability as expressed in H_{2a} and H_{2b} . Additionally, it addresses the question of what further motivations and underlying mechanisms might affect extremeness seeking as a consequence of a short future time perspective.

Study 2

Our first study provides evidence that for participants with an ex ante extended future time perspective a further enhancement is at least challenging. Thus, in study 2 we exclusively focus on the limitation of time horizons of young adults with the help of the manipulation established in study 1. We argue that young adults inherently have an extended future time perspective which impedes the success of manipulations aiming at further extensions. Next, we enhance our design by implementing the aspect of durability of the products. Hence, we conduct a 2x2x2 factorial design (short future time perspective vs. control, hedonistic vs. utilitarian, durable vs. non-durable product). Third, we extend our investigation of the effectiveness of our manipulation beyond solely measuring changes in future time perspective. In addition, we also measure the individual perception of remaining lifetime as a single item measure and on top draw on a measurement of the effectiveness of time horizon manipulation similar to Williams and Drolet (2005). Furthermore, we control for differences in personality, impulsive behavior and risk attitude as displayed in Table 4.3. We also

measured participants' preoccupation with prediction uncertainty and drivers of motivation to shed further light on potential moderating factors of decision making processes rendered salient by the manipulation of time horizons. All relevant measures are listed in table D1 in the appendix.

Results study 2

Overall 98 (48 in EG and 50 in CG) participants from a German university took part in the experiment and received 5€ as a compensation for participating. The average age was 22.34 years and we did not find evidence for a significant difference between groups in terms of age ($t(85.24)=.124, p=.901$). Similarly, we did not find differences between groups regarding gender ($\chi^2(1)=.354, p=.552$). We also measured personality traits, impulsive behavior, and risk attitude to control for potentially confounding factors and only found one sub-dimension of impulsive behavior significantly differing between groups (Table 4.3).

Table 4.3: Reliability and pre-analyses

Scale	Sub-dimension	Cronbach's α	Between group differences
Personality	Extraversion	.856	$t(96)=-1.071, p=.287$
	Neuroticism	.542	$t(96)=-.745; .458$
	Agreeableness	.283	not reliable, not applied
	Conscientiousness	.611	$t(96)=1.024; p=.308$
	Openness	.601	$t(96)=.423, p=.673$
Impulsive behavior	Urgency	.655	$t(96)=-2.50; p<.05$
	(lack of) premeditation	.724	$t(96)=1.332; p=.186$
	(lack of) perseverance	.421	$t(96)=1.090; p=.278$
	sensation seeking	.945	$t(96)=-.527; p=.599$
Risk attitude	./.	n.a.	$t(96)=-.576; p=.566$

Manipulation checks

We found the future time perspective scale sufficiently reliable with a Cronbach's alpha of .888 and hence averaged the individual item scores for each participant to build an index for

the future time perspective measurement. As expected, participants in the experimental group displayed significantly lower levels of future time perspective ($t(98) = -6.481, p < .001$). In a similar vein, when asking participants to indicate their present position in their lifespan (lifetime horizon), participants in the experimental group indicated that they are closer to the end of their life compared to the control group ($t(94) = 3.943, p < .001$). Next, and in line with Williams and Drolet (2005), we calculated two measures for an individual's perceived time horizon (short and long) and combined them to build a single item measure. We did so by subtracting the individual value for long time view from the short time view. As a result individuals with negative values display a more expansive time perception. In contrast, the higher the value, the more limited people perceive time left in life. We find that our manipulation was successful as participants in the experimental group showed significantly higher values ($t(96) = 5.118, p < .001$) compared to the control group. Furthermore, we controlled for price and quality perceptions of the products. All of these were as we expected them to be (A=lowest price and quality, B=medium price and quality, C=highest price and quality). We ran several repeated measure ANOVAs and found that for all products in each product category the perception of price and quality were differing significantly in the intended directions.

Main results

First, we test for differences between hedonic and utilitarian products under the control condition (long future time perspective) and experimental condition (short future time perspective respectively) on a summated level, that is, the respective choice frequencies of high, low, and medium options from both product categories were added up prior to the analysis (Table 4.4). The application of several Chi-square tests including z-transformations and Bonferroni-corrections yields results as depicted below.

Table 4.4: Summated choice-shares for hedonic and utilitarian products for experimental and control group

	Hedonic*			Utilitarian*	
	$\chi^2(2)=30.300, p<.001$			$\chi^2(2)=4.283, p=.117$ (n.s.)	
	Short FTP (a)	Control Group (b)		Short FTP (a)	Control Group (b)
A	16 (17.0%)	40^(a) (40.0%)	A	39 (41.5%)	33 (33.0%)
B	29 (30.9%)	47^(a) (47.0%)	B	27 (28.7%)	43^(a) (43.0%)
C	49^(b) (52.1%)	13(13.0%)	C	28 (29.8%)	24 (24.0%)
Σ	94	100	Σ	94	100

(a), (b) Results are based on two-sided tests with significance level .05. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion.

*Percentages denote shares within groups

The data indicate that hedonic choice options with high hedonic value are preferred under a short future time perspective in opposition to a clear preference for the middle and low hedonic value option under a long future time perspective. Thus, we find support for our H_{1a} and hence, are able to replicate our findings from study 1. Furthermore Table 4.4 shows normative behavior, that is, equal shares for utilitarian products in the manipulated condition, and a statistically significantly higher preference for the middle choice option under the control condition.

Next, we focus on the influence of future time horizon manipulations on a product level to address the moderating role of durability for hedonic and utilitarian products (Table 4.5). We find that on a product level our H_{1b} also holds in case of the refrigerator (utilitarian and durable), as we observe significant extremeness seeking tendencies towards option A (low utilitarian value, low price). For toilet paper (utilitarian and non-durable) the effect significantly reverses and we observe extremeness seeking towards option C (high utilitarian value, high price).

In comparing within group shares for each product category (hedonic vs utilitarian) we find that our H_{2a} (58.3% vs. 45.8%) and H_{2b} (59.6% vs. 42.6%) also hold.

Table 4.5: Choice-shares hedonic versus utilitarian products with regard to durability

	Non-durable*		Durable*			
Hedonic	Wine $\chi^2(2)=28.943, p<.001$		Action Cam $\chi^2(2)=8.779, p<.05$			
	Short FTP (a)	Control Group (b)	Short FTP (a)	Control Group (b)		
	A	13 (27.1%)	35^(a) (70.0%)	A	3 (6.3%)	5 (10.0%)
	B	7 (14.6%)	11 (22.0%)	B	23 (47.9%)	36^(a) (72.0%)
	C	28^(b) (58.3%)	4 (8.0%)	C	22^(b) (45.8%)	9 (18.0%)
Σ	48	50	Σ	48	50	
Utilitarian	Toilet paper $\chi^2(2)=4.707, p<.1$		Refrigerator $\chi^2(2)=6.406, p<.05$			
	Short FTP (a)	Control Group (b)	Short FTP (a)	control group (b)		
	A	11 (23.4%)	16 (32.0%)	A	28^(b) (59.6%)	17 (34.0%)
	B	16 (34.0%)	23 (47.9%)	B	11 (23.4%)	20 (40.0%)
	C	20^(b) (42.6%)	11 (22.0)	C	8 (17.0%)	13 (26.0%)
Σ	47	50	Σ	47	50	

(a), (b) Results are based on two-sided tests with significance level .05. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion.

*Percentages denote shares within groups

Exploratory results concerning underlying mechanisms

Lastly, we focus on potential drivers of the observed differences in preferences by checking for significant correlations within and between groups (Table 4.6). For this purpose, we generated a sum-score for each participant increasing by a value of one with every observation of extremeness seeking behavior conforming to the hypothesized direction. A low score thus indicates choice behavior that is not conform to our hypotheses H_{1a} and H_{1b} ; while a high score indicates hypothesis-conform behavior. This allows us to further analyze the relationship between any variable we consider to have an effect on extremeness seeking in the hypothesized effect direction.

Furthermore, we applied a principal components analysis with varimax rotation on the 5 items of preoccupation with prediction uncertainty to derive a measure for the construct.

This analysis resulted in a one-factor solution. For all following analyses, we draw on the corresponding factor score.

Surprisingly, Table 4.6 shows that *overall* future time perspective only significantly correlates with the number of extreme choices and positive mood and that preoccupation with decision uncertainty correlates with decision motivation (indicating rationality rather than feeling driven motives). However, a closer look at correlations within the experimental group reveals that future time perspective correlates negatively with preoccupation with prediction uncertainty while the number of choices correlates negatively with decision motivation. In addition, we observe significant differences between groups for preoccupation with prediction uncertainty ($t(96)=-2.382, p<.05$) and decision motivation ($t(96)=-2.639, p<.05$).

Table 4.6: Correlation analyses

		1		2		3		4		5		6		7
1	Number of extreme choices	Overall 1												
		Short FTP 1	Control Group 1											
2	Future time perspective	Overall -.309**		Overall 1										
		Short FTP -.142	Control Group .111	Short FTP 1	Control Group 1									
3	Preoccupation with prediction uncertainty	Overall -.160		Overall .053		Overall 1								
		Short FTP -.129	Control Group .084	Short FTP -.310*	Control Group .175	Short FTP 1	Control Group 1							
4	Decision motivation	Overall -.239*		Overall .043		Overall .223*		Overall 1						
		Short FTP -.287*	Control Group .101	Short FTP -.250	Control Group .028	Short FTP .364*	Control Group -.030	Short FTP 1	Control Group 1					
5	Good mood	Overall .058		Overall -.199*		Overall .136		Overall -.061		Overall 1				
		Short FTP -.093	Control Group .022	Short FTP .003	Control Group -.255	Short FTP .187	Control Group .190	Short FTP .053	Control Group -.159	Short FTP 1	Control Group 1			
6	Awake mood	Overall -.100		Overall -.108		Overall .058		Overall -.145		Overall .368**		Overall 1		
		Short FTP -.215	Control Group .022	Short FTP -.016	Control Group -.068	Short FTP .357*	Control Group -.096	Short FTP .053	Control Group -.232	Short FTP .458**	Control Group .272	Short FTP 1	Control Group 1	

7	Calm mood	Overall		Overall		Overall		Overall		Overall		Overall		Overall	
		-.087		.025		.168		.076		.551**		.166		1	
		Short FTP	Control Group	Short FTP	Control Group	Short FTP	Control Group	Short FTP	Control Group	Short FTP	Control Group	Short FTP	Control Group	Short FTP	Control Group
		-.166	-.001	.103	-.061	.144	.199	.062	.089	.606**	.522**	.262	.111	1	1

*Correlation is significant at the .01 level; *Correlation is significant at the .05 level

Findings Study 2

Study 2 replicated and extended the findings from study 1. The results confirm those regarding H_{1a}, indicating extremeness seeking behavior for hedonic choice options with particularly high hedonic value under a shortened future time perspective. Furthermore, we find statistically significant support for H_{1b}, in particular after controlling for the moderating effect of product durability. The main effect of extremeness seeking for low utilitarian value options is markedly moderated by durability, that is, in durable products the effect is clearly present, supporting H_{1b}, while the effect does not occur in non-durable products. Here, we surprisingly find an opposite effect direction, that is, increasing preference for the high utilitarian value option. The proposed moderating effect of durability is prominent for hedonic as well as utilitarian products. Hence, we find support for H_{2a} and H_{2b}. When the product is hedonic, the shares for the high (hedonic) value option are higher for the non-durable product. In contrast, when the product is utilitarian we find higher shares for the durable product option with low (utilitarian) value. Finally, study 2 reveals correlative relationships between future time perspective and a positive mood and the preoccupation with prediction uncertainty respectively. Furthermore, we observe a general positive (negative) link between feeling-motivated decision making (rational decision making) and extremeness seeking behavior. This offers preliminary insights into the motivation of decision maker's abandonment of loss aversion and the willingness to seek out extreme choice options and provides first evidence that the observed shifts in choice behavior as we discussed them are mediated or moderated by the aforementioned constructs.

General Discussion

Our research addresses how future time perspective affects consumer preferences and choice behavior with regard to hedonic and utilitarian goods, how product durability impacts on this effect and it sheds first light on underlying mechanisms affecting the observed behavior. Specifically, we show that the manipulation of future time perspective is possible and can affect consumers' preferences in hedonic goods and their choice behavior accordingly. Demand for the high quality hedonic products is indeed highest for participants with a short future time perspective as opposed to individuals with a more extensive future time perspective (H_{1a}). Our results further show, that this effect is moderated by the durability of the products involved in a choice (H_{2a}) to the effect that non-durable products result in greater extremeness seeking than durable products. With regard to utilitarian products, we observe a main effect in the opposite direction of that of hedonic products, that is, individuals prefer low utilitarian value options, when faced with a limited time horizon (H_{1b}). This effect too is moderated by product durability (H_{2b}), and even more strongly so than for hedonic products. In this instance, while short future time perspective leads to extremeness seeking towards low quality options in the case of durable products, decision makers clearly prefer high quality options when it comes to non-durable products. While generally not at odds with H_{2b} , the expressly high demand for utilitarian high value options under a shortened future time perspective comes as a surprise.

While the moderating effects of durability are largely in line with previous findings, that decision makers opt for the "lesser evil" and reduce financial loss (Levav et al., 2010) when having to make a choice, our results also indicate that the choice behavior for non-durable utilitarian products follows a different rationale. While the product category may have been predominantly utilitarian, the understanding that dominant, but non-exclusive associations with a product category identify products as either hedonic or utilitarian, suggests

that a utilitarian good like toilet paper can still offer some degree of experiential (hedonic) value (Chernev, 2004). It seems plausible, that as a consequence of a markedly short future time perspective, this previously irrelevant hedonic value has gained sufficient weight to tip the scales and become the primary attribute considered in the consumption choice. Additionally, the greater preference for the high quality choice option in case of a non-durable utilitarian good might indicate that the (financial) losses that result from choosing the expensive, high quality option were still perceived as over-all limited and thus not warranting extremeness aversion (Neumann et al., 2016).

An alternative post hoc explanation is that the quality of a non-durable product was perceived as immediately rewarding, while the durable product's quality justifies the monetary loss only when one can enjoy it over an extended period of time, which under a shortened future time perspective might not be possible. The lack of an effect of mood on choice behavior is particularly interesting, since it seemingly confounds findings from previous research (Lin, Yen, & Chuang, 2006). However, this underlines that the effects of a shortened future time perspective are distinct from the risk avoidance mechanism proposed to underlie the effect of mood in other settings. In a similar vein, our findings provide further insights with regard to previous studies that strictly associate extremeness seeking with hedonic products and extremeness aversion with utilitarian goods (Kim & Kim, 2016).

Our research offers strong implications for advertisement practitioners. We clearly show that advertisement slogans using any time primes, which may affect individuals similarly to our future time perspective manipulation, can have diametrically opposing effects on hedonic and utilitarian products. While time primes along the lines of "time's short, enjoy..." for instance, can increase demand for hedonic goods, demand for utilitarian products can actually be harmed. In addition, in cases of a non-durable utilitarian product an

emphasis on short time horizons can direct attention towards the hedonic aspect of consuming this product.

In general, we have to account for the possibility of structural biases that originate from our experimental design, which relies on hypothetical choices. Individuals who are asked to imagine a situation and decide, but who do not have to suffer any real consequences (e.g. pay the actual price or accept opportunity costs), show less consideration of economic consequences and reflect less on the outcome of their choice (Müller, Kroll, & Vogt, 2012). Müller et al. (2012) specifically show that this can moderate context effects. Thus, we have to take into consideration that the present results may be somewhat biased, for instance, towards expensive choice options. This however, makes the observation of preference shifts between conditions even more salient.

Furthermore, our findings diverge from those of Wei et al. (2013) insofar as that we were unable to manipulate an extension of future time perspective in young individuals. This is in line with future time perspective theory which argues that most young individuals typically have the perception of having infinite time in life to start with. The extension of infinity thus marks a problem for the manipulation of future time perspective with the goal of a further extension. Future research is needed to both theoretically and, afterwards, given the theoretical implication, empirically address this question.

The finding that individuals with a shortened future time perspective opt for high quality options even when making a choice concerning utilitarian products that have a short life-span, is insofar remarkable, as it indicates that it might be possible to shift attribute weights sufficiently to cause a utilitarian product to be evaluated by its hedonic and thus presumably far less relevant attributes. This has potentially far-reaching implications not just for future time perspective research, but marketing research in general. Our finding indicates

that utilitarian products can under certain circumstances be evaluated predominantly based on their hedonic attributes, instead of the utilitarian attributes which traditionally identify them.

This provides further evidence for the possibility of a “hedonification” of utilitarian products. Future research should address the question how and to what degree this explains for instance the effect of an appealing design as an affective enriched, categorical attribute that offers affective value and impacts on the purchase likelihood and price-sensitivity for utilitarian goods (Chitturi et al., 2008, Kim & Park, 2017; Nowlis & Simonson, 1997).

Our results further support previous findings from related research, that value-added processes (easier justification adds value to a middle option, making it preferable) and value-shift processes (the subjective value of an attribute increases) can both affect the occurrence of the compromise effect, that is the manifestation of extremeness aversion (Pechtl, 2009).

Our exploratory findings concerning underlying mechanisms and motivators of the observed choice behavior opens up new avenues for future research. In particular, the finding that extremeness seeking is positively associated with feelings-based decision making is interesting, as this suggests, that the effects we observe may not solely result from changing attribute importance, but might also be a consequence of changing decision making styles.

Socioemotional selectivity theory is a promising theoretical framework for this. The emphasis on emotions and affect under a short future time perspective is well established and plausible (Fung & Carstensen, 2003, 2006). Future research should focus on the mechanism of goal setting procedures that come along with this emphasis. Especially our finding that a short future time perspective is connected to making decisions based on “gut feeling” while the final tendency to opt for extreme choices is connected to less worrying about the outcome of choice, should be taken into consideration. A broader model of antecedents of decision making could be built on this finding.

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APPENDIX D

Table D1: Overview of measures

Construct	Author(s)	Items	Study 1	Study 2
Personality ¹ Big 5 inventory	Rammstedt and John (2007)	10 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) with 5 sub-dimensions extraversion neuroticism agreeableness conscientiousness openness	Y	Y
Impulsive behavior ¹	German version of UPPS scale of (Whiteside & Lynam, 2001) by Kovaleva, Beierlein, Kemper, and Rammstedt (2014)	8 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) with 4 sub-dimensions - urgency - (lack of) premeditation - (lack of) perseverance - sensation seeking	Y	Y
Risk attitude ¹		Single item indicating willingness to take risks on a 11-point Likert-type scale (from 0=not at all willing to take risks, to 10=very much willing to take risks)	Y	Y
Gender ¹	n.a.			Y
Age ¹	n.a.			Y
Faculty ¹	n.a.			Y
Federal state of birth ¹	n.a.			Y
Faculty ¹	n.a.			Y
Future time perspective (German Version) ²	Lang and Carstensen (2002)	10 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree).		Y

Lifetime horizon ²	developed by authors	Single item, displaying an arrow and asking to indicate where participants perceive themselves on the arrow with the beginning of the arrow indicating beginning of life and arrowhead indicating end of life (1=at the very beginning my life 22=at the very end of my life)		Y
Time horizon ²	Williams and Drolet (2005)	2 scales with 3 items in each scale; measuring either the extent to which participants perceived the message (manipulation) as time limiting or time extending on a 7-point Likert-type scale		Y
Choice sets ²		Choice situations asking to indicate a preference from a set of 3 products (from each product category) with A=low price, low quality product, B=medium price, medium quality product, C=high price, high quality product)	2 product categories)	Y 8 product categories)
Preoccupation with prediction uncertainty	Sheng et al. (2005)	Sub-scale from decision uncertainty instrument 5 items answered by indicating agreement on a 7-point Likert-type scale (from 1= totally disagree, to 7 = totally agree) (low values indicate little concern about regretting future consequences of decisions made)		Y
Decision motivation	developed by authors	Single item asking to indicate what the main driver in decision making was with 1="I made my decision based on a "gut feeling" to 7 "I made my decision by thoroughly thinking about pros and cons"		Y

Evaluation of product attributes in terms of price and quality ³	n.a.	Evaluation of all products on a 7-point-Likert-type scale: How do you perceive i) the price / ii) the quality of product A, B, C with 1=very low to 7=very high		Y
Mood ³	Steyer, Schwenkmezger, Notz, and Eid (2004)	12 bipolar items answered on a 5-point semantic differential scale with 3 sub-dimensions <ul style="list-style-type: none"> - good-bad mood (4 bipolar items) - awake-tired mood (4 bipolar items) - calm-nervous mood (4 bipolar items) 		Y

¹ Questionnaire No1; ² Questionnaire No 2; ³ Questionnaire No 3

Ehrenerklärung

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Magdeburg, 03.12.2019

Doreen Neubert