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WORKING PAPER

The Role of Materialism in the Endowment Effect¹

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Abstract

Past research documents an asymmetry between consumers' willingness to pay for an object and their willingness to accept to give up this object. The current paper presents three studies which demonstrate that materialism moderates this "endowment effect". Although materialism is not related to willingness-to-pay, materialism is positively related to minimum selling prices for endowed objects. Increasing the attachment to material values with a mortality salience procedure augments the endowment effect even more, particularly for materialists. Our findings validate minimum selling prices for endowed objects as an indirect measure of materialism and qualify the prevalence of the endowment effect.

THE ROLE OF MATERIALISM IN THE ENDOWMENT EFFECT

A substantial amount of research documents a consistent discrepancy between people's willingness to pay (WTP) for an object (i.e., their maximum buying price) and their willingness to accept (WTA) to be deprived of the object (i.e., their minimum selling price). People often demand higher prices to sell an owned object than the price they are willing to pay for that object if it is not yet in their possession. This asymmetry is generally referred to as the endowment effect (Kahneman, Knetsch, and Thaler 1990; Thaler 1980). Put differently, people assign more monetary value to an object they possess than to one they do not possess for no other reason than because they own it (Tom et al. 2007). Such a discrepancy between buying and selling prices may encumber a rationally efficient distribution and exchange of goods (Bischoff and Meckl 2008; Mandel 2002). Therefore we believe it is valuable to identify the conditions under which a divergence between WTP and WTA is found. That is, to identify factors that moderate the endowment effect. Given the vital role of material goods in the life of many contemporary consumers and their reluctance to share their belongings with others (Belk 1984; Richins and Dawson 1992), this paper proposes that materialism moderates the endowment effect. A material value orientation, once primarily attributed to the American consumerist culture (Belk 1985), seems to dominate an ever increasing part of the world (Ger and Belk 1996), partly driven by television broadcasting and advertising coverage (O'Guinn and Shrum 1997; Pollay 1987). As a result, the impact of the pricing distortion resulting from the endowment effect might become ever more apparent if materialism indeed augments the endowment effect. On the contrary, the distorting effect of a discrepancy between WTP and WTA may be less severe than is usually expected among low materialistic individuals as they may be less reluctant to exchange their belongings. Such a finding would not only enhance our understanding of the conditions under which an endowment effect is observed, it would also provide valuable insights in the economic consequences of the endorsement of a materialist lifestyle.

This paper presents three experiments in which evidence is found for the moderating role of material values in the occurrence of the endowment effect. Our results reveal an increasing endowment effect with increasing materialism, chiefly due to materialists' tendency to demand high selling prices for their possessions. Little evidence is found for an endowment effect in non-materialists. Implications for our understanding of the endowment effect as well as theoretical and methodological implications for future materialism research are discussed.

THE ENDOWMENT EFFECT

In a well-known experiment Kahneman, Knetsch and Thaler (1990) distributed coffee mugs to half of the participants. Owners (“sellers”) stated their minimum selling price for the mug, whereas non-owners (“buyers”) indicated their maximum buying price for this item. On average, sellers demanded a substantially higher price than non-owners were willing to pay. Contrary to the common assumption that individuals have relatively stable preferences in the short-run, these findings imply that a person’s preference for an object might change quickly as soon as he obtains ownership of it (Van Boven, Loewenstein, and Dunning 2003). As a result, this “endowment effect” potentially causes undertrading (Mandel 2002). Evidence for a disparity between WTP and WTA was found in a number of studies in varied settings, e.g., lab experiments (Kahneman et al. 1990) and economic market experiments (Franciosi et al. 1996), using different types of endowments, such as candy bars (Kahneman et al. 1990; Morrison 1997), wines (Mandel 2002) or pens (Kahneman et al. 1990).

Thaler (1980) tied the endowment effect explanation of the disparity between WTP and WTA to Kahneman and Tversky’s (1979) principle of loss aversion. According to this principle, the pain of giving up an object when it belongs to one’s endowment outweighs the positive experience of gaining this object. Thus the value of an object increases when it enters a person’s endowment, resulting in a steeper value function for the loss of this object than for its initial gain (Kahneman et al. 1990). Therefore, people tend to value their possessions more than alternatives of the same monetary value (Kahneman and Tversky 1979; Tversky and Kahneman 1991). As a result, a larger discrepancy between WTP and WTA is generally observed than might be expected under the standard economic theory of preference (Kahneman and Tversky 1979; Kahneman et al. 1990; Strahilevitz and Loewenstein 1998).

However, the endowment effect appears not to be as strong for everyone or in every circumstance. For instance, Strahilevitz and Loewenstein (1998) found evidence for a duration-of-ownership effect, which suggests that consumers adapt to ownership over time. The authors show that the value of an object increases with prolonged ownership and, as a result, its desired selling price augments as well. Not only the duration of ownership matters, but also the manner in which one obtains a good impacts the degree of WTP-WTA disparity. Evidence is found that an object is valued higher when it is acquired after a good performance than when it is acquired as compensation for a

poor performance or by chance (Loewenstein and Issacharoff 1994). Furthermore, the degree of the endowment effect may be influenced by individual characteristics, such as a person's regulatory focus (Lieberman et al. 1999). Individuals in a prevention focus appear to be reluctant to exchange possessions, whereas individuals in a promotion focus are more open to changes and thus more willing to exchange endowments. Also, evidence is found for an effect of emotions in the occurrence of the endowment effect. For instance, Lin et al. (2006) found no endowment effect when participants are induced to feel sad. Additionally, Lerner, Small and Loewenstein (2004) found that sadness may even produce a reverse endowment effect (i.e., willingness to pay exceeding willingness to accept). Emotions may thus instigate a change in the cognitive perspective of buyers and sellers prompting them to focus on different aspects of the transaction (Ariely, Huber, and Wertenbroch 2005). Although it is beyond the scope of this paper to provide a complete overview of moderators of the endowment effect, the results described above highlight the importance of emotions and other motivational factors, in addition to loss aversion, as determinants of the endowment effect. The current research aims to extend this line of research and proposes materialism as an additional moderator of the endowment effect.

MATERIALISM AS A MODERATING FACTOR

Materialism is widely assumed to be a set of values and beliefs held by individuals who consider the accumulation of material wealth as essential to their life and well-being. (Burroughs and Rindfleisch 2002; Richins and Dawson 1992; Kasser and Ahuvia 2002). Materialists tend to assume that acquiring possessions will buy them happiness and they judge their success in life as well as their satisfaction with life by the quality and status of their belongings (Richins and Dawson 1992). A material value orientation is known to have a wide range of adverse effects. Materialism, for instance, appears to be problematic for individuals' subjective well-being (Burroughs and Rindfleisch 2002; Kasser and Ryan 1993) and for society in general through, among others, its negative relationship with ecological concern (Brown and Kasser 2005). In addition, a material value orientation may predict excessive spending behavior and low saving behavior (Dittmar 2005; Watson 2003).

An additional, economic implication of the endorsement of material values may be the augmentation of the WTP-WTA disparity, thereby decreasing the expected number of transactions. In

other words, materialists' high valuation of goods and their tendency to retain ownership of their possessions suggest that a material value orientation may moderate the endowment effect. The notion that materialists find it hard to part from their possessions or even to share their belongings with others is inherent in the definition of materialism (Belk 1984). Accordingly, a materialist might only want to exchange an endowment if a sufficiently high (monetary) compensation is guaranteed. We therefore propose that sellers (owners) high on materialism are more reluctant to exchange endowments for money than sellers scoring lower on materialism.

It is less clear how materialism relates to willingness to pay. On the one hand, buying prices may not increase with increasing materialism. Buyers (non-owners) have to give up one possession (money) in order to obtain another one (object). Previous research has shown that spending money may be perceived as a loss (Bateman et al. 1997; Munro and Sugden 2003) or at least as a foregone gain of money (Tversky and Kahneman 1991) and thus as a missed opportunity to purchase other, possibly more attractive goods. Therefore, a transaction might have an undesirably high cost and consequently be unattractive if a buyer offers an amount of money that highly exceeds the objective value of the object. On the other hand, evidence is found that people who strongly endorse material values feel a stronger urge to spend their money than their less materialistic counterparts (Dittmar 2005; Watson 2003). Possibly, materialistic buyers are more willing to spend money on a not-owned-yet good relative to buyers low on materialism. Still, buying prices are expected to increase less steeply as a function of materialism than selling prices. As a result, even if materialistic buyers are more willing to spend money on a not-owned-yet good less materialistic buyers, the endowment effect should be more pronounced for materialistic consumers than for less materialistic consumers. In sum, we assume that:

- H1:** Materialistic sellers demand higher prices for an endowment than non-materialistic sellers.
- H2:** The difference between sellers' and buyers' prices (i.e., the endowment effect) increases with increasing materialism.

STUDY 1

To test the hypothesis that materialism moderates the endowment effect, a first experiment was conducted. In an Internet survey participants were instructed to consider either selling or buying prices for a coffee mug with the university logo. The difference between mean buying and selling prices constitutes our measure of the endowment effect.

Method

Participants. One hundred eighty-nine second year students at K.U.Leuven (Belgium) participated as part of a course requirement. Sixty-two participants (33%) were male, 127 participants (67%) were female. They were randomly assigned to one of two endowment conditions: 88 students were assigned to the seller condition, 101 students were in the buyer condition. Participants received a course credit for their contribution.

Procedure. First participants saw a coffee mug with the university logo. They were instructed to consider that they could either buy (buyer condition) or sell (seller condition) this coffee mug for a price of their choice. Next, they indicated the amount of money (in euros and cents) they would give (buyer condition) or would want to get (seller condition) for the coffee mug. Because study 1 was an Internet survey, participants' endowment with the mug was not factual. However, a similar endowment effect has been found for real endowments as well as for purely mental endowments (Carmon and Ariely 2000; Carmon, Wertenbroch, and Zeelenberg 2003; Liberman et al. 1999; Mandel 2002; Sen and Johnson 1997). Subsequently, participants completed the Material Values Scale (Richins and Dawson 1992), measuring chronic levels of materialism. The scale consists of 18 items, scored on a seven-point Likert scale (1 = totally disagree, 7 = totally agree, $\alpha = .86$).

Results and Discussion

Two outliers were removed (1.1% of the data). A particular buying or selling price X is identified as outlier if $X < (Q1 - 1.5 \times IQR)$ or $X > (Q3 + 1.5 \times IQR)$, where $IQR = Q3 - Q1$ is called the interquartile range (Tukey 1977). Evidence is found for the endowment effect: Buyers' maximum

buying prices are significantly lower ($M_{\text{buyingprice}} = \text{€}1.49$, $SD = 1.20$) than sellers' minimum selling prices ($M_{\text{sellingprice}} = \text{€}2.37$, $SD = 1.78$), ($t(185) = -4.04$, $p < .0001$). To test the assumption that materialism moderates this endowment effect, participants' prices were regressed on three predictors: endowment condition (buyer vs. seller), materialism and their interaction. No overall effect of material values on stated prices is found ($F(1, 183) = 1.41$, $p = .24$). However, the predicted interaction between endowment condition and material values is significant ($F(1, 183) = 5.97$, $p = .02$). The regression slope is significant for sellers ($t(183) = 2.55$, $p = .01$), but not for buyers ($t(183) = -.89$, $p = .37$) (figure 1).

Insert figure 1 about here

In sum, our first experiment suggests that materialistic sellers indeed demand higher minimum selling prices for a good than less materialistic sellers. For buyers, no significant relationship between buying prices and materialism is found. Thus, the data support the hypothesis that materialism moderates the endowment effect (hypothesis 2). When individuals are more materialistic, a larger WTP-WTA disparity, due to higher selling prices (hypothesis 1), and thus a stronger endowment effect is observed. In line with our predictions, these findings suggest that the endowment effect is most prevalent in highly materialistic individuals, whereas less evidence for an endowment effect is found in non-materialists.

STUDY 2

Although sellers in study 1 were endowed with a quite inexpensive and not particularly attractive object, a coffee mug, an endowment effect was observed and a relationship between materialism and selling prices was found. However, levels of materialism did not predict buying prices. The first objective of the current experiment is to test the robustness of this null result. Possibly, this failure to obtain a relationship between materialism and buying prices may have been due to the type of product used in study 1. If a fairly unattractive object is offered for sale, it is likely that non-materialists as well as materialists prefer the relatively superior option of not spending their money, such that both

types of individuals indicate low willingness to pay. Hence, a relationship between materialism and buying prices may be observed only when buyers are offered a valuable and desirable object that is worth spending their money. In a second study, male participants are therefore instructed to consider either buying or selling prices for six more expensive, technologically innovative gadgets that were rated to be highly attractive.

A second objective is to examine two factors related to materialism that might explain the moderation effect observed in study 1. Previous research identified an important role of emotions in the occurrence of the endowment effect (Lerner, Small, and Loewenstein 2004; Lin et al. 2006). The endowment effect appears to be larger when positive emotions are elicited in participants than when negative emotions are prevalent. In line with this finding, it is possible that the presumed endowment with an object elicits more positive feelings in sellers who score high on materialism compared to sellers who score low on materialism. If this assumption holds, the influence of materialism observed in study 1 could be due to differential mood in materialistic versus non-materialistic sellers. Second, although Strahilevitz and Loewenstein (1998) found no evidence that differences in the desirability of an object between sellers and buyers could account for the endowment effect, this may change when materialism is taken into account. Based upon Richins and Dawson's (1992) theorizing, it is indeed plausible that materialistic individuals are more eager to possess all kinds of objects and therefore find anything more desirable to own. This would be consistent with the finding that the attractiveness of an object may depend on consumers' activated goals (Markman and Brendl 2002). If an association between materialism and desirability of endowments would indeed exist and if this association would be stronger for sellers than for buyers, differences in desirability of the endowed object could explain the moderating effect of materialism on object valuation. A second experiment will test these potential explanations.

Method

Participants. Sixty-eight male students ($M_{\text{age}} = 21.81$, $SD = 5.30$) at K.U.Leuven participated in the experiment. They were invited to the laboratory in groups of eight students at the time. They received a €6 participation fee. Participants were seated in separate cubicles so they would not interact with each other during the course of the experiment.

Procedure. Participants were randomly divided over two endowment conditions: Half were buyers, the other half were sellers. They received pictures and a short description of six gadgets (e.g., an iPod watch, a nano projector,... see appendix). As all participants were male, gadgets were selected that are likely to appeal to men. For each gadget, participants answered two questions. A first question measured the endowment effect. Participants in both endowment conditions were presented with a list of twenty-four price intervals (ranging from “€0 - €5” to “> €450”). In the seller condition, participants imagined that they received the gadget from an acquaintance who bought it abroad. They considered their minimum selling price for the object, given that someone would want to buy it from them. Buyers were told that an acquaintance bought the gadget abroad and offered them the chance to buy it. To avoid that restraints on their actual spendable budget would impact stated buying prices, participants were instructed to imagine that they had saved €8.000 on their bank account. Maximum buying prices were stated by choosing the desired price interval for each gadget. The lowest value of each chosen price interval is used to construct a price variable for each object. Although not reported, similar results are obtained when buying and selling price variables do not represent a continuous monetary value, but consist of the ranking number (1 to 24) of each price interval. The reason why we applied a different measure of the endowment effect than in study 1 is twofold. Firstly, previous trials revealed that participants find it hard to come up with an exact price for an unfamiliar, expensive product. Since participants in the current study have to state prices for six products, we offered them the opportunity to choose one option in a list of price intervals in order to facilitate their task and to avoid incomplete responses. Secondly, the measure used in study 1 may be prone to extreme responses as there is no upper price limit (Reb and Connolly 2007). The gadgets in the current study are more expensive, likely to yield higher selling or buying prices and more variance in prices than the coffee mug in study 1. Asking participants to choose one of the given price intervals adequately solves this potential outlier problem. A second question for each gadget measured its desirability. Participants stated on a seven-point Likert scale (1 = not at all, 7 = very much) how much they would like to own each gadget.

To test whether self-reported mood states differed for more or less materialistic sellers and buyers, participants filled out the Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, and Tellegen 1988) using a five-point Likert scale (1= not at all, 5 = extremely). Participants completed

the Material Values Scale (Richins and Dawson 1992) as part of an internet survey two weeks prior to the experiment ($\alpha = .87$).

Results and Discussion

Because every participant contributed six prices instead of just one price (as in study 1), the prices are not independent of one another. To deal with such data, basically two alternative analysis strategies exist: conducting repeated measures ANOVA or conducting multilevel regression analysis. Multilevel regression analysis resembles ordinary regression analysis, but it adjusts the significance tests to take the repeated-measures nature of the data into account. The multilevel aspect refers to the fact that data are drawn from units at different levels (here: the participants constitute one level while the price estimates for six different products, which are nested within participants, constitute another level). We choose to conduct multilevel analysis because it is more flexible: it not only allows testing whether the obtained effects differ across gadgets, but also enables us to adequately test competing explanations-in terms of mood and desirability-for the obtained effects; the latter is not possible in repeated measures ANOVA. Multilevel regression analysis requires the researcher to specify the structure of the within-subject error variance-covariance matrix. The choice of the error variance-covariance structure can be guided using Chi Square tests and information criteria like AIC and BIC (Littell, Milliken, Stroup, Wolfinger, and Schabenberger 2006). In all analyses, we used an unstructured error variance-covariance matrix as this was superior to any reasonable alternative (compound symmetry or Huynh-Feldt structure) on all statistical criteria. However, alternative choices did not alter our conclusions.

In a first multilevel regression model, participants' gadget prices were regressed on three predictors: endowment condition (buyer vs. seller), gadget and their interaction. A main effect of endowment condition is found ($F(1, 66) = 52.79, p < .0001$), demonstrating a significant endowment effect. Significant effects on participants' gadget prices are found of type of gadget ($F(5, 66) = 85.15, p < .0001$) and the interaction between gadget and endowment condition ($F(5, 66) = 11.98, p < .0001$). This last interaction is not problematic as a significant endowment effect is found for each of the six gadgets (table 1).

Insert table 1 about here

In a second multilevel regression model, we added materialism, desirability and mood as predictors as well as all the two-way and three-way interactions between materialism, gadget and endowment condition. Materialism was added to the model in order to test our main hypothesis that materialism moderates the endowment effect. Levels of positive and negative affect were included to investigate whether the relation between materialism and the endowment effect is due to a differential mood effect (i.e., due to a relation between materialism and mood for sellers but not for buyers). Desirability of the gadgets was added to the model to test whether the moderating effect of materialism is actually due to an increased desirability of the gadgets in materialistic sellers, compared to non-materialistic sellers and materialistic and non-materialistic buyers.

Material values do not reliably predict overall prices ($F(1, 62) = 2.37, p = .12$), but a significant interaction is found between endowment condition and materialism ($F(1, 62) = 4.36, p = .04$). This interaction is, however, not as pronounced for each gadget ($F(5, 62) = 2.91, p = .02$). Table 1 presents the interaction effects and regression slopes for the individual gadgets. Note that for each individual gadget the slopes for sellers are steeper than for buyers, although the interaction between endowment condition and materialism is not significant for the nano projector. However, for all the other gadgets the interaction is significant.

Overall, we replicated the interaction between materialism and endowment condition observed in study 1, even when the model controls for mood and desirability of the object. This suggests that materialism predicts selling prices and not buying prices. The influence of material values cannot be attributed to a mood effect, although high materialistic participants in general tend to experience less positive affect ($F(1, 64) = 6.04, p = .02$). Although desirability significantly predicts buying and selling prices ($F(1, 62) = 104.43, p < .0001$), differences in desirability between low and high materialistic sellers cannot account for the effect of materialism on selling prices. In fact, regressing the desirability of the gadgets on endowment condition, materialism and their interaction failed to produce significant effects of materialism ($F(1, 64) = 1.45, p = .23$), endowment condition ($F(1, 64) = .16, p = .69$), or the interaction between endowment condition and materialism ($F(1, 64) = .06; p = .81$). The desirability of the gadgets thus does not vary between sellers and buyers, nor does it vary between participants scoring

low and participants scoring high on materialism. More importantly, there is no evidence at all for a stronger link between materialism and gadget desirability for sellers than for buyers.

In sum, this study replicated the findings of the first experiment. Although an overall endowment effect was observed, materialism moderates the endowment effect (hypothesis 2): Materialistic sellers indicate higher prices for possessions than less materialistic sellers (hypothesis 1). No relationship is found between material values and buying prices even when participants were offered more attractive and valuable objects. Additionally, the current experiment ruled out two potential explanations for the observed relation between materialism and endowment effect. The impact of materialism on selling prices cannot be attributed to an increased desirability of endowments in materialistic sellers, or to differences in affect between more and less materialistic participants. This supports our prediction that materialism itself accounts for the observed effects.

STUDY 3

The previous studies provide evidence that materialism moderates the endowment effect. To provide an even stronger case for our hypothesis, an increased endowment effect should be observed when consumers' importance attached to material values increases. Several studies indicate that increasing consumers' awareness of their death (i.e., make their mortality more salient) temporarily increases materialism. For instance, Mandel and Heine (1999) found that mortality salience increased preferences for luxury brands over non-luxury brands. Kasser and Sheldon (2000) found that mortality salience increased feelings of greed and higher aspirations for future earnings.

The association between death related thoughts and materialism is theoretically grounded in terror management theory (Greenberg, Pyszczynski, and Solomon 1986). According to terror management theory, people attempt to cope with the awareness of their transience through the creation of and belief in cultural worldviews. Living up to these culturally shared conceptions of reality helps them to sustain their self-esteem and provide their lives with a sense of (shared) meaning. In most capitalist cultures, the acquisition of wealth and the consumption of material goods are promoted as legitimate and satisfying pathways to a successful and meaningful life or even to immortality (Solomon, Greenberg, and Pyszczynski 2004). Consequently, terror management theory predicts that members of these societies who are confronted with the prospect of their death will augment their

materialistic pursuits in an attempt to bolster their self-esteem and ascribe worth to their life within the cultural context in which they live and breathe (Kasser and Sheldon 2000). Furthermore, Arndt et al. (2004, 204) argue that: “because awareness of death instigates efforts to augment self-esteem, concerns about mortality should often intensify materialistic desires in people for whom such pursuits are a salient barometer of self-worth.” In line with this reasoning we predict an increased endowment effect after a mortality salience induction. In addition, we predict that this increase will be stronger for consumers who endorse material values to a higher extent prior to the induction of death related thoughts. In other words, the effect of mortality salience on the endowment effect should be more pronounced for materialistic consumers than for less materialistic consumers. Statistically, this should be evidenced in a three-way interaction between endowment condition (seller vs. buyer), materialism and mortality salience condition (salient vs. not salient).

Method

Participants. Three hundred and seven first year students at K.U.Leuven, 102 males (33%) and 205 females (67%), participated in the experiment as part of a course requirement. They were randomly divided over two auditoria and received an extra credit for their participation. Two experimenters were present in each auditorium to ensure participants would not interact during the course of the experiment.

Procedure. Participants first completed the Material Values Scale (Richins and Dawson 1992, $\alpha = .84$). Ten participants did not complete the questionnaire and were removed from the dataset. Then participants were randomly instructed to write a short essay about their own death (mortality salience condition, $N = 121$), about their favorite music (control condition 1, $N = 86$) or about a visit to the dentist (control condition 2, $N = 90$). In previous research both types of control conditions have been compared with a mortality salience condition (music: Kasser and Sheldon 2000; dentist: Mandel and Smeesters 2008). However, it is likely that both control tasks elicit different emotions. Given the importance of emotions in the occurrence of the endowment effect (Lerner et al. 2004; Lin et al. 2006), we included and compared both control conditions. Ten participants refused consider their death and were removed from the dataset.

After a number of unrelated tasks, “sellers” (N = 110) were endowed with a small gadget called clicker whereas “buyers” (N = 177) were not. The clicker was distributed in 2006 by Unilever brand AXE® to support the release of AXE Click®, a new line of men’s shower gel and deodorant. Participants were informed that they would have the chance at the end of the session to exchange clickers with other participants. They indicated how much money they would give (buyers) or would want to get (sellers) for the clicker.

Results and discussion

Five outliers are removed (1.7% of the data). Outliers were identified according to the same procedure as applied in study 1. Buyers demand significantly lower prices for the clicker ($M_{\text{buying price}} = €0.56$, $SD = 1.24$) than sellers ($M_{\text{selling price}} = €2.68$, $SD = 2.72$), ($t(280) = -8.55$, $p < .0001$). Moreover, being in control condition 1 (music) compared to control condition 2 (dentist) does not affect selling or buying prices, ($F(1, 167) = .26$, $p = .61$), nor does it interact with endowment condition (buyer vs. seller), ($F(1, 167) = .36$, $p = .55$). We therefore collapse both control conditions and treat them further as one control condition.

To test the prediction that the endowment effect is moderated by materialism and that this moderation is reinforced when mortality is salient, a general linear model analysis is conducted with endowment condition (buyer vs. seller) and mortality salience condition (salient vs. not salient) as between subjects factors and materialism as a covariate; all possible interaction variables were also included. The overall endowment effect is still significant when materialism and mortality salience are included in the model, ($F(1, 274) = 5.82$, $p = .01$) and material values significantly predict overall prices ($F(1, 274) = 17.96$, $p < .0001$). In line with our previous findings, the interaction between endowment condition and material values is significant ($F(1, 274) = 14.39$, $p = .0002$). The regression slope is significant for sellers ($t(274) = 4.80$, $p < .0001$), but not for buyers ($t(274) = .41$, $p = .69$).

Concerning the mortality salience induction, the analysis yields a marginally significant interaction between mortality salience condition and endowment condition, ($F(1, 274) = 3.62$, $p = .058$), suggesting that sellers demand higher prices for the clicker when thoughts about their death are made salience, ($t(274) = 1.80$, $p = .071$). Buying prices do not differ between the mortality salience condition and the control condition, ($t(274) = .11$, $p = .92$). More importantly, the data reveal the

predicted three-way interaction between endowment condition, mortality salience condition and materialism, ($F(1, 274) = 4.57, p = .03$). We previously found that the level of material values significantly predicts selling prices, but does not affect buying prices. In the mortality salience condition, relative to the control condition, the data show a similar yet more pronounced pattern (figure 2). The more a participant endorsed material values prior to the mortality salience induction, the more pronounced the resulting materialistic behavior in terms of stated selling prices, relative to stated selling prices in the non salient control condition. So, the mortality salience manipulation increased the slope of materialism for sellers, but not for buyers.

Insert figure 2 about here

Based on the theoretical and empirical evidence that reminding consumers of their own mortality reinforces materialistic behavior, we proposed that materialistic sellers who are reminded of their death would demand higher prices for an endowment relative to materialistic sellers with less threatening thoughts. In our third experiment, support for this prediction was found. This suggests that experimentally increasing the importance attached to pre-existing material values results in an increased endowment effect, again confirming our hypotheses. Similar to studies 1 and 2, no relationship between materialism and buying prices was found. Additionally, in this experiment we used real in stead of imagined endowments. This procedure yielded similar results as the “mental endowment” procedure applied in the previous studies.

GENERAL DISCUSSION

People generally ask more money to give up one of their possessions than they are willing to pay to obtain this object (Thaler 1980). Previous research identified a number of moderators of this endowment effect (Lieberman et al. 1999; Lin et al. 2006; Loewenstein and Issacharoff 1994; Strahilevitz and Loewenstein 1998)—for an overview see also Ariely et al. (2005). This paper extends this line of research by proposing materialism as an additional moderator. In three experiments evidence was found that materialistic individuals demand higher prices for their belongings relative to less materialistic individuals. Materialists show more attachment to their possessions—even when

ownership is merely imagined—resulting in a larger discrepancy between selling and buying prices for the same good. Although material values predict selling prices, materialism has no predictable impact on buying prices. Additionally, the possibility was explored that materialists feel happier than non-materialists in the moments after they are endowed with a good, especially when they really desire to own it. Yet, the influence of materialism on selling prices was not mediated by positive or negative mood states. Neither was the effect of materialism on selling prices due to an increased desire to own products in materialistic sellers relative to less materialistic sellers, which supports our assumption that the endorsement of a material value orientation itself accounts for the patterns observed in selling prices.

These findings confirm that the consequences of the endowment effect may be particularly pronounced in highly materialistic individuals. However, quite the opposite may be true for less materialistic individuals. Little evidence for a WTP-WTA discrepancy was found in individuals who do not emphasize the importance of accumulating wealth in their life. Accordingly, one might argue that, on average, participants should endorse a material value orientation to a certain degree in order to obtain an endowment effect. Since participants in experiments are usually randomly drawn from a (student) population (i.e., participants are not selected on the basis of their level of materialism), it may be assumed that this criterion was met in earlier experiments reporting a consistent discrepancy between WTP and WTA. An opportunity for further research might be to explicitly select consumers with very low or very high materialism scores and to engage both groups of consumers in a market experiment in which they can either buy a good from someone else or sell it. Based on our findings, we would predict that significantly more transactions will take place in the low materialism condition, due to the lower reluctance to exchange goods in low versus highly materialistic sellers.

The implications of materialism in the occurrence of the endowment effect enhance our insight in this effect, and, in doing so, also advance our understanding of the nature of the construct “materialism”. So far the bulk of research on the behavioral consequences of materialism mainly focused on spending tendencies and intentions of prospective buyers. Materialism is associated with near-sighted spending behavior (Dittmar 2005; Watson 2003) and high aspirations for possessions and wealth (Kasser and Ryan 1996; Kasser and Sheldon 2000). However, our data suggest that materialists do not necessarily want to have everything at any cost. If that were the case, a relationship between materialism and buying prices should have been obtained. In contrast, across three experiments using

different endowments, no significant relation between materialism and willingness-to-pay was obtained. This suggests that, at least in the current experiments, materialistic participants did not overestimate the value of the objects that we used, relative to less materialistic participants. It makes sense that materialistic buyers do not necessarily want to spend more on a given item than their non-materialistic counterparts. After all, spending too much on any given item implies that one has less money left to spend on other items. In other words, spending too much on any given item implies unduly reducing one's capacity to accumulate possessions. In the current studies, all the action appears to reside with the owners of objects, the sellers. Materialistic sellers demand higher prices than non-materialistic ones, even when cheap or quite unattractive objects are traded. Clearly, on many occasions people act as sellers in economic transactions with others. However, to our knowledge little is known about materialists' behavior in this context. Our research implies that materialism might have important implications for the supply-side of market relations, in particular in, for instance, second hand markets or auctions such as eBay where the endowment effect might have considerable consequences.

Apart from their theoretical contribution, our findings may also have a methodological implication for future materialism research. Two commonly administered materialism scales are the scales of Belk (1984) and Richins and Dawson (1992). Belk's scale measures personality traits related to materialism and Richins and Dawson conceptualize materialism as an enduring value. Both scales are designed to measure fairly stable characteristics or life orientations. Yet, a sensitive instrument measuring temporal fluctuations in material values, for instance induced by an experimental manipulation, may be particularly valuable given the extant research attention devoted to the antecedents of materialism. One attempt to design a state materialism scale was made by Chang and Arkin (2002). They adapted the eighteen items of the original Richins and Dawson (1992) scale, such that each scale item referred to participants' momentary materialistic feelings. However, a quick look at the articles citing Chang and Arkin (2002) learns that their adapted scale has not been frequently applied to measure state materialism, possibly due to the length of the instrument or due to the obvious reference to materialism in the items. If one aims to measure participants' state materialism after an experimental manipulation, it may be interesting to use a more subtle measure. Our findings show that the results of a fairly simple task in which participants are instructed to state minimum selling prices for a number of real or imagined endowments may provide a reasonably accurate indication of an

individual's importance attached to material values at a certain point in time. We thus suggest that willingness to accept could be used as a sensitive measure of participants' momentary (salience of) material values (i.e., state materialism). An advantage of this measure would be that data on WTA can be collected easily without demanding much effort from participants. Moreover, demand effects may be reduced with this measure, as the purpose of the task (i.e., measuring state materialism) is not immediately apparent.

Despite the contribution of the current paper to the understanding of the endowment effect our findings hold challenges for future research, in particular with respect to the relationship between materialism and buying prices. We provided a plausible explanation for the failure to obtain a relationship between materialism and buying prices in the current experiments. It appears that non-owners or buyers were faced with a less straightforward trade-off between spending money on a good and keeping the money. Future research may empirically address the type of considerations driving this decision making process of materialist and non-materialist buyers. Moreover, certain contexts, like exposure to advertising for luxury products, may prompt individuals to focus on missed purchase opportunities if they decide to spend their money on other (non-luxury) goods. Such circumstances might as well elicit an increasing endowment effect with increasing materialism, yet due to a negative relationship between buying prices for a good and materialism instead of a positive relationship between materialism and selling prices as was found in the current experiments. Additional research might unveil circumstances in which a relationship between materialism and buying prices can be found.

APPENDIX

STUDY 2: GADGETS

Walkie Talkie watches		Memory stick	
Wireless Mouse		Keychain with screen	
Nano Projector		iPod watch	

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TABLE 1

STUDY 2: MEAN ENDOWMENT EFFECT FOR THE INDIVIDUAL GADGETS, INTERACTION WITH MATERIALISM AND REGRESSION SLOPES (SE IN BRACKETS)

Gadget	Mean endowment effect (in €)		Endowment condition x materialism ^a (t-value)	Slope sellers		Slope buyers	
Walkie Talkie watches	64.06***	(9.79)	2.97**	26.66**	(8.99)	-15.48	(11.02)
Wireless Mouse	48.74***	(8.26)	1.94†	17.01*	(7.60)	-6.31	(9.33)
Nano Projector	135.49***	(18.87)	.51	28.96	(18.90)	13.71	(23.11)
Keychain with screen	19.22***	(2.82)	2.24*	9.88**	(3.68)	-3.17	(4.59)
Memory stick	21.59***	(3.48)	3.07**	10.35**	(2.98)	-4.09	(3.70)
iPod watch	75.45***	(16.07)	2.05*	45.85**	(16.28)	-5.32	(18.94)

^a Interaction effects controlled for desirability of the individual gadget and positive and negative affect
† p<.06; * p <.05; ** p<.01; *** p<.0001

FIGURE 1

STUDY 1: MEAN PRICES FOR SELLERS AND BUYERS HIGH TO LOW ON MATERIALISM

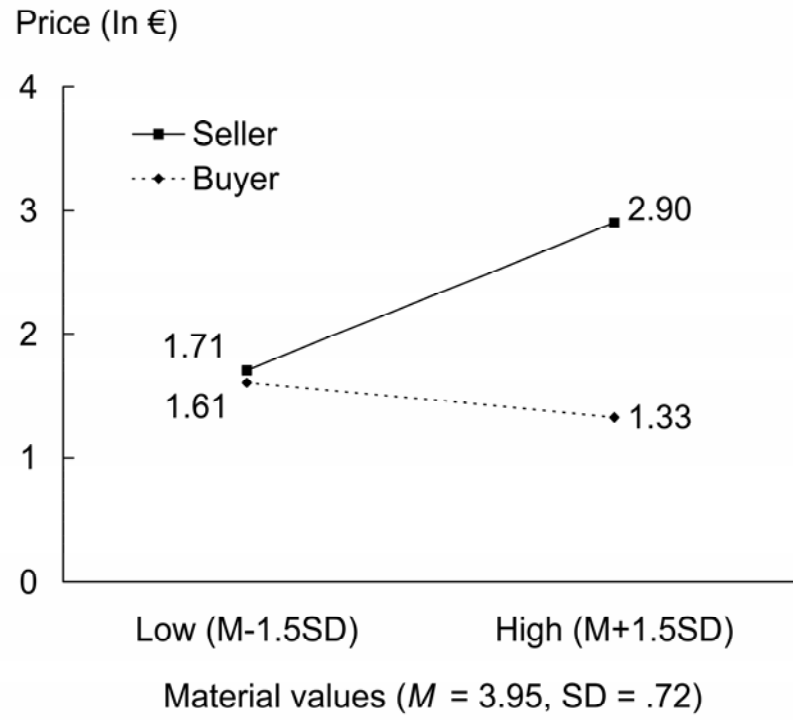


FIGURE 2

STUDY 3: MEAN PRICES FOR BUYERS AND SELLERS HIGH TO LOW ON MATERIALISM

