TWO CHEERS FOR MATERIALISM: MATERIALISM, WELL-BEING, AND HOW MATERIAL

GOODS CAN BE PURSUED TO PROMOTE POSITIVE OUTCOMES

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ABSTRACT

TWO CHEERS FOR MATERIALISM: MATERIALISM, WELL-BEING, AND HOW MATERIAL

GOODS CAN BE PURSUED TO PROMOTE POSITIVE OUTCOMES

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Does positivity toward and the pursuit of material goods lead to unhappiness? There is an extensive body of work confirming historical, religious, and cultural assumptions that endorsing materialistic attitudes is associated with a number of negative psychological outcomes, (e.g., Kasser & Ryan, Richins & Dawson, 1992; Christopher & Schlenker, 2004). These studies are highly cited and have led many researchers to claim that materialism *causes* unhappiness (e.g. Gurel-Atay, Sirgy, Cici & Husic, 2009; Kasser, 2002; Polak, & McCullough, 2007). However, in the present investigation, I will argue that this conclusion cannot be made based on the current empirical evidence, largely due to the correlational nature of the research, as well as confounds in both measures of materialism and well-being with socially desirable responding. Across nine studies, I will explore 1) alternative ways of investigating materialism and well-being via implicit methods 2) a new scale measuring intrinsic and extrinsic motives behind the pursuit of material goods and 3) how material goods can be used to promote emotion and pain regulation under stressful situations. I will argue that the results of these studies indicate that materialism does not independently predict nor cause negative outcomes, there can be intrinsic and flourishing ways of pursuing material goods, and material goods can help us to recover from unpleasant emotional and physically painful experiences.

BIOGRAPHICAL SKETCH

Jun Fukukura was born in Melrose, Massachusetts where she first developed her lifelong passion for food, ballet, and cats. She was raised primarily in Orange County, California and moved back to the Bay State for her undergraduate studies. She attended and graduated from Smith College with high honors in philosophy and psychology. Several years after college were spent deciding what to do with the rest of her life. In 2007, she decided that studying social psychology was one way of not having to decide—she could continue to ponder philosophical and psychological questions about why people (i.e., she) often make sub-optimal decisions. At Cornell she became friends with and married her officemate—the best decision she has ever made. She, her husband, and their unusually gifted cat, Elmer, will be moving to North Carolina, where she will be teaching at Wake Forest University and conducting research at Duke University.

ACKNOWLEDGMENTS

I am one of the luckiest people I know. My parents are supportive, opinionated, irreverent individuals and each other's best friends. From an early age, I imprinted on their curiosity, appreciation of the arts, and commitment to family. In grade school through high school, I had an exceptionally strong bond with my best friend, Ann Lee, with whom I shared a love of reading and getting into mischief.

At Smith I had the most erudite and encouraging professors that an undergraduate could ever hope to have. Sometimes I think I've romanticized my time there, but my recent 10 year reunion confirmed that everyone was as impressive as I remember them being. I am particularly grateful to the faculty in the philosophy department, Ernie Alleva, Nalini Bhushan, and Susan Levin, from whom I learned to follow and develop logical arguments. I am also indebted to Jill de Villiers, who gave me my first glimpse at the power of the scientific method.

Before applying to graduate school, I hung around the social psychology labs at NYU, where I took classes from and worked as a research assistant with Susan Andersen and Yaacov Trope. My positive experience in their labs confirmed my decision to go to graduate school. As soon as I arrived at Cornell, I knew my luck was still just beginning. I have learned so much from the exceptionally talented faculty---Tom Gilovich, David Dunning, and David Pizarro have all greatly contributed to the way I think about human behavior and how to study it. I am especially grateful to Melissa Ferguson and Vivian Zayas for being such supportive and inspiring advisors and collaborators. Thanks, too, to all of the graduate students who have come through the program and kept me laughing and sane. Also, this work could not have been completed without funding from the Institute of Social Sciences. Finally, thank you, Erik, for being the best person I know.

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CHAPTER 1
INTRODUCTION AND REVIEW OF MATERIALISM RESEARCH

Religious, cultural, and literary texts across societies have echoed the assumption that placing great importance on money and material goods is linked to unhappiness. Research has demonstrated that endorsing materialistic attitudes is correlated with a number of negative psychological outcomes, including depression (Kasser & Ryan, 1993; Wachtel & Blatt, 1990), social anxiety (Schroeder, & Dugal, 1995) general anxiety (Kasser & Ahuvia, 2002), low self-esteem (Chang & Arkin, 2007; Chaplin & John, 2007; Richins & Dawson, 1992), negative affect (Christopher & Schlenker, 2004), low satisfaction with life (Wright & Larsen, 1993) and narcissism (Rose, 2007). These studies are highly cited and have led many researchers to state that materialism *causes* unhappiness (e.g. Gurel-Atay, Sirgy, Cici & Husic, 2009; Kasser, 2002; Polak, & McCullough, 2007). Most notably, Kasser (2002) devotes an exhaustive review of the materialism literature to build the argument that not only does materialism cause unhappiness, it may even, he argues, be a primary culprit responsible for the rise of depression in America.

Despite the consistent and large body of research demonstrating the relationship between materialism and negative outcomes, in the present investigation I will argue that the conclusion that materialism *causes* negative outcomes cannot be made based on the current empirical evidence, largely due to the correlational nature of the research, as well as confounds in both measures of materialism and well-being with socially desirable responding.

In the first chapter, I will summarize the main findings acro ss research on materialism, as well as the methods used and the limitations of those methods. In the second chapter, I will explore alternative ways of investigating materialism and well-being via implicit methods as well as a new scale measuring intrinsic and extrinsic motives behind the pursuit of material goods. In

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the third chapter, I will investigate how material goods can be used to promote emotion and pain regulation under stressful situations. I will argue that the results of these nine studies indicate that materialism does not independently predict nor cause negative outcomes, there can be intrinsic and flourishing ways of pursuing material goods, and material goods can help us to recover from unpleasant emotional and physically painful experiences.

Limitations of the materialism literature and its claims

Although research findings and conclusions drawn from the materialism research are largely consistent, there are several limitations to this body of work such that these claims cannot be empirically defended:

The materialism studies have been mainly correlational. The vast majority of studies that have examined materialism and well-being outcomes have participants fill out various scales and questionnaires. The only studies that experimentally test the relationship between materialism and well-being have manipulated well-being variables and not materialism (e.g. Chang & Arkin, 2007). Therefore, none of the studies have tested the hypothesis that materialism causes a negative outcome.

There could be third variables that are mediating or moderating the relationship between materialism and well-being. Given that most of the studies on materialism and well-being have been correlational, not only can causality not be determined, there could be other variables that are driving the relationship. There could also be significant variables that moderate when there is a relationship between materialism and negative outcomes. Indeed, there are several studies that have demonstrated mediators that better predict negative outcomes and moderators that determine when there is a relationship between materialism and negative outcomes. These studies will be reviewed later in this chapter.

Studies on materialism have narrowly defined and measured materialism. Most studies have used the Materialism Values Scale (MVS, Richins, 2004; Richins and Dawson, 1992), which assumes that materialism involves of a preoccupation with status and social comparison. MVS items include statements like "I admire people who own expensive homes, cars, and clothes," and "The things I own say a lot about how well I'm doing in life." Therefore, it is unclear if different or broader kinds of materialism, like collecting or a general positivity towards acquiring and enjoying material goods, are also related to negative psychological outcomes.

Materialism self-reports are confounded with social desirability concerns. Explicit measures of materialism, like the MVS, require people to admit to socially undesirable statements like "I like to own things that impress people." Even if a person agrees with the statement, he may be unwilling to admit to it explicitly, because he is aware that it is not what people are supposed to admit to and he cares what other people think of him. Although the developers of the MVS claim that social desirability is not confounded with their materialism scale (Richins & Dawson, 1992), numerous studies since have found that responses on the MVS are negatively correlated with social desirability responding scales (e.g., Burroughs & Rindfleisch, 2002; Christopher, Saliba, & Deadmarsh, 2006) like the Marlow-Crowne Scale (Reynolds, 1982). Thus, people who are unwilling to admit to statements like "I sometimes feel resentful when I don't get my way," are less likely to endorse materialism statements like "I admire people who have nice houses, cars, and clothes." In fact, the correlation between the MVS and social desirability is one of the strongest correlations in materialism studies such that the relationship is often stronger than the relationship between the MVS and the intended variable of interest (e.g., Christopher, Lasane, Troisi, & Park 2007).

Other untested assumptions about materialism

The presumed relationship between materialism and well-being have led to other assumptions about materialism that have yet to be empirically substantiated. One of the most commonly echoed assumptions in the materialism literature is that the pursuit of material objects is necessarily extrinsically motivated. For example, Kasser and Ryan (1996) define intrinsic values as involving self-acceptance, affiliation, and community feeling, while extrinsic values are defined as involving material success, fame, and image. Therefore, they argue that the pursuit of material goods is necessarily extrinsically motivated.

Another assumption in the materialism literature is that the pursuit of material goods must occur at the cost of valuing and pursuing social ties. Correlational research has found an inverse relationship between materialism and family-oriented values (e.g., Burroughs & Rindfleisch, 2002), which has led researchers to conclude that materialistic values and family/social values are on opposite ends of the same spectrum (see Burroughs & Rindfleisch, Figure 2). However, it is possible that these orientations are orthogonal and that people can be high on both orientations, low on both, or high in one and low on the other. In Chapter 2, I test this possibility by measuring positivity toward materialism related concepts and social-related concepts separately.

Is materialism necessarily bad?

In his highly discussed article, "Two Cheers for Materialism," (1995) English professor and consumerism commentator, James Twitchell, comes to the defense of materialism, arguing that it has not only become a central feature of our culture, but that there can be positive outcomes associated with it. In a similar spirit, I will argue a case for materialism that it is not directly linked to negative outcomes as many researchers have suggested and that there can be

positive ways in which people can engage with material goods. At the same time, just as the two cheers in Twitchell's title suggest that he is holding back the third hoorah, I will also acknowledge how materialism could be linked with negative outcomes.

The purpose of the remainder of the review is to examine the consequences of positivity toward material goods. Although it is well established that materialism, as measured by certain scales, is associated with a number of negative outcomes, this paper will analyze the nature of this relationship. I will begin by reviewing the most commonly used scale to measure materialism and then follow with an analysis of the materialism and negative outcomes studies that have found significant moderators and mediators of the relationship, which I will argue casts doubt on a direct link between materialism and negative outcomes. I will then challenge the assumptions that people who pursue material objects must be driven by extrinsic motives and that such pursuit can only occur at the cost of social ties and values.

Current Conceptualizations of Materialism and Their Limitations

Although earlier work identified materialism with personality traits (Belk, 1984, 1985), contemporary research defines materialism in terms of aspirations and values. The most prominent and utilized conceptualization of materialism in the psychological literature has been proposed by Richins and Dawson (1992). They define materialism as a system of values and beliefs about the importance of obtaining material possessions. As part of this conceptualization, the Materialism Values Scale (MVS, Richins & Dawson, 1992) was developed as a measure of individual differences in materialism. Since its development, most of the research that has measured materialism (which includes more than a hundred studies) have used the MVS. Another scale, the Aspirations Index, has been developed and used by Kasser and colleagues (e.g., Kasser & Ryan, 1993). This scale assesses the relative importance of extrinsic goals, like

financial success, in comparison with intrinsic goals, like affiliation and self-development. The two scales are highly correlated with each other and predict the same well-being outcomes (Kasser, 2002).

Some of the earlier materialism work uses Belk's conceptualization, which is similar to the MVS in that it emphasizes the importance a consumer attaches to worldly possessions and the belief that possessions will provide a great source of satisfaction in life.   Richins and Dawson (1992) accept Belk's basic definition of materialism but they differ in that they think of materialism as a value, while Belk asserts that materialism is a personality trait, like extraversion. The scales tend to reveal similar outcomes (e.g., both are found to be correlated with low life-satisfaction and depression).

The MVS includes 18 items that are divided into three factors: centrality, success, and happiness (see Appendix A). As can be seen by the items, the MVS conceptualizes materialism not simply in terms of liking and getting pleasure from material goods, but also in terms of how material goods are thought to be an indicator of success and happiness in one's life. Seven items assess the extent to which people place possessions and their acquisition at the center of their lives (centrality). Five items assess the belief that material goods are essential to one's satisfaction and happiness in life (happiness). Six items measure the extent to which they view possessions as indicating success and the level of comparisons people engage in with other people's possessions (success).

Few studies on materialism and well-being break down the MVS into its three factors. Chang & Arkin (2007) found that overall materialism was correlated with self-doubt, social anxiety, and inversely correlated with self-esteem, life satisfaction, and positive life evaluations. However, after breaking down the MVS into three factors, it was found that although acquisition centrality was inversely correlated to life satisfaction, it did not have a significant association

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with social anxiety, self-doubt, positive life perception, or self-esteem. In contrast, the other two subcomponents were significantly positively correlated with positive outcomes and inversely correlated with negative outcomes. In my own data, I have found that only the happiness factor of the MVS is correlated with depression and inversely correlated with self-esteem, while the other two factors are not significantly related to either outcome. Thus, different aspects of the scale may be related to different psychological factors.

Because the MVS has items that ask about socially sensitive attitudes, responses may be influenced by social desirability issues. People from varied demographic backgrounds have negative stereotypes of materialistic people (Van Boven, Campbell, & Gilovich, 2010). Therefore, people should want to avoid being associated with materialism. Even if people personally endorse a materialistic view, they may be reluctant to explicitly admit to having that view. Research has demonstrated a negative relationship between the MVS and socially desirable responding, suggesting that socially desirable responding biases materialism scores downward (Mick, 1996). Thus, the relationship between materialism and negative outcomes may not have to do with materialism per se, but social desirability. In Chapter 2, I will show that although people tend to fall below the mean of the MVS, there is a general positivity toward materialism related words, when responses are measured implicitly, via a Single-Category Implicit Association Test (Karpinski & Steinman, 2006). There is also a significant correlation between materialism, as measured by the MVS, and materialism measured implicitly ($r = .21$, $p < .05$). Together, these findings suggest that positivity toward materialism related concepts may be expressed more readily when the response is quick and automatic.

Materialism and Negative Psychological Outcomes:

Is materialism directly related to negative outcomes?

As previously discussed, research has shown that endorsing materialistic attitudes is associated with negative psychological outcomes, including depression (Kasser & Ryan, 1993; Wachtel & Blatt, 1990), social anxiety (Schroeder, & Dugal, 1995), low self-esteem (Chang & Arkin, 2002; Chaplin & John, 2007; Richins & Dawson, 1992), negative affect (Christopher & Schlenker, 2004), self-doubt (Chang & Arkin, 2002), less satisfaction with life (Richins, 1987; Richins, & Dawson, 1992; Roberts & Clement, 2006; Swinyard, Kau & Phua), and narcissism (Rose, 2007). These studies are highly cited (several of the papers are cited over 500 times) and are therefore highly influential.

Although it has been demonstrated that materialism, as measured by the MVS and the Aspirations Index, is correlated with a number of negative psychological outcomes, this does not necessarily mean that all materialists suffer negative consequences. On average, the correlation between materialism and various indicants of well-being hovers around -.25 (Burroughs & Rindfleisch, 2002). Thus, one interpretation of the data is that for a sizable number of individuals, materialism does not appear to impact well-being negatively. Using a dataset of 373 American adults, 74 exhibited both high levels of materialism (greater than the mean of 3.9 on a 7-point Richins & Dawson, 1992, Material Values Scale) and high levels of happiness (above the reported mean of 5.75 on a 7-point general affect index) (Rindfleisch & Burrows, 2004). Thus, approximately 20% of the respondents in the sample can be characterized as happy materialists.

People high in materialism and happiness tended to be educated males with high incomes. La Barbera and Gurhan (1997) similarly found that people who are materialistic and had high incomes had better well-being outcomes than people who were materialistic and had low incomes. The same pattern was found with education, materialism, and well-being. Attitudes regarding well-being are shown to reflect the gap between what people aspire to and

what they perceive themselves as having (Carp & Carp, 1982; McGill, 1967). Thus, people high

in materialism with lower levels of education and income will feel frustrated with their inability

to satisfy their materialistic desires. In contrast, materialistic people who have high incomes and

education levels may not suffer negative effects in well-being because they are able to fulfill

their desires.

Several factors that moderate and mediate the relationship between materialism and

negative psychological outcomes have emerged in the literature (see Table 1). Examining the

mediators and moderators that underlie the relationship between materialism and psychological

outcomes can shed light on the mechanisms behind the relationship and help us to understand

when materialism can lead to detrimental outcomes and why there can be happy materialists.

Furthermore, examining the mediators and moderators allow us to explore the possibility that

materialism may not directly lead to certain negative outcomes.

Table 1: Mediators and modertators of materialism and well-being outcomes.

Variable of Interest	Outcome variable	Analysis	Source
Experiential avoidance	Social anxiety, depressive symptoms, negative affect,(-) presence of meaning in life	Mediation	Kashdan & Breen (2007)
Conflict of values	Stress, depression, neuroticism General well-being	Moderation Moderation	Burroughs & Rindfleisch (2002) LaBarbera & Gurhan (1997)
Self-handicapping	(-) life satisfaction	Mediation	Christopher et al. (2007)
Fear of negative evaluations	Negative affect, (-) positive affect	Partial correlations	Christopher & Schlenker (2004)
Socially desirability responding	Neuroticism, (-) self-esteem	Partial correlations	Christopher et al. (2007)
Locus of control	(-) Negative affect	Partial mediation	Christopher et al..(2009)
Perceived social support	(-) Negative affect	Partial correlation	Christopher et al. (2004)

Conflict of values

Having materialistic values appears to be negatively impactful when they are in conflict with one's other life values. Materialism is negatively correlated with collective-oriented values such as benevolence, conformity, religious values, family values, and community values and is positively correlated with hedonism, achievement, power, and stimulation (Burroughs & Rindfleisch, 2002). Materialism is associated with lower well-being in terms of depression and neuroticism among people high in collective-oriented values, but there is no relationship between materialism and depression and neuroticism in people who are low on collective-oriented values (Burroughs & Rindfleisch, 2002). Thus, materialism may not be negatively impactful in terms of depression and neuroticism without competing life values.

A conflict between religious values or family values and materialism has been shown to be correlated with stress in people's lives, although there is no relationship between materialism and stress among those with low/no religiosity (Burroughs & Rindfleisch, 2002). Thus, religion moderates the relationship between materialism and stress in religious but not non-religious people. La Barbera and Gurhan (1997) also found that religiosity moderates the relationship between materialism and well-being, as measured by a general subjective-well being self-report. Materialism was related to lower levels of well-being among religious participants, but for non religious participants, materialism was actually positively related to well-being. Likewise, the same study also found that religiosity moderates the relationship between materialism and stress such that materialism is positively related to stress among religious participants but negatively related to stress among non-religious participants.

Materialism may only pose a problem for those who find that materialistic values are in conflict with their other values. In today's society, there are conflicting messages about the

extent to which materialistic values should be embraced or abhorred. Although the late 80's, the

90's, and the dot-com boom have come to represent the height of economic and consumption

success, there is evidence of a cultural backlash against materialism, particularly during the

current recession (e.g., Dewan, 2009; Woodyard, 2009). This shift in cultural values may mean

a shift in individual values that may conflict with materialism values and lead to negative well-

being outcomes.

Experiential avoidance

Experiential avoidance is defined as the unwillingness to be in contact with uncertain and

potentially negatively evaluated thoughts, feelings, and bodily sensations (Hayes, Strosahl,

Wilson, Bissett, Pistorello, & Toarmino, 2004). Although all of us at some point will dread or

try to avoid a potentially threatening situation (e.g., giving a toast among esteemed colleagues), a

tendency to avoid experiences that could potentially lead to negative incomes is associated with

various dysfunctional outcomes such as general anxiety, social anxiety, and depression (Hayes et

al., 2006; Kashdan, Breen, Afram, & Terhar., 2010). It has been argued that chronic

experiential avoidance leads to excessive thoughts about failure and ties up emotional and

regulatory resources (Vohs, Baumeister & Ciarocco, 2005).

Kashdan & Breen (2007) found that materialistic values are related to more experiential

avoidance, social anxiety, depression, and negative emotions and inversely related to presence-

of-meaning in life. Experiential avoidance was positively related to social anxiety, depressive

symptoms and negative emotions and inversely related to presence-of-meaning in life.

Mediational analyses revealed that experiential avoidance fully mediates the relationship

between materialism and negative emotions, social anxiety, depression, and presence of meaning

in life.

Thus, materialism is no longer a predictor of negative emotions, social anxiety, depression, and less presence-of-meaning in life when experiential avoidance is included as a predictor. Materialism may be correlated with experiential avoidance to the extent that materialists may be consuming material goods in place of potentially threatening experiences. However, material goods and experiences can be pursued simultaneously (a point that will be returned to throughout the paper). People can pursue material goods extensively but also be willing to face experiences that are potentially threatening.

Self-presentational style

Materialism is associated with specific kinds of self-presentational styles. In general, materialism has been found to be related to various defensive presentational styles concerned with not appearing negatively toward others. Surprisingly, materialism is not associated with assertive or promotional presentational styles. For example, scoring high on materialism is correlated with avoiding impressions of weakness or dependence but is not correlated with wanting to appear strong and socially attractive (Christopher, Morgan, Marek, Keller & Drummond, 2005). The lack of a relationship between materialism and promotional self-presentational style may have to do with the fact that people who want to promote themselves by social attractiveness may be less likely to score high on the MVS, a problem I will return to briefly at the end of this discussion.

People high on materialism are also more likely to engage in defensive presentational tactics like self-handicapping (e.g., "I put obstacles in the way of my own success"), excuse-making (e.g., "When things go wrong, I explain why I am not responsible") and disclaimers (e.g., "I try to get the approval of others before doing something") but not with the assertive presentational styles of intimidation (e.g., "I behave in ways that make other people afraid of

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me" and exemplification ("I act in ways I think others should act"). Self-handicapping is correlated with materialism and inversely correlated with life satisfaction and mediates the negative relationship between materialism and life satisfaction (Christopher, Lasane, Troisi, & Park, 2007). .

Christopher & Schlenker (2004) have found that fear of being evaluated negatively (e.g., "I am afraid that others will not approve of me"), which is probably also related to experiential avoidance, is correlated with materialism and negative affect and inversely correlated with positive affect. Furthermore, partial correlation analyses showed that materialism is no longer a significant predictor of positive and negative affect after controlling for fear of negative evaluations.

Social desirability responding (SDR) is measured via the Marlowe-Crowne Scale (Crowne & Marlowe, 1960) and is characterized as an inclination toward presenting oneself in a favorable light. For example, items include "No matter who I'm talking to, I'm always a good listener," and "I am always willing to admit to a mistake," to which respondents respond true or false. Materialism and SDR are negatively correlated (Mick, 1996).   The reasoning behind this pattern is that people who score high on the SDR score lower on the MVS because materialism is a socially undesirable value.

Christopher et al. (2007) showed that materialism and self-esteem are inversely correlated and SDR is inversely correlated with materialism. After controlling for SDR, the relationship between materialism and self-esteem is non-significant. Controlling for SDR also eliminates the significant relationship between materialism and neuroticism.

The research indicates that materialism is no longer a predictor of negative outcomes when controlling for self-presentational styles. In an experimental study, Christopher et al. (2005) found that priming participants with words related to the defensive self-presentational

styles of supplication (e.g., "helpless") and ingratiation (e.g., "dependent") led to higher materialism scores compared to primes associated with an assertive self-presentational style. Thus, defensive self-presentational styles may lead to materialism and not the other way around.

The research on materialism, self-presentational styles, and well-being not only challenges a direct relationship between materialism and well-being, but also brings to question what the MVS, as an explicit questionnaire, is tapping into. People who are high on defensive self-presentational strategies may be inhibiting their materialistic attitudes because they believe they are not supposed to endorse such views. Alternatively, people are who are high on defensive self-presentational strategies may actually adopt the values they perceive society as recommending.

Perceptions of control, competence, and autonomy

Materialism has been shown to be inversely related to feelings of competence and autonomy (Kashdan & Breen, 2007), which are two constructs related to feelings of control (e.g., Eisenberger, Rhoades & Cameron, 1999). Richins (1995) argued that the pursuit of material possessions is a self-defeating cycle in which an individual pursues a material good, but then quickly acclimates to it, spawning new desires. The pursuit of material desires drains psychological, temporal, and monetary resources and thus, the materialist may feel a lack of control over one's desires and life course.

Compared to less materialistic people, materialistic people tend to believe that life outcomes are more outside of their control (Christopher, Saliba, & Deadmarsh, 2009; Hunt, Kernan, Chatterjee, & Florsheim, 1999). Specifically, materialistic people tend to see their life as controlled more by accidents and powerful people compared to less materialistic people. The tendency to see life events as outside one's control partially mediates the relationship between

materialism and negative affect (Christopher, et al., 2009).

.   Although Richins (1995) argued that materialism leads to feelings of lack of control, it could be that some people who do not feel that they have control over their lives cling to the pursuit of material goods as a means of coping with the lack of control. For example, McAlexander, Shouten, and Roberts (1993) observed that recently divorced adults appear to use material objects and acts of consumption as means to cope with the stress and uncertainty of the profound life transition. Chang and Arkin (2002) demonstrated that experimentally inducing feelings of doubt and insecurity led to higher materialism scores. Thus, these studies cast doubt on the claim that materialism induces feelings of lack of control and uncertainty. The directionality could be the other way, or the relationship could be bi-directional.

Perceived social support

In their initial validation of the MVS, Richins and Dawson (1992) found that highly materialistic people were less likely to value relationships than less materialistic people and were also less satisfied with the relationships they had. Expanding on this finding, Christopher, Kuo, Abraham, Noel and Linz (2004) investigated the relationship between materialism, perceived social support, and negative outcomes. Hierarchical multiple regressions revealed that controlling for perceived social support eliminates the negative relationship between materialism and positive affect, although the relationship between materialism and negative affect remains significant. Thus, materialistic values may substitute for the benefits of social support, but not from the potential buffering effects of social support. This finding is consistent with the finding that materialism is, in general more positively related to time spent being unhappy, but less strongly correlated with time spent being happy (Kasser & Ahuvia, 2002).

Materialism does not directly predict psychological outcomes

Taken together, these studies strongly suggest that materialism fails as a predictor of negative psychological outcomes compared to other more proximate variables. Researchers often cite the previously reviewed research as demonstrations that materialism leads to negative outcomes. For example, Polak and McCullough (2006) write "Burroughs and Rindfleisch (2002) argued that materialism creates a conflict of values (individualistic versus collectivistic) that creates psychological tension, thereby hindering psychological well-being," (p. 344). Based on the previously outlined description of the study, it is evident the data do not establish a causal relationship between materialism, conflict of values, and well-being, but rather, shows a correlation between materialism and negative outcomes among people high on collectivistic values. Furthermore, the authors of that study do not make the causal interpretation that Polak and McCullough declare. However, perhaps because of the vast literature on materialism and negative psychological outcomes, researchers are assuming that the relationship is causal.

The reviewed studies have demonstrated mediators and moderators between materialism and social anxiety, depression, negative affect, meaning in life, stress, neuroticism, general well-being, and self-esteem, i.e., virtually all of the well-being outcomes that have been linked with materialism. Furthermore, it is likely that these other factors are better predictors of negative outcomes than materialism.

Material Goods Can Be Pursued Intrinsically

People make purchases with different motivations behind the decisions. One distinction in decision-making that has emerged is intrinsic versus extrinsic motivations. Self-determination theory (SDT; Deci & Ryan, 1980) maintains that actions can be pursued by intrinsic motivations,

characterized by an inherent interest in something that people pursue when they are free to do as they like, or extrinsic motivations, characterized by external pressures and rewards. Furthermore, SDT research has argued that pursuing goals through intrinsic motivations lead to happiness and attainment of life goals, while extrinsic motivations lead to ill-being and dissatisfaction (Kasser & Ryan, 1993, 1996; Niemiec, Ryan, & Deci, 2009).

According to Ryan, Sheldon, Kasser and Deci (1996) the crucial difference between intrinsic and extrinsic aspirations is the degree to which those goals are linked to satisfaction of the basic psychological needs for autonomy, competence, and relatedness, which, according to SDT researchers are the pillars of psychological health. Within this framework, materialism and the pursuit of material goods is regarded as linked with the extrinsic motivations of financial success, image, and fame (Kasser & Ryan, 1993, 1996). However, it is possible to pursue materialistic goods with intrinsic motivations. Although some material goods may be purchased in the pursuit of status, image, and fame, consumers have many other reasons for purchasing material goods.

Imagine two people, Alex and Brian, own the same pair of luxury shoes, the Tod's moccasins. At $495 a pair, they are clearly a serious expenditure for almost everyone except in the top percentile of income. However, imagine that Alex and Brian have purchased these shoes under very different motivations. Alex may have read an article in GQ about how Tod's is the new hottest brand in men's shoes and then noticed the other day that his boss was wearing a pair. Meanwhile, Brian has been a fan of Tod's since they started selling their leather goods in America in the 1970s. He appreciates that every aspect of the shoe is hand-crafted—from the Aspen-oiled tanning process to the exposed handstitching and owns several pairs of Tod's, which have lasted well over the years. Alex purchased the shoes due to perceived social pressures while Brian is a connoisseur and collector of a particularly well-designed product.

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Collecting things can be intrinsically driven. Collecting is defined as the accumulation of a series of similar objects where the instrumental function of the objects is of secondary or no concern and the person does not plan to immediately dispose of the objects (McIntosh & Schmeichel, 2004). Collecting is not the invention of a consumerist society; it is an old and ubiquitous hobby—one of the oldest collections is a of seal impressions dating back to the 5th century B.C. (Rigby & Rigby, 1944). It is estimated that approximately a third of the American adult population collects something (Prior, 2002). Most children collect things before adolescence and collecting decreases in adulthood, particularly among women (Olmstead, 1991).

There are many reasons behind why people collect. Saari (1997) identifies four types of collectors: the passionate collector (who is willing to pay any price for the right item, the inquisitive collector (who sees collecting as an investment), the hobbyist (who collects purely for enjoyment), and the expressive collector (who collects as a statement of who they are). Although at the extreme level, e.g., the passionate collector, collecting can be addictive and dysfunctional, it is more commonly found that collecting can be a beneficial activity. Collecting is distinguished from hoarding, a pathological behavior characterized by unsystematic collecting. Collecting and hoarding differ in that hoarders are ashamed of their collections while collectors enjoy displaying and talking about their collections with others (Greenberg, Witztum, & Levy, 1990). Also, collecting, unlike compulsive shopping, has not been found to be associated with negative affect and low self-esteem (O'Guinn & Faber, 1989). For most collectors, collecting can provide a sense of purpose and meaning in life (Smith & Apter, 1977), and a feeling of mastery, expertise, and accomplishment (Belk, Wallendorf, Sherry, & Holbrook, 1991).

Collecting can also lead to friendship and community through correspondences with like-minded collectors (DiMaggio, 1987). In a survey of collectors, most respondents named relationships with others who shared similar interests as an important factor in their motivation to

collect (Formanek, 1991). Sharing a common goal has the effect of strengthening bonds among group members (Sherif, 1966) and belongingness needs are important influences on well being (Deci & Ryan, 1985).

Despite the popularity of collecting, it may seem like a small part of the purchasing landscape. However, aspects of collecting that were previously reviewed can be used to explore engagment with material goods more broadly. For example, people who pursue careers or independently gain expertise in the design and production of material goods, may interact with them through intrinsic motivations. A fashion designer, for instance, may have a more intrinsic orientation toward luxury goods compared to other people by appreciating them for the creativity of the design and the quality of the production. Furthermore, he may have established friendships with people who are bonded by their common appreciation and skill in fashion. Pursuit of material goods need not be extrinsically oriented. There are ways in which people can pursue material goods intrinsically, which can thus lead to positive outcomes.

Extreme Deprivation of Material Goods is Unhealthy

Before concluding, it is worth noting that although the literature reviewed emphasizes relationship between materialism and poor mental health, it is important to point out that shunning all material goods and/or not developing relationships with material goods is linked with negative outcomes. Like most forms of extreme behavior, extreme forms of material denial may be highly destructive and is related to anorexia-nervosa, bulimia, isolation, and masochism (Belk, 1985; Masson, 1976). Kivetz and Keinan (2006) demonstrate that although in the short-term it may appear like the better decision to forgo luxuries and exercise self-control, chronic righteous behavior generates increasing regret over time, a condition they refer to as "hyperopia."

Children use inanimate objects for transitioning toward independence and self-hood (Passman, 1987) by learning to interact with and having control over them. Items such as blankets, stuffed toys, and dolls have strong comfort and security functions in young children (Myers, 1985). One study found that most children have some kind of material object they spontaneously refer to as special. These children report that they turn to these objects when they are sad and/or scared (Lehman, Arnold, & Reeves, 1995). Children who reported having an attachment to a material object reported significantly more maternal bonding than children who were not attached to a material object (Bachar, Canetti, Galilee-Weisstub, Kaplan-Denour, & Shalev, 1998). At the other end of the life spectrum, adults in nursing homes who had at least one treasured item were found to be mentally healthier than those who could not (Sherman & Newman, 1977).

Taken together, these studies indicate that a certain level of positivity and attachment are important in healthy psychology development and maintenance. Less attention has been paid to this area of research than the literature documenting a relationship between materialism and poor psychological health. However, further research in this area, combined with work on materialism and psychological health indicators, can give a sharper picture of what the optimal levels of engaging with material goods are and how they should be pursued.

Discussion

In a sense, rather than being an argument in support of materialism, this introduction has been an defense against the assumption that materialism is directly linked with or causes poor psychological health or less satisfaction in life. I have argued that although there is a vast literature on this topic, there is also a considerable amount of research that shows that the relationship between materialism and various well-being measures are mediated and moderated

by other variables. Thus, other more proximate variables are predicting well-being and not materialism. Also, there are no data that speak to materialism causing negative outcomes.

In my defense against these assumptions, I have explored the possibility that there can be happy materialists and have offered some suggestions of what those characteristics and circumstances might be. I have argued that people unencumbered by the previously discussed mediators and moderators of materialism and well-being, as well as those people who are in a position to fulfill their materialistic desires, may not suffer from the negative psychological effects that have been linked to materialism. In the discussion on collecting, I pointed to research that has shown that pursuing material goods through collecting can actually foster social relationships, meaning in life, and a sense of mastery and accomplishment. Thus, pursuing material goods can help achieve social closeness, meaning, and satisfaction in one's abilities and is not inherently opposed to social and mental-health gains.

I have also criticized the materialism literature for relying on explicit scales that have a particular conceptualization of what materialism is. More research is needed using implicit measures as well as broader conceptualizations of materialism and attitudes toward material goods to attain a more complete understanding of how people's relationships with material goods are affected by and contribute to well-being. I will be empirically addressing this void in the literature in the following chapters.

CHAPTER 2

USING IMPLICIT METHODS TO BETTER UNDERSTAND MATERIALISM AND ITS

RELATIONSHIP TO WELL-BEING

As previously discussed, one of the limitations of the research on materialism is that the current measures of materialism are confounded with social desirability concerns. If people are potentially unwilling to be candid with their attitudes about materialism related concepts, how can people's attitudes and preferences be measured without social desirability concerns? One way in which attitudes could be measured is by recording behaviors, unbeknownst to the participant. For example, non-verbal behaviors like gaze, blinking, body posture, and interpersonal distance have been shown to be correlated with judges' and confederates' ratings during an interracial interaction (e.g., McConnell & Leibold, 2001; Dovidio, Kawakami, & Gaertner, 2002). Furthermore, these behaviors and ratings were shown to be correlated with implicit measures of racial attitudes.

Implicit measures of attitudes were first measured by Fazio and colleagues (Fazio, Sanbonmatsu, Powell, & Kardes, 1986), who showed that negative and positive words like "disgusting" and "wonderful," respectively, were categorized more quickly as negative and positive when they were presented after a valence-congruent prime like "cockroach" or "flower" compared to when they were presented with a valence-incongruent prime. Since this demonstration, several procedures have been created to measure implicit attitudes including the including the Implicit Association Test (Greenwald, McGhee, & Schwarz, 1998), affective priming (Fazio, Jackson, Dunton, & Williams, 1995), the Affect Missatribution Procedure (Payne, Cheng, Govorun, & Stewart, 2005), and mouse-tracking (Wojnowicz, Ferguson, Dale, & Spivey, 2009).

Explicit measures of race are not optimal in that people are aware of and conflicted by

what they actually feel vs. what they know they are supposed to report feeling. For example, Wojnowicz et al. (2009) found that most participants consistently categorize Black people with a "like" as opposed to "dislike" category (e.g., 61 out of 68 people in Study 1; 63 out of 66 in Study 2). However, tracking the mouse movements while people made their decisions revealed that there is more mouse curvature toward the "dislike" label when people categorize Black people with the "like" label compared to when they categorize White people with the "like" label.

Although it is perhaps comforting to know that most people do not explicitly endorse racist attitudes, there is a great deal of evidence both in the lab and in the real world that racist attitudes persist. Measuring attitudes implicitly allow researchers to make predictions in the real world. For example, Towles-Schwen and Fazio (2006) found that when 58 interracial roommate dyads were randomly selected to live with each other their freshman year, 33 of those dyads (57%!) were no longer roommates by the end of the year compared to 5 out of 57 (9%) same-race White pairs. Importantly, although explicit self-reports of students' motivation to control prejudice did not predict the relationship outcomes, an implicit measure of racial attitudes did.

Attitudes toward material goods, material goods acquisition, and materialism related concepts may be similar to racial attitudes in that there is a conflict between how people feel toward material goods and their acquisition and what they know they are supposed to report. As previously discussed in the introduction Furthermore, it is widely documented in the materialism literature that endorsement of materialistic attitudes is correlated with social desirability concerns.

In order to measure materialism related attitudes via ways that are not confounded with social desirability concerns, I developed two different implicit measures of materialism related attitudes. Specifically, I developed a materialism Single Category Implicit Association Test (SC-

IAT, Karpinski & Steinman, 2006) as well as a materialism vs. social categories mousetracking task (Spivey, Grosjean, & Knoblich, 2005).

The SC-IAT is a modification of the widely used Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998), which measures strengths of association based on a single target object rather than the two targets required by the original IAT. The SC-IAT was used in the present study because there was no obvious opposite category for materialism related concepts. The SC-IAT is based on the assumption underlying the IAT that categorization of target objects will be easier and thus faster when they are paired with an evaluative category consistent with the participants' underlying attitudes than when they are paired with an incongruent category. Evidence supports both the reliability and validity of the SC-IAT (Karpinski & Steinman, 2006). A recent meta-analysis of the IAT supported its predictive validity and, importantly, showed greater predictive validity of the test in comparison to self-report measures in predicting black–white interracial behaviors (Greenwald et al., 2009).

I also utilized computer mousetracking as a method of investigating how people's explicit decisions between materialistic and social options, and implicit attraction to the unchosen materialistic option predicts well-being. The mousetracking method allows the researcher to track the online decision process of people's explicit decisions by tracking the mouse movements as people choose options on a computer screen (for a review, see Freeman, Dale, & Farmer, 2011)

As the studies progressed, I relied more on implicit measures of well-being, since like the explicit measure of materialism, explicit measures of well-being were also confounded with social desirability. I used two implicit measures of self-esteem, the name-letter task (Nuttin, 1985; 1987) and signature size (e.g., Koole, Hardin, Hetts, & Seah, 2001).

In addition to using implicit measures to better understand the relationship between

materialism and well-being, I was also interested in testing two hypotheses I discussed in Chapter 1. The first hypothesis was that material goods can be pursued with intrinsic motives and that doing so should be associated with positive outcomes. The second hypothesis was that attitudes toward material goods and social concepts (like friends and family) are orthogonal to each other and can be measured separately to predict outcomes.

Overview of the Present Studies

The present research in Chapter 2 investigated the relationship between people's attitudes toward concepts related to materialism and well-being outcomes. After establishing that the relationship between explicit measures of materialism and negative outcomes is driven by social desirability concerns (Study 1), I developed and utilized an implicit measure of attitudes toward objects and activities related to materialism, which was found to be correlated with explicit materialism but uncorrelated with social desirability (Study 2). I then investigated how implicit attitudes toward materialism related concepts interact with implicit attitudes toward sociality to predict negative outcomes (Study 3). Finally, in Study 4 I utilized mousetracking as a way of understanding how making choices between social vs. materialistic options and the implicit trajectory of those choices interact to predict self-esteem when people are made to feel vulnerable.

Study 1: Materialism, well-being, and social desirability

The purpose of the first study was to establish that traditional ways of measuring materialism and well-being are driven by social desirability concerns. Furthermore, I tested the hypothesis that the relationship between materialism and negative outcomes is confounded with social desirability. Although the developers of the MVS, the most widely used materialism

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scale, conclude that social desirability is not problematic for their scale (Richins & Dawson, 1992), subsequent research has consistently shown that the MVS is correlated with social desirability (e.g., Burroughs & Rindfleisch, 2002; Christopher et al. 2006). However, the MVS continues to be used in the materialism literature. I will be using the empirical demonstration that explicit materialism and well-being measures are confounded with social desirability to argue that better measures need to be used to understand materialism and its relationship to well-being.

Method

Participants filled out various measures including the MVS, the Rosenberg Self-esteem Scale (RSES), the Satisfaction with Life Scale (SWLS), and the Marlowe-Crowne Scale (social desirability).

Participants. A total of 273 participants living in the United States completed the study. Participants were recruited via the website MTurk.com to complete the surveys outlined below. Ten of the participants' data were unusable because the participants failed the comprehension checks (e.g., "What does 2 + 2 = ? "). Of the 263 people who passed our comprehension checks, our sample consisted of 155 women and 108 men, with ages ranging from 18 to 73 years (*M* = 37 years, *SD* = 13 years).

Materials

Explicit Materialism. I measured materialism using Richins's (2004) recently updated 15-item Material Values Scale (MVS) because it is the most commonly used scale in the materialism literature and has been shown to have better dimensional properties than the original 18-item version. Respondents indicated the extent to which they agreed or disagreed with

statements like "I admire people who own expensive homes, cars, and clothes," and "My life would be better if I owned certain things I don't have." Participants used a 1 (strongly disagree) to 5 (strongly agree) response range (α= .87).

Well-being. I selected well-being measures that have been consistently found to be correlated with materialism. Thus, I measured self-esteem, satisfaction with life, and social comparability.

Self-esteem was measured using a self-report rating scale, the Rosenberg Self-Esteem Scale (Rosenberg,1965). Respondents were asked to agree or disagree with 10 statements, such as "On the whole, I am satisfied with myself," using a 1 (strongly disagree) to 4 (strongly agree) response range (α= .91).

Life satisfaction was measured via Diener, Emmons, Larsen, and Griffin's (1985) Satisfaction With Life Scale. This 5-item scale assesses overall life satisfaction (e.g., ''I am satisfied with my life''). Participants responded to these items using a 1 (strongly disagree) to 5 (strongly agree) response range (α= .89).

Although social comparability is not a direct measure of well-being per se, I included the Scale for Social Comparison Orientation (Gibbons & Buunk, 1999) because social comparability has been linked with negative outcomes such as anxiety and depression (Butzer & Kuiper, 2006) and is also correlated with materialism (Chan & Prendergast, 2007; 2008). The scale includes items such as, "I often compare myself with others with respect to what I have accomplished in life." Participants responded to these items using a 1 (strongly disagree) to 5 (strongly agree) response range (α= .86).

Socially desirable responding. Due to concerns regarding socially desirable responding in materialism research (Mick, 1996) and numerous replications of the relationship between materialism and social desirability discussed previously, I measured social desirability using the

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reduced form of the Marlowe–Crowne's Social Desirability Scale (Reynolds, 1982). The scale

has participants completely agree (True) or completely disagree (False) with statements such as

"I am always courteous, even to people who are disagreeable," and "No matter who I'm talking

to, I'm always a good listener" (α= .69). The logic behind the scale is that all of the statements

involve unachievable, flawless behavior. Therefore, answering "True" to these statements (or

"False" to statements like "I sometimes play sick to get out of work,") is evidence of concern

with social desirability at the cost of truthful responding. In order to assess social desirability, a

proportion was calculated indicating the extent to which participants responded in the socially

desirable (but most likely untrue) way.

 Intrinsic and extrinsic materialism. I designed a new scale to understand different

motives behind the pursuit of material good. Because materialism, as measured by the MVS, is

mainly an extrinsically motivated orientation, I developed questions that ask people about their

intrinsic motivations to pursue material goods (see Appendix B). To measure intrinsic

motivation, I asked people to rate statements such as "I like to express myself through clothing

and other goods I buy," and "I pursue material goods to expand my creativity." To measure

extrinsic motivation, I asked people to rate statements such as "I buy things because of pressure

from peers or the media," and "I tend to purchase items I've seen other people have."

Participants responded to these items using a 1 (strongly disagree) to 5 (strongly agree) response

range. Item reliability was satisfactory for both intrinsic (α= .72) and extrinsic materialism (α=

.71) .

Analyses

 I first conducted simple correlations among all of the variables, with particular interest in

the relationships among materialism, well-being, and social desirability. I conducted subsequent

analyses to better determine the relationship among these variables of interest.

Results

Table 2 contains the descriptive statistics and correlations among all of the study variables. The results indicated that materialistic values were related to more social comparison ($r = .39, p < .0001$) and less self-esteem and satisfaction with life ($rs = -.17$ and $-.15, ps < .01$) Furthermore, social desirability was negatively correlated with materialism ($r = -.26, p < .0001$) and social comparison ($r = -.20, p < .001$) and positively correlated with self-esteem ($r = .35, p < .0001$) and satisfaction with life ($r = .20, p < .001$).

Because social desirability was related to both materialism and all of the well-being measures, I controlled for social desirability to see if the relationships among the variables still hold. Although materialism was associated with lower self-esteem, $\beta = -.17, p < .01$, when social desirability was controlled for, the relationship was no longer significant, $\beta = -.08, p = .16$. Similarly, although materialism was associated with lower satisfaction with life, $\beta = -.15, p = .01$, when social desirability was controlled for, the relationship was no longer significant, $\beta = -.11, p = .08$. In contrast, the relationship between materialism and social comparison, $\beta = .39, p < .0001$, was still significant after controlling for social desirability, $\beta = .36, p < .0001$.

In terms of the new measure of intrinsic and extrinsic materialism, I found that although both measures were correlated with materialism ($rs = .28$ and $-.40, ps < .0001$), the two measures significantly diverged with the other outcomes. While extrinsic materialism was negatively correlated with self-esteem ($r = -.14, p < .05$) and positively correlated with social comparison ($r = .33, p < .0001$), intrinsic materialism was actually positively correlated with self-esteem and satisfaction with life ($rs = .16$ and $.14, ps < .05$). Thus, the pursuit of material goods may be associated with positive life outcomes, when material goods are pursued via intrinsic motives.

Interestingly, neither intrinsic nor extrinsic materialism was correlated with social desirability (rs = .03 and -.08, ps > .20), suggesting that although this measure is explicit, people may be willing to disclose their motives to pursue material goods without social desirability concerns.

Table 2: Correlations and descriptive statistics for Study 1

	M	*SD*	1	2	3	4	5	6	7
1. Explicit materialism	40.37	9.48		-.26***	-.17**	-.15**	.39***	.28***	.40***
2. Social Desirability	0.42[a]	0.24			.35***	.21**	-.20**	.03	-.08
3. Self-esteem	29.64	5.58				.60***	-.20**	.16**	-.14*
4. Life satisfaction	15.47	4.69					.00	.13*	-.02
5. Social Comparison	18.37	4.86						.09	.33***
6. Intrinsic Materialism	11.89	2.37							.37***
7. Extrinsic Materialism	7.58	2.03							-

[a] *M* = proportion, ***p < .0001, **p < .01, *p < .05

Discussion

Consistent with previous research, I found that materialism is correlated with negative outcomes such as more social comparison and lower levels of self-esteem and satisfaction with life. I also replicated past work showing that materialism is negatively correlated with social desirability. Furthermore, I showed that controlling for social desirability significantly weakened the relationship such that materialism was not longer significantly related to self-esteem and life satisfaction.

Although materialism researchers are largely aware of the social desirability confound, the solution to this problem has been to include social desirability as a covariate in the analyses of materialism and outcomes of interest (e.g. Rindfleisch et al. 2009). However, I think it is problematic to make any conclusions about materialism and well-being given that both variables

are highly confounded with social desirability. The results suggest that people who score low on materialism and negative outcome measures are driven by a concern for social desirability at the cost of reporting the truth. Therefore, although high levels of materialism and negative outcomes may be reflective of truthful reporting, it is less evident what lower levels of these measures reflect.

Social comparison was the only well-being outcome that remained significantly correlated with materialism after controlling for social desirability. This finding is not surprising given how similar items on the social comparison scale are compared to the materialism measure. Both scales focus on evaluating oneself in terms of other people's successes.

Results from the new scale of intrinsic and extrinsic materialism challenge the assumption that positivity toward material goods is necessarily extrinsically motivated and related to negative outcomes. On the contrary, the scale reflects behavior that is both related to positivity toward material goods, but through intrinsic motivations like expressing oneself. Furthermore, this measure was correlated with positive outcomes like self-esteem and life satisfaction, but was not confounded with social desirability.

Study 2: Using an implicit method to measure materialism

The results of Study 1 showed that explicit measures of materialism and well-being are correlated with social desirability and that controlling for social desirability results in non-significant relationships among these variables. Thus, in the next studies I explored how materialism could be measured without social desirability concerns.

In the first attempt to measure materialism attitudes implicitly, I developed a materialism Single Category Implicit Association Test (SC-IAT, Karpinski & Steinman, 2006). The SC-IAT

is a modification of the widely used Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998), which measures strengths of association based on a single target object rather than the two targets required by the original IAT. The SC-IAT was used in the present study because there was no obvious opposite category for materialism-related concepts.

As discussed in the introduction of the paper, the SC-IAT is based on the assumption underlying the IAT that categorization of target objects will be easier and thus faster when they are paired with an evaluative category consistent with the participants' underlying attitudes than when they are paired with an incongruent category. Thus, if people feel implicitly positive toward materialism related words like "shopping," then they should be quicker at pairing those words with the "good" as opposed to "bad" category. In contrast, if people have a negative association with materialism related words, then they should be slower at pairing those words with the "good" as opposed to the "bad" category. In developing the materialism, SC-IAT, I first pretested stimuli to determine which words people associated with materialism and selected words that were highly associated.

In addition to testing the implicit measure of materialism, I also tested explicit measures of materialism and well-being. The MVS and Rosenberg Self-esteem Scale were again included in the present investigation. However, I substituted some of the well-being measures to investigate variables that have been linked with materialism previously, but were not looked at in Study 1. Rather than looking at life satisfaction and social comparison, which both were measured via statements that are similar to those in the MVS, I looked at affect and depressive symptoms. Past research has found higher scores on the MVS are linked to negative affect (e.g.,Kashdan & Breen, 2007) and depressive symptoms (e.g., Burroughs & Rindfleisch, 2002).

Method

     Participants. One hundred seventy Cornell University undergraduate students (all female) participated in this study for course credit. Six of the participants' data were unusable due to computer issues or failure to correctly answer the comprehension checks. I recruited female participants because pre-studies revealed that men and women have different preferences for material objects and materialism related behaviors. Furthermore, compared to men, women tended to agree more about the kinds of items and behaviors they felt positively toward. In developing the materialism SC-IAT, it was necessary to be able to use words for which there was high agreement on the intended association.

Materials and Procedures

     All participants completed the explicit measures outlined below as well as the implicit measure of materialism. The order was counterbalanced such that approximately half of the participants completed the explicit measures first, while the other half completed the implicit measure first. Additionally, the explicit measures were presented in random order. No order effects were found in this study and will not be discussed further.

     Implicit materialism. Materialism was measured via an implicit measure, the Single Category Implicit Association Test (SC-IAT) (Karpinski & Steinman, 2006). The materialism SC-IAT involves four blocks, consisting of two practice blocks and two test blocks. After an introduction to the SC-IAT task, participants were asked to categorize as quickly as possible "good" words on the left side of the screen (using the "d" key) and "bad" words on the right side of the screen (using the "l" key). The good word set consisted of words like happiness, wonderful, and excellent; the bad word set consisted of words like hate, terrible, and awful. In the first critical block, participants had to respond with "d" to words relating to consumer and

good words (see Figure 1). Participants were presented with the less stigmatized term "consumer words" instead of "materialism words" so that participants were unaware of the intent of the task. The consumer word set consisted of words that had been pretested as related to materialism: shopping, jewelry, luxury, mall, clothes, buy, and money ($\alpha = .81$). In the second critical block, the key assignment was reversed such that participants were required to respond with "l" to consumer or bad words. The order of the critical blocks was counterbalanced across participants and no order effects were found.

Explicit materialism. As with Study 1, the updated Materialism Values Scale (Richins, 2004) was used for our explicit materialism measure ($\alpha = .88$).

Intrinsic and extrinsic materialism. The measure developed in Study 1 was again included to test the reliability of the scale. In this study, $\alpha = .72$ for intrinsic materialism and $\alpha = .76$ for extrinsic materialism.

Well-being measures. Self-esteem was again measured through the Rosenberg Self-Esteem Scale (Rosenberg,1965). In this study, $\alpha = .86$.

Affect was measured via the Watson, Clark, and Tellegen (1988) 20-item Positive and Negative Affect Schedule. Participants indicated to what extent they generally felt a word described them on a 1 (not at all) to 5 (extremely) scale. There were 10 positive affect words, such as ''interested'' and ''enthusiastic'' ($\alpha = .85$), and 10 negative affect words, such as ''distressed'' and ''hostile'' ($\alpha = .82$).

Depressive symptoms were assessed with the 21-item Beck Depression Inventory-II (Beck, Steer & Brown, 1996). Respondents were asked to choose one of four statements that best described their mental or behavioral state. For example, one set of statements included "I don't get more tired than usual," "I get tired more easily than I used to," "I get tired from doing almost anything," and "I am too tired to do anything." Statements like the first one were

recorded as a "0" while the other statements were recorded as a "1," "2," and "3," respectively (α = .78).

     Socially desirability. Social desirability was again measured through the reduced form of Marlowe–Crowne's Social Desirability Scale (Reynolds, 1982). In this study, α = .68.

Figure 1: A screen shot of a trial in the materialism SC-IAT.

Analyses

     Simple correlations were conducted among all of the variables, with particular interest in the relationships among explicit materialism, implicit materialism, well-being, and social desirability. For the implicit measure, IAT scores were computed by using the newer D-score algorithm for IAT data (Greenwald, Nosek, & Banaji, 2003). Responses less than 350 ms were eliminated, non-responses were eliminated, and error responses were replaced with the block mean plus an error penalty of 400 ms.   For the resulting IAT D-scores, higher numbers indicated a positivity bias toward materialism related concepts.

Results

Table 3 contains the descriptive statistics and correlations among all study variables. Consistent with Study 1 and replicating past work, explicit materialism was positively correlated with depressive symptoms and negative affect ($rs = .19$ and $.17, p < .05$). Also consistent with Study 1 and past research, explicit materialism was negatively correlated with social desirability ($r = -.46, p < .0001$) and self-esteem ($r = -.20, p < .01$). In addition, replicating Study 1, materialism was again correlated with intrinsic ($r = .43, p < .0001$), as well as extrinsic materialism ($r = .28, p < .01$).

The implicit measure of materialism was found to have satisfactory reliability—response times across the different materialism related words were consistent ($\alpha = .77$). Implicit materialism was positively correlated with explicit materialism ($r = .21, p < .05$), intrinsic materialism ($r = .23, p < .01$) and negative affect ($r = .23, p < .01$). Importantly, implicit materialism was not correlated with social desirability ($r = -.04, p = .57$).

Finally, replicating Study 1, intrinsic materialism was correlated with self-esteem ($r = .36, p < .0001$) while extrinsic materialism was inversely correlated with self-esteem ($r = -.48 , p < .0001$) . Again, neither intrinsic nor extrinsic materialism was correlated with social desirability ($rs = -.03$ and $-.11, ps > .20$)

As with Study 1, I examined the relationship between materialism and well-being outcomes after controlling for social desirability. Again, although explicit materialism was associated with lower self-esteem, $\beta = -.20, p < .01$, when social desirability was controlled for, the relationship was no longer significant, $\beta = -.03, p = .73$. Similarly, although explicit materialism was associated with higher depressive symptoms, $\beta = .19, p = .01$, when social desirability was controlled for, the relationship was no longer significant, $\beta = .05, p = .59$. The

relationship between explicit materialism and negative affect was also consistent with these

results—although explicit materialism was associated with negative affect, $\beta = .17$, $p = .03$, the

relationship was no longer significant when social desirability was controlled for, $\beta = .08$, $p = .35$.

Table 3: Correlations and descriptive statistics for Study 2.

	M	*SD*	1	2	3	4	5	6	7	8	9
1. Explicit materialism	52.79	10.15		.21*	-.46***	.-.20**	.19*	.09.	.17*	.43***	.28**
2. Implicit materialism	55.02	62.86			-.04	-.00	.08	-.02	.23**	.23**	.15
3. Social desirability	.30[a]	.12				.38***	-.33***	.28**	-.21**	-.03	-.11
4. Self-esteem	31.19	5.81					-.52***	.12	-.33***	.36***	-.48***
5. Depression	5.62	1.40						-.13	.62***	-.17*	.31***
6. Positive Affect	27.53	7.94							.18*	.15	.00
7. Negative Affect	15.35	5.62								-.06	.20**
8. Intrinsic Materialism	12.27	1.91									-.11
9. Extrinsic Materialism	8.18	1.49									-

[a]M = proportion, ***$p < .0001$, **$p < .01$, *$p < .05$

Discussion

Overall, the results of Study 2 are highly consistent with those of Study 1: 1) explicit

materialism was found to be positively correlated with poor psychological outcomes and

inversely correlated with positive psychological outcomes, and 2) social desirability was

negatively correlated with explicit materialism and negative outcomes while positively correlated

with positive outcomes. Furthermore, 3) controlling for social desirability results in explicit

materialism no longer predicting negative outcomes.

The materialism SC-IAT may be a promising method for measuring attitudes toward

materialism related concepts since the measure possessed satisfactory reliability and was found

to be correlated with explicit materialism but uncorrelated with social desirability. Interestingly,

implicit materialism was found to be correlated with negative affect, suggesting that positivity

toward materialism related concepts may actually be linked with negative affect. However, given that negative affect is inversely correlated with social desirability, this relationship needs to be examined via further means.

Moreover, results from the new measure of intrinsic and extrinsic materialism replicate those of Study 1, although both intrinsic and extrinsic materialism are correlated with explicit materialism, extrinsic materialism is associated with negative outcomes while intrinsic materialism is actually associated with positive outcomes. These results challenge the assumption that positivity toward material goods and behaviors related to materialism are necessarily extrinsically motivated and linked with negative outcomes. Again, given that the well-being outcomes are confounded with social desirability, this relationship needs to be further examined.

Although the results of Study 2 are highly consistent with those of Study 1, there are a few potentially inconsistent results. In Study 2, positive affect was not found to be linked with materialism, even though across the two studies materialism was found to be inversely correlated with other positive outcomes. However, this result replicates past research that found that while materialism was correlated with negative affect, there was no relationship with positive affect (Christopher, Saliba, & Deadmarsh, 2009). Nevertheless, it is unclear why positive affect is not related to materialism when other well-being variables are.

Another potential inconsistency in the results are that the means on two variables, materialism and social desirability, were quite different between our samples from Study 1 and Study 2. Materialism is higher in the university sample in Study 2 ($M = 52.79$, $SD = 10.15$) compared with the internet sample in Study 1 ($M = 40.37$, $SD = 9.48$). This difference, however, is consistent with past work that has shown that materialism decreases with age (e.g., Burroughs & Rindfleisch, 2002; Christopher et al., 2009). Since the mean age of the university sample (M

= 19.36, SD = 1.35) is lower than the internet sample (M = 37 years, SD = 13 years), the difference in materialism is consistent with the findings of prior research. Materialism may lower with age because young adulthood is a prime time for self-assessment, self-aspiration, and social comparison compared with later adulthood (Heckhausen & Krueger, 1993).

In contrast, social desirability is higher in the internet sample compared with the university sample. However, this result is also consistent with prior research, which has found that social desirability increases with age (e.g., Burroughs & Rindfleisch, 2002; Christopher et al. 2007; 2009). It is not evident why this is the case—social desirability may actually increase with age, but it may also be the case that older people are less likely to engage in some of the behaviors tested in the Marlowe-Crowne Scale. For example, elderly people may not actually play sick to get out of work, while young people may be more likely to do so. A more in-depth analysis of this topic will be addressed in the general discussion of this chapter.

Study 3: How are attitudes toward materialism and sociality associated with self-esteem?

Study 2 yielded evidence that an implicit measure of attitudes toward materialism related concepts could be a fruitful method for investigating how attitudes toward material goods relate to negative outcomes. Implicit materialism was found to be correlated with explicit materialism but uncorrelated with social desirability.

Because all of the explicit measures (except for intrinsic and extrinsic materialism) were correlated with social desirability, for Study 3, in addition to using an implicit measure of materialism, I also tested well-being implicitly by using the name-letter task (Nuttin, 1985, 1987), which measures the extent to which people prefer their own initials compared with letters that are not their initials. The name-letter task, it has been argued, is a valid method of measuring implicit self-esteem in that 1) name letters are associated with self 2) name letter

evaluations are generally positively biased 3) people are unaware of being biased toward their own name letters 4) positive bias for name letters cannot easily be accounted for by factors other than the association between name letters and self and 5) performance on the task has been shown to have high stability over time (for a review, see Koole, 2003).

Consistent with other implicit measures, which are often weakly related or unrelated to explicit measures, the name-letter task has been shown to be weakly related to explicit measures of self-regard (Bosson, Swann, & Pennebaker, 2000; Pelham, Koole, Hardin, Hetts, & Seah, 2001; Koole et al., 2001). A meta-analysis has demonstrated that the name-letter task is consistently, although weakly correlated with explicit measures of self-esteem (Krizan & Suls, 2008).

If the name-letter task is so weakly correlated with explicit measures, how, then, is the name-letter task a valid measure of self-regard? A recent meta-analysis demonstrated that implicit self-esteem, as measured by the name-letter task, is correlated with raters' evaluations of target's global self-regard and positive interpretations of ambiguous feedback, while negatively correlated with uncontrollable negative thoughts about the self (Buhrmester, Blanton, & Swann 2011). Research using children and young adults showed that liking one's initials is correlated with positive childhood experiences and having nurturing parents (DeHart, Pelham, & Tennen, 2006). A preference for one's initials also predicts greater resilience in dealing with threats to the self (Jones, Pelham, Mirenberg, & Hetts, 2002) and failure (Dijksterhuis,2004).

In addition to testing well-being implicitly, the present study investigated the possibility that materialism attitudes can be separated from attitudes toward social concepts, like family and friends. As previously discussed, one assumption in the materialism literature is that people who value material goods do so at the cost of valuing social ties (e.g., Kasser & Ryan, 1993; 1996). However, it is possible that positivity toward material objects and positivity toward social ties

are orthogonal—people can have high positivity toward material objects *and* high positivity toward social concepts. Conversely, people can have low positivity toward both concepts, or have high positivity for one concept and low positivity toward the other.

In order to test this hypothesis, I developed a SC-IAT for social-related concepts. Using words like "friends," and "family," I examined how quickly people categorized these words when paired with a "good," vs. "bad," category. I then looked at how performance on this measure interacts with performance on the implicit materialism measure to predict well-being, specifically, implicit self-esteem.

In addition to the implicit measures, participants completed explicit measures of materialism, self-esteem, affect, and social desirability.

Method

    Participants. One-hundred eighty-four female Cornell University undergraduate students participated in this study for course credit. Seven of the participants' data were unusable due to computer issues or failure to correctly answer the comprehension checks.

Materials and Procedures

    All participants completed the explicit and implicit measures outlined below. Approximately half of the participants filled out the explicit measures first (in randomized order) while half of the participants filled out the implicit measures first. The order of the implicit materialism task and the implicit social task was also counterbalanced. No order effects were found in this study and will not be discussed further.

    Implicit materialism. The materialism SC-IAT described in Study 2 was used to implicitly measure people's attitudes toward materialism related words.

Implicit sociality. The social SC-IAT was designed to be exactly like the materialism SC-IAT, but tested people's positive and negative associations with social words (see Figure 2). The social word set consisted of words that had been pretested as related to sociality: family, friends, conversation, people, chat, together, and socialize ($\alpha = .84$). The order of the critical blocks was counterbalanced across participants and no order effects were found.

Implicit self-esteem. The name-letter task (Nuttin, 1985, 1987) was used to measure self-esteem implicitly. Participants were asked to evaluate how much they liked all of the letters of the alphabet, presented in random order, on a scale of 1 (extremely dislike) to 7 (like extremely). The instructions acknowledged that although this was a seemingly odd request, the purpose of the task was to understand people's aesthetic judgments of simple stimuli. As in previous research, participants were encouraged to rely on their "gut" reactions toward the letters and respond quickly.

Explicit materialism. As with the previous studies, the updated Materialism Values Scale (Richins, 2004) was used for the explicit materialism measure ($\alpha = .82$).

Intrinsic and extrinsic materialism. The measure developed in Study 1 was again included to test the reliability and predictive value of the scale. In this study, $\alpha = .70$ for intrinsic materialism and $\alpha = .74$ for extrinsic materialism.

Explicit well-being measures. As with the previous studies, the Rosenberg Self-Esteem Scale was used to measure explicit self-esteem ($\alpha = .83$). The Positive and Negative Affective Schedule (Watson, Clark, & Tellegen, 1988) was used to measure explicit positive ($\alpha = .84$) and negative affect ($\alpha = .79$).

Social desirability. The Marlowe-Crowne Scale (Reynolds, 1982) was again used to measure social desirability ($\alpha = .68$).
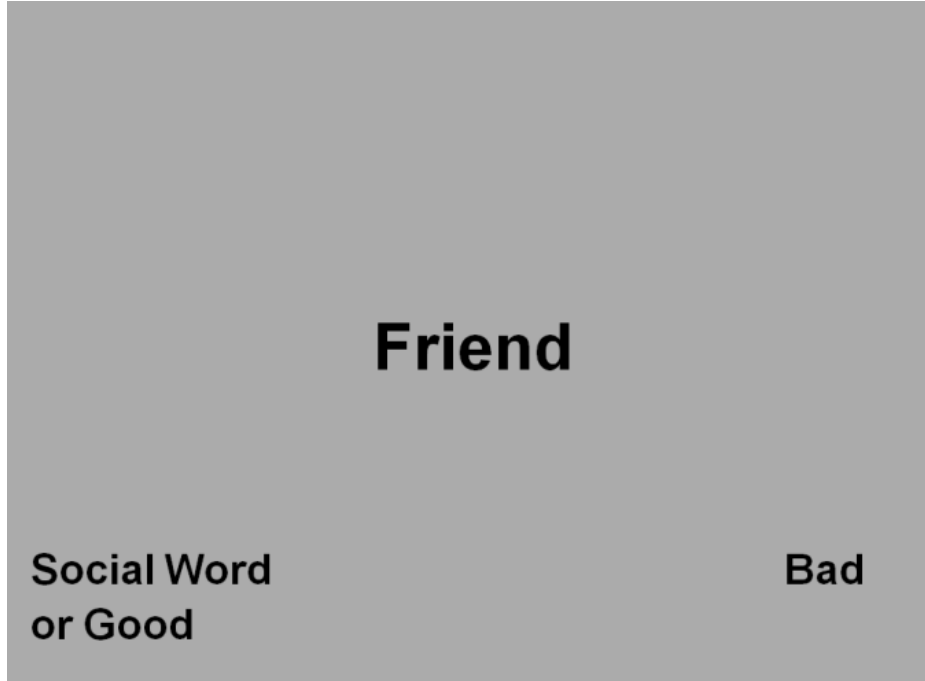
Figure 2: A screen shot of a trial in the social SC-IAT.

Analyses

I conducted simple correlations among all of the variables, with particular interest in the relationships among implicit materialism, implicit sociality, and implicit self-esteem. For the implicit materialism and social measures, IAT scores were computed by using the newer D-score algorithm for IAT data (Greenwald, Nosek, & Banaji, 2003). Thus, responses less than 350 ms were eliminated and error responses were replaced with the block mean plus and an error penalty of 400 ms. Higher numbers indicated a preference toward materialism related concepts for the materialism SC-IAT and social-related concepts for the social SC-IAT. Again, the implicit measure of materialism was found to have satisfactory reliability—response times across the different materialism related words were consistent ($\alpha = .76$) and the social SC-IAT yielded similarly high reliability ($\alpha = .78$). Implicit self-esteem was calculated by averaging people's

ratings of the letters of the alphabet that were not their initials and subtracting that number from the average ratings of their first and last initial.

Results

     Simple correlations. Table 4 contains the descriptive statistics and correlations among all of the study variables. Consistent with Studies 1 and 2, explicit materialism was positively correlated with negative affect ($r = .17, p < .05$), intrinsic materialism ($r = .20, p < .01$), and extrinsic materialism ($r = .37, p < .0001$), while inversely correlated with explicit self-esteem ($r = -.15, p < .05$) and social desirability ($r = -.33, p < .0001$).

     Replicating Study 2, implicit materialism was correlated with negative affect ($r = .18, p < .05$). Interestingly, in this study, implicit materialism was inversely correlated with explicit self-esteem ($r = -.17, p < .05$) even though there was no relationship between these two variables in Study 1.

     Interactions. For this study, I was particularly interested in the relationships among implicit materialism, implicit sociality, and implicit self-esteem. Implicit sociality was correlated with implicit self-esteem ($r = .22, p < .05$) while implicit materialism was not significantly related to implicit self-esteem ($r = -.11, p = .10$). More importantly, using median splits to assess relatively high and low implicit materialism and sociality, an ANOVA revealed that implicit materialism and implicit sociality significantly interact to predict implicit self-esteem $F(3,166) = 4.31, p < .01$ (see Figure 1). To better understand this interaction, contrast analyses were performed. Having high implicit materialism but low implicit sociality was associated with lower implicit self-esteem compared with high implicit materialism and high sociality $F(1,168) = 9.93, p < .01$, and low materialism and low sociality $F(1,168) = 9.59, p < .01$, and low materialism and high sociality (marginal), $F(1,168) = 3.46, p = .06$

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Table 4: Correlations and descriptive statistics for Study 3.

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Explicit materialism	52.72	8.74		.17*	-.01	.14	-.33***	-.15*	-.04	.17*	.20**	.37***
2. Implicit materialism	52.82	69.73			.11	-.12	.03	-.17*	-.09	.18*	.02	.11
3. Implicit sociality	100.65	69.81				.22**	-.08	-.09	.04	.06	-.02	.09
4. Implicit self-esteem	1.85	.88					.00	.04	.00	-.02	.19**	.11
5. Social desirability	.40[a]	.13						.07	.09	-.11	-.02	-.12
6. Explicit self-esteem	31.17	5.34							.46***	-.36***	.23**	-.12
7. Positive affect	32.88	6.10								-.20	.13	.03
8. Negative affect	24.33	5.51									-.10	.13
9. Intrinsic materialism	13.36	1.81										.24**
10.Extrinsic materialism	15.38	2.57										-
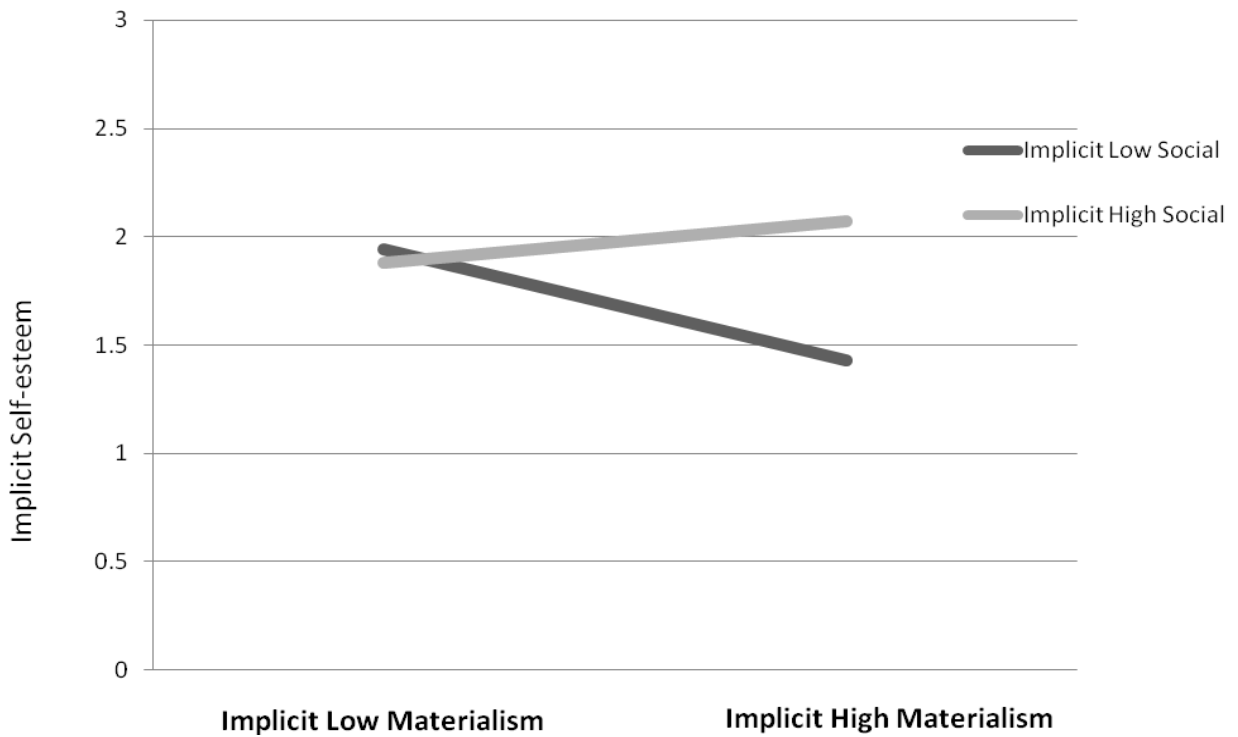
Figure 1: Implicit self-esteem is associated with implicit materialism and implicit sociality, Study 3.

Discussion

Study 3 demonstrated that the materialism and social SC-IAT have satisfactory reliability. The reliability as well as the interesting relationships that were obtained from these measures suggest that the SC-IAT may be a fruitful way of investigating materialism and social attitudes. Furthermore, these results suggest that positivity toward materialism related concepts alone are not associated with negative outcomes, like lower self-esteem. Rather, when positivity toward materialism is coupled with relatively low positivity toward social-related concepts, then there is a relationship with lower self-esteem. These results challenge the assumption that positivity toward materialism related concepts and material goods are necessarily linked with negative outcomes. A more nuanced relationship emerges in these data.

One surprising finding was that the implicit materialism measure was negatively correlated with self-esteem in this study, even though there was no significant relationship in Study 1. The significant relationship in this study may have to do with the larger sample size in this study, in addition to a lower mean in self-esteem across the subjects.

One of the limitations of this study is that the directionality of the relationships among implicit self-esteem, implicit sociality, and implicit materialism cannot be determined. In the general discussion I will be arguing that there is more evidence supporting the idea that poor psychological health leads to materialism. In terms of implicit sociality and well-being, variables probably influence each other more bi-directionally—being happy probably leads to positivity towards sociality while in turn, being social probably leads to greater well-being. However, although there is a lot of work on the link between extraversion and well-being (see Diener, Oishi, & Lucas, 2002 for a review) these studies are correlational.

Another limitation of this study is that it is not entirely clear what the name-letter task is

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actually measuring. Although I have cited research that demonstrates a preference for one's initials is a good proxy for positive self-regard, there are some caveats to this conclusion. Initials preference has been associated with egotism (e.g., Kocan & Curtis, 2009). Thus, it is not clear when a preference for one's initials reflects healthy positive self-regard as opposed to unhealthy positive self-regard.

Study 4: Explicit decisions and implicit attraction between materialistic and social options

Taken together, Studies 1-3 provide converging evidence that 1) explicit measures are confounded with social desirability 2) explicit materialism does not predict negative outcomes when social desirability is controlled for 3) material objects can be pursued for intrinsic reasons 4) pursuing material objects via intrinsic motivations is positively related to well-being 5) implicit positivity toward materialism and social concepts are orthogonal and 6) implicit positivity toward materialism related concepts and social-related concepts are associated with implicit self-esteem such that high implicit materialism coupled with low implicit sociality are related to lower levels of implicit self-esteem.

Although these studies provide a consistent picture of attitudes toward material objects, social concepts, and negative outcomes, there are still unanswered questions. The results of Study 3 suggest that positive attitudes toward materialism-related concepts are not associated with low self-esteem. Rather, high materialism must be accompanied by relativity low positivity toward sociality to be associated with low self-esteem. Study 4 was designed to further test this possibility. Specifically, the following study examined how people actually make decisions between materialistic vs. social options and how those choices, as well as the implicit attraction to the unchosen option, are associated with self-esteem.

In order to investigate how people make decisions between materialistic and social

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options, I recorded people's computer mouse pathways as they made decisions between two options. Computer mousetracking was first utilized by Spivey, Grosjean, and Knoblich (2005) to investigate the temporal dynamics of lexical recognition and competition. Since then, mousetracking has been demonstrated as a valid measure of implicit competition between conflicting attitudes and social judgments (e.g., Freeman & Ambady, 2009; Freeman, Ambady, Rule, & Johnson, 2008; Kroops & Johnson, 2011; Wojnowicz, Ferguson, Dale, & Spivey, 2009).

Here, I used the technique to determine how explicit choices in social vs. materialistic options, and implicit attraction to the unchosen option are associated with self-esteem. When competition is low, mouse trajectories should be direct—exhibiting relatively straight movement toward the chosen category option, disregarding the competing category. However, when competition is high, mouse trajectories should exhibit a curved trajectory toward the unchosen option. I was interested in how the choices people made between materialistic and social options, as well as the attraction to the unchosen materialistic option, are associated with self-esteem.

Furthermore, as Studies 1-3 have been correlational and did not introduce a manipulation, in Study 4 I included a within-subjects manipulation to better understand the relationships among materialism and negative outcomes. The results of Study 3 suggest that positivity toward material objects and their acquisition is not independently associated with negative outcomes. However, how do people's decisions between and attitudes toward materialistic and social options change and predict outcomes when people are feeling vulnerable? The relationship between people's tendencies and negative outcomes may not always be observable until people are put under conditions of stress. For example, in the clinical literature, it has been shown that socially anxious people have difficulty looking at emotional faces, but this effect is only observed under conditions of social-evaluative threat (Mansell, Clark, Ehlers, & Chen, 1999).

To measure implicit self-esteem, both as a baseline measure and as a dependent measure that may be affected by the rejection vs. control manipulation, I needed to use a measure that was quick, so that the effects of the manipulation did not wear off before people got to the mousetracking decision task. Therefore, I used signature size as a proxy for implicit self-regard. Research by Zweigenhaft and colleagues (e.g., Zweigenhaft & Marlowe,1973; Zweigenshaft, 1977) showed that signature size is reliably correlated with explicit measures of self-regard as well as relative social status. For example, people with blue-collar jobs (like janitors) have smaller signatures than people in white collar jobs (like executives). Signature size has also been correlated with frequency of experiencing positive affect (Koole, 2000). Consistent with this correlational work, Stapel and Blanton (2004) found that by exposing people to subliminal primes of Albert Einstein, signature size decreased. Because these primes have previously been shown to make people feel unintelligent by comparison, reduced signature size was interpreted as lower evaluations of the self.

Method

 Participants. A total of 54 female undergraduate participants completed the study at Cornell University for course credit. Three of the participants' data were unusable because the participants did not complete the study due to computer failures.

Materials and procedures

 The study consisted of several baseline measures, an experimental manipulation, with a rejection vs. neutral manipulation as a within-participant factor, and completion of an implicit measure of materialism and sociality (a mousetracking task), which was administered after each manipulation. Participants were told that the study was still in its design phase and that the

researchers were testing a new method. Participants first completed various baseline measures outlined below in random order. After completing these measures, participants were randomly assigned to complete either the rejection or neutral writing task first. Immediately after the writing task, participants signed their name (as an implicit measure of self-esteem), indicated how they were feeling, and then completed the implicit measure of materialism and sociality, which was a mousetracking task involving decisions between two options across several trials. Participants then completed the other writing task (i.e., the neutral scenario, if they first wrote about rejection), signed their name again, indicated how they were feeling, and completed the mousetracking task a second time. Participants were told that they needed to complete the mousetracking task again because the researchers were developing a new method, which was still in its development phase.

Baseline measures. When participants first arrived at the lab, they completed various measures used in the previous studies, which included the MVS (Richins, 2004), PANAS (Watson, Clark, & Tellegen, 1988), name-letter task (Nuttin, 1985, 1987), Marlowe-Crowne Social Desirability Scale (Reynolds, 1982), and Rosenberg Self-Esteem Scale (Rosenberg, 1965). Participants also signed their name on the consent form, which was used as a baseline measure of implicit self-esteem.

Social rejection and control manipulations. Participants then either wrote for three minutes about a time when they felt socially rejected or a description of the lab waiting room as a control task. Instructions for the rejection writing task were adopted from Twenge and Campbell (2003) and were as follows: "For the next three minutes, in complete sentences, please write about a time when someone in your life rejected or excluded you. If you have several instances in mind, try to choose one that is especially memorable. Think about how this person let you down and how that made you feel." In the control writing task, participants were instructed as

follows: "For the next three minutes, in complete sentences, please write down everything you can about the cubicle you are in as well as the waiting room you sat in before you got to the cubicle. Try to include as much details as possible."

Implicit self-esteem measure. Immediately after participants completed the writing task, they were asked to sign at the bottom of what they had just written to indicate that what they wrote was true.

Mood assessment. In order to determine whether the rejection manipulation was impactful, participants indicated their mood via visual analog scales, similar to those used in previous research (e.g., Chepenik, Cornew, Farah, 2007), immediately after signing their names. The scale consisted of two questions: 1) How happy are you feeling right now? and 2) How vulnerable are you feeling right now? The response line consisted of a 14cm line with the endpoints of the line marked with "not at all" and "extremely." Participants were asked to place a hash mark on the line that best captured what they were feeling. Mood ratings were measured in centimeters and rounded to the nearest millimeter.

Mousetracking task. Participants then completed 48 trials of a simple decision-making task in which they made many decisions between two options (see Figure 3). Streaming x- and y-coordinates of mouse-cursor movements were recorded as participants decided between the two options. At the beginning of the task, participants were instructed that they would make a series of instruction and were encouraged to answer quickly because the researchers were interested in "gut reactions." At the start of each trial, participants were presented with the question "Which do you prefer?" and a box labeled "start." After clicking on the "start" box, two boxes emerged at the top left and right sides of the screen with two different options. The options were related to social, consumer, or neutral categories. The 60 trials consisted of 12 trials each of social vs. materialistic options, social vs. social options, materialistic vs.

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materialistic options, as well as 6 trials each of neutral vs. social options and neutral vs.

materialistic options.   All trials were randomly presented. The different options were pretested

by participants who were asked the select words that best captured sociality, materialism, and

neutrality. The social options were: conversation, hanging out with friends, party, get-together,

dinner party, and friend. The materialistic options were: fashion, money, shopping at a mall,

shopping online, jewelry, and clothes shopping. The neutral options were: grocery shopping,

furniture, and office supplies.

As in previous research (e.g., Freeman et al.,2010), if participants initiated movement

later than 400 ms following the presentation of options, a message appeared encouraging them to

start moving the mouse. If a response was not made within 3,000 ms, a "time-out" message

appeared. To record and analyze mouse trajectories, we used the freely available MouseTracker

software package: http://mousetracker.jbfreeman.net (Freeman & Ambady, 2010).
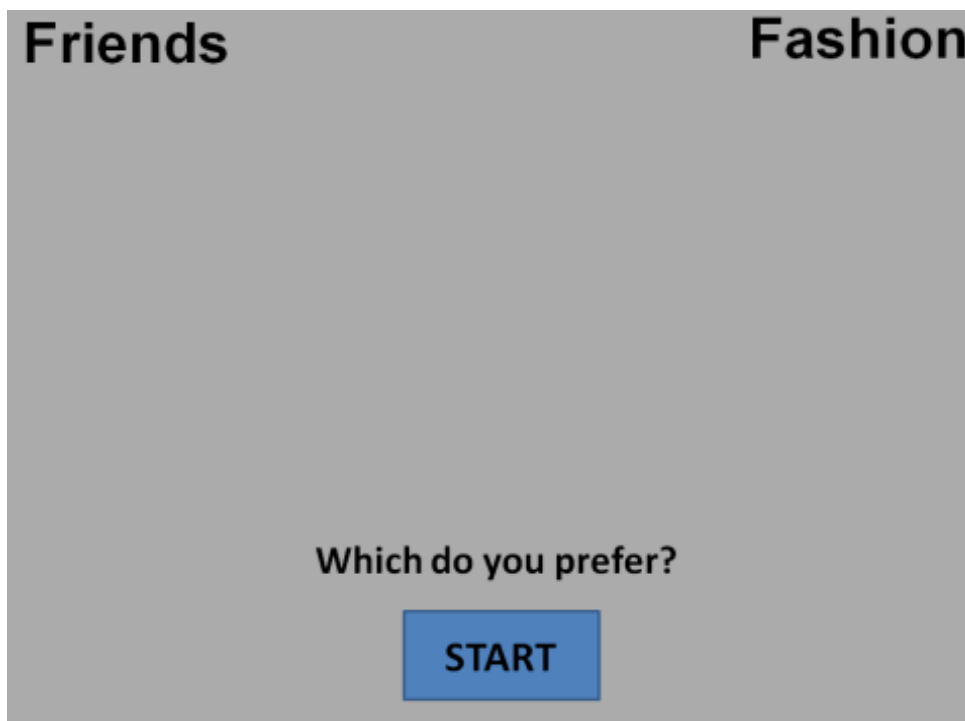
Figure 3: A screen shot of a trial in the materialistic-social mousetracking decision task, Study 4.

Analyses

Simple correlations were conducted among the main variables with particular interest in the proportion of choosing social vs. materialistic options, attraction to the unchosen materialistic option, and implicit self-esteem (see Table 4). Because the baseline signature (the signature taken at the beginning of the study) was nearly perfectly correlated with the control signature (the signature taken after people wrote about their surroundings), $r = .98$, $p < .0001$, only the baseline signature was used in the analyses.

For the mousetracking task, a time-out occurred on 0.2% of the trials; these trials were discarded. Each trajectory was plotted and checked for aberrant movements (e.g., looping). Aberrant movements were detected in 2.1% of the trajectories, and these were also discarded. Explicit preference for social vs. materialistic options was calculated as a proportion. Attraction to the non-chosen materialistic option was calculated in terms of the area under the curve (AUC). The AUC of a trajectory is calculated as the geometric area between the actual trajectory and the idealized trajectory (a straight line). Although there are several ways of measuring the attraction to the non-chosen option (e.g., the maximum deviation from the idealized trajectory can also be measured), the AUC is considered to be a better index of the overall attraction toward the unselected alternative by incorporating all time-steps (Freeman & Ambady, 2010.

Signature size was calculated by following the method of previous work (Koole, 2000), which measured the greatest length and width of the entire signature and calculated an area based on those two measures. Therefore, larger numbers indicate higher levels of implicit self-esteem.

Results

Simple correlations. Table 5 contains the descriptive statistics for the correlations among

all of the main study variables. Due to the relatively small sample size in this study, several of

the correlations were consistent with Studies 1-3, but did not reach significance. Interestingly,

explicit materialism was negatively correlated with the proportion of choosing social over

materialistic options ($r = -.36$, $p < .01$), while there was a trending correlation between choosing

social over materialistic options and social desirability ($r = .22$, $p = .14$). Furthermore, *lower*

explicit materialism was associated with *greater* attraction to the unchosen materialistic option in

the control condition ($r = -.43$, $p < .01$). Taken together, these results suggest that explicitly

expressing materialistic attitudes and actually choosing materialistic options may be a reflection

of honest responses, since low endorsement of materialism attitudes actually yielded greater

implicit attraction to materialistic options.

Also, the manipulation check of mood was successful. People reported feeling more

vulnerable in the rejection condition ($M = 5.58$, $SD = 3.21$) compared with the control condition

($M = 3.87$, $SD = 2.70$), $t(51) = 5.34$, p $< .0001$. Similarly, people indicated they felt happier in

the control condition ($M = 7.49$, $SD = 2.52$) compared with the rejection condition, ($M = 6.16$,

$SD = 2.75$), $t(51) = 4.90$, p $< .001$.

Effect of control manipulation on attraction to materialistic option and self-esteem.

Interestingly, in the control condition, people's implicit baseline self-esteem (as measured by the

size of their first signatures) was not associated with attraction to the material option ($r = -.05$, p

$= .71$). Similarly, there was no significant relationship between explicit self-esteem and

attraction to the materialistic option, ($r = -.04$, $p = .76$).

Effect of social rejection on self-esteem and attraction to materialistic option. After

people wrote about being rejected, their implicit baseline self esteem (as measured by the size of

their first signatures) was associated with attraction to the material option such that smaller

signatures were correlated with greater curvature toward the unchosen materialistic option, even

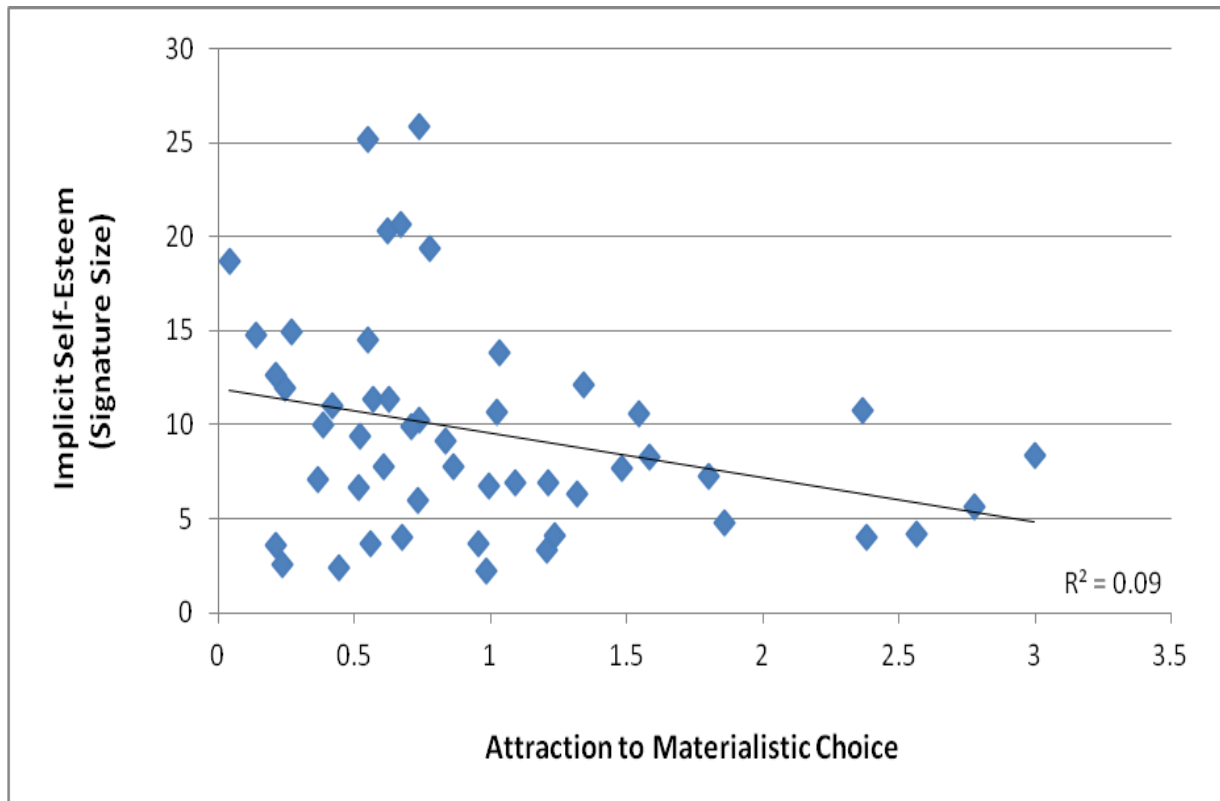after controlling for the proportion of social vs. materialistic choices, ($r = .10$, $p = .02$).

Similarly, there was also a significant relationship between explicit self-esteem and attraction to the materialistic option such that lower self-esteem predicted greater curvature toward the materialistic option, even after controlling for the proportion of social vs. materialistic choices, ($r = .11$, $p = .02$)

Effect of manipulation on signature size. There were no differences in signature size in the control vs. the rejection conditions, $t(51) = .16$, p = .83.

Table 5: Correlations and descriptive statistics for Study 4.

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Explicit materialism	44.42	7.06		-.17	.32*	.08	.10	-.36**	-.22	-.43	-.07	-.37**
2. Explicit self-esteem	29.5	4.47			.00	.15	.08	-.03	-.12	-.04	-.32*	.34
3. Initials preference	1.62	0.76				.08	.15	-.10	-.05	-.20	-.03	-.27*
4. Baseline signature	9.50	5.63					.78**	-.24	-0.07	-.05	-.32*	-.25
5. Rejection signature	8.04	5.52						-.33	-.10	-.08	-.27*	-.47**
6. Control Choose Social/Materialistic	.72[a]	.15							.69**	.03	.22	.18
7. Rejection Choose Social/Materialistic	.72[a]	.16								.09	.10	.06
8. Control Attraction to Unchosen Mat. Opt.	1.00	.85									.26	.22
9. Rejection Attraction to Unchosen Mat. Opt.	1.04	.78										.04
10. Social desirability	.40[a]	.19										-

[a]M = proportion, **$p < .01$, *$p < .05$

Figure 4: Implicit self-esteem as predicted by implicit attraction to the unchosen materialistic choice, controlling for the proportion of social vs. materialistic choices, Study 4.

Discussion

The results of Study 4 suggest several interesting implications. When people are not feeling particularly vulnerable, an attraction toward materialistic options is not necessarily problematic, since it did not interact with baseline self-esteem in the control condition. However when people are feeling vulnerable, an attraction to materialistic option is potentially problematic in that it was associated with lower baseline self-esteem. This finding is particularly exciting given that it is the first to connect mousetracking performance with a well-being outcome.

Higher explicit materialism is reflective of greater choosing of material options over social options. However, lower explicit materialism was associated with greater attraction to the

unchosen materialistic option, even after controlling for the proportion of social vs. material choices. This finding implies that particularly for people who are not willing to endorse materialistic views, there may be a draw to materialistic options due to self-denial of materialistic behaviors.

Interestingly, there was no difference in signature size after participants wrote about being rejected or wrote about a neutral description. As previously discussed, research has shown that signature size decreases when people are made to feel unintelligent (Stapel & Blanton, 2004). However, Rudman, Dohn, and Fairchild (2007) showed that signature size increased after individuals were rejected by a peer. The researchers interpreted this result as a defensive reaction in which individuals strive, perhaps unconsciously, to amplify their self-esteem, to diminish the anxiety that coincides with rejection or criticism. Among the participants in Study 4, it appears that about half of the participants' signatures increased after the rejection manipulation while half of the participants' signatures decreased, thus leading to no mean differences. A further investigation of why some people's signatures would increase while other people's signatures would decrease will need to be done. I am currently analyzing what people wrote about in the rejection scenarios and coding for different kinds of rejection, who rejected them, and approximate time of the rejection.

Finally, although the results from the mousetracking task are intriguing, it is still not known with certainty what the decision trajectories mean. Although, like other researchers, I have interpreted the AUC as an implicit attraction to the unchosen option, it could be that the AUC is reflective of general hesitation.

General Discussion

Summary of findings

Across 4 studies, I have shown that 1) explicit measures are confounded with social desirability 2) explicit materialism does not predict negative outcomes when social desirability is controlled for 3) material objects can be pursued for intrinsic reasons 4) pursuing material objects via intrinsic motivations is positively related to well-being 5) implicit positivity toward materialism and social-concepts are orthogonal 6) implicit positivity toward materialism-related concepts and social-related concepts are associated with implicit self-esteem, such that high implicit materialism and low implicit sociality are related to lower levels of implicit self-esteem and 7) when people are feeling rejected, lower implicit and explicit self-esteem are associated with an attraction to the unchosen material option.

Are people reluctant to explicitly report materialism endorsing attitudes?

The studies consistently demonstrate that materialism is confounded by social desirability and that controlling for social desirability reduces the relationships between materialism and negative outcomes such that the relationships are no longer significant. I have been arguing that these results are evidence that people may endorse such views, but are unwilling to be forthcoming with such views because they have social desirability concerns. Consistent with this argument, although materialism scores are generally below the mean, the mean score on the materialism SC-IAT reflects a positive bias. Furthermore, in the mousetracking study, lower scores on the explicit materialism measure are actually associated with greater attraction to the unchosen materialistic option.

Materialism revisited

I have argued that one of the limitations on research on materialism is that not only is it measured via an explicit scale, the scale itself assumed a narrow and specific kind of materialism. I have measured materialism implicitly by using words and concepts that were pretested as being associated with materialism, but tended to be more general and even less stigmatized, like "clothing," "buy," and "shopping."

I have also introduced the possibility that material goods can be pursued with intrinsic motivations. Many people reported that they buy and utilize material goods for inspiration, creativity, and self-expression.

Explicit measures revisited

Although these studies were originally designed as an investigation of materialism related attitudes, I discovered along the way that all of the explicit self-report measures (except for intrinsic and extrinsic materialism) were confounded with social desirability. Therefore, in addition to materialism attitudes, attitudes toward social concepts and well-being were eventually all measured implicitly as the studies progressed. Self-report measures may have more validity when there is an independent variable since random assignment should essentially distribute people who are high and low on social desirability. Clinical settings may also be more appropriate for self-report measures when patients in clinical settings are presumably there to get help, although recent research has shown that social desirability is highly confounded with well-being and cognitive functioning measures among the elderly in clinical settings (Fastame & Penna, 2012).

The findings across these studies suggest that in non-manipulated lab studies, self-report measures of well-being and attitudes toward concepts with clear social norms may be limited by

social desirability concerns. Thus, interpretations and implications of such data need to be qualified and additional and/or alternative methods of investigating well-being should also be included to provide converging evidence.

Could materialism and social desirability be meaningfully associated?

One of the arguments I have been making is that explicit measures of materialism and well-being are confounded by social desirability. However, it is possible that social desirability is meaningfully related to the other measures. This possibility can be of three varieties— 1) people who care a great deal about social desirability are actually less materialistic and have greater well-being in general 2) people who are less materialistic and experience greater well-being are actually less likely than others to engage in behaviors on the social desirability scale, like playing sick to get out of work or 3) people who score high on materialism are unaware of or don't care about social norms and how people think of them. Therefore, they are more likely to suffer from negative outcomes.

There is some evidence to support the first possibility—social desirability was correlated with positive attributions (e.g., emotional stability, agreeableness) and desirable qualities (e.g., happiness) by people's spouses (Diener et al., 1991; Kozma & Stones, 1987; McCrae & Costa,1983). It may be that people who are high on social desirability value social harmony (for a review, see Uziel, 2010). However, it could also be that people who are high on social desirability are more likely to present themselves as agreeable and stable, even to their partners. It is also possible that the relationship between social desirability and well-being is curvilinear, rather than linear—some degree of social desirability may be positive and even necessary for well-being and healthy relationships, but extremely high levels may be detrimental. None of the studies I reviewed looked at curvilinear relationships between social desirability and non-self

report measures of well-being, which may be, in part, due to the large sample size needed to detect a curvilinear relationship.

Despite potentially competing evidence, it is still the prevalently held and most supported view that social desirability scales like the Marlowe-Crowne Scale reflect a concern for social approval at the cost of truthful responding. Social desirability has been found to be correlated with possessing knowledge that isn't real (Carroll, 2008). Similarly, when participants were randomly assigned to anonymous and non-anonymous conditions, social desirability responding was significantly higher in the non-anonymous condition (Joinson, 1999). In cultures where the need for social approval is particularly high, as in China, distributions on social desirability scales are positively skewed, whereas they are negatively skewed in North American samples (Cuixia, Jian & Zhongfang, 2003).

There is no direct empirical evidence that speaks to the second possibility. As mentioned in the discussion of Study 1, results from that study as well as data from other research (e.g., Christopher et al., 2006) showed that there is a positive relationship between social desirability and age. It is plausible that older people are less likely than younger people to engage in behaviors like faking illness to get out of work. However, verifying if people actually engage in such behaviors is clearly a great empirical challenge and has not been investigated.

There is also no direct empirical evidence that speaks to the third possibility. The link between a lack of understanding or care for social norms and psychological health is a main focus in clinical psychology—an extreme lack of understanding social norms is implicated in autism spectrum disorders while a disregard for social norms is a defining feature in psychopathy. However, researchers interested in materialism and well-being have not looked at whether the endorsement of materialism attitudes is a result of being unaware of or not caring about social norms. Furthermore, if there is a link, it seems likely that this link would only exist

at the extremely high levels of materialism and extremely low levels of social desirability, which may be indicative of mental illness. It seems implausible, therefore, that the linear relationship between materialism and social desirability could be accounted for by this possibility.

Does materialism cause negative outcomes or do negative outcomes cause materialism?

As stated earlier, several researchers have concluded that materialism *causes* negative outcomes (e.g., Gurel-Atay, Sirgy, Cici & Husic, 2009; Kasser, 2002; Kasser, et al. (2004); Polak, & McCullough, 2006). For example Polak and McCullough (2006) begin their abstract with "materialistic strivings have been implicated as a cause of unhappiness," (p. 343). Similarly, Kasser et al. (2004) summarize their review of research on materialism with "having materialism values diminishes personal, social, and ecological well-being," (p. 20) and argue that clinical psychologists should encourage their patients to lead more materially simple lifestyles and fewer goals associated with material goods. However, the correlational nature of studies cited in these papers do not allow for inferences about the cause and effect of the relationship between materialism and negative outcomes.

Although I have argued that the relationship between materialism and negative outcomes is not as strong as previously argued, since it is confounded with social desirability, if there is a relationship between these variables, the causality is probably the other way around. There is more evidence that poor psychological well-being causes materialism. Work on life-stressors and materialism have shown that people who experience significant life-stressors have heightened consumption behaviors and materialistic attitudes. For example, children of parents who are divorced are more materialistic than children of intact couples (Rindfleisch, Burroughs, & Denton, 1997). Experiencing a divorce has been shown to lead to temporary increased consumption (McAlexander, Schouten, and Roberts, 1993). Similarly, Cohen and Cohen (1996)

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showed that teenagers high in materialism tend to come from socially and economically disadvantaged backgrounds.

Because McAlexander et al. (1993) showed increased consumption *after* a divorce, Rinfleisch et al. (1997) looked at the divorce of people's parents and not their own, and Cohen and Cohen (1996) looked at teenager's parents' income and parenting styles, it is unlikely that the relationship between materialism and these life-stressors is the other way around, i.e., that heightened materialism *caused* the life-stressors. Therefore, it seems more likely that negative life-outcomes, which lead to negative psychological consequences, result in materialistic attitudes and behaviors.

Of course, the relationship between materialism and well-being may be bi-directional. Theoretically, it is plausible that increased positivity toward material goods and the acquisition of those goods leads to negative outcomes. But again, this causal relationship has not been established. Furthermore, evidence from the present studies suggests that positivity toward material goods can be associated with positive outcomes. Therefore, the extent of the positivity, the driving motivations, and the level of preoccupation toward the acquisition of material goods and materialism related concepts most likely matter a great deal in determining when a person's relationship with material goods is healthy or unhealthy.

CHAPTER 3

USING MATERIAL OBJECTS IN EMOTION AND PAIN REGULATION

A substantial body of work has shown that a significant other's actual or imagined presence down-regulates negative affective and physiological responses to both social stressors (e.g. Christenfeld, Gerin & Linden, 1997; Grewen, Anderson, Girdler, & Light, 2003) and physical ones (e.g., Coan, Schaefer, & Davidson, 2006; Master, Eisenberger, Taylor, Naliboff, Shirinyan, & Lieberman, 2009). In one study, for example, thinking about the social support of a significant other significantly calmed people who were giving a public speech (Grewen, Anderson, Girdler, & Light, 2003). Another line of work showed that viewing the photograph led people to report less pain in a cold presser task compared with the control condition (Master et al., 2009).

Psychological resilience—the down-regulation of negative affective states and the maintenance or promotion of positive affective states under threat, has been shown to be associated with positive emotions in general and overall well-being (Block & Kremen, 1996; Klohnen, 1996). Several researchers have argued that intentionally recruiting positive emotions might account for the self-generation of positive emotions (e.g., Fredrickson, 2001). Although a great deal of research has focused on how the presence of and thoughts about a significant other can increase the recruitment of positive emotions when people are under threat, there is little research demonstrating how people use material objects and memories of cherished objects to regulate their emotions.

As with the work in Chapter 2, this investigation challenges one of the assumptions in the materialism literature. For example, Kasser and colleagues (e.g., Kasser, 2002; Kasser et al., 2004) have consistently argued that the valuing and pursuit of material goods are inextricably linked with negative outcomes and can only occur at the cost of healthy relationships and self-

competence. However, the following studies will explore the hypothesis that material goods can be used in stressful situations to promote well-being.

Overview of Studies

Studies 5a and 5b were designed to test the hypothesis that thinking about a loved material object can mitigate negative feelings. Specifically, Study 5a was designed to examine how material objects can help people recover from sadness, while Study 5b was designed to look at the buffering effects of material objects and sadness. Furthermore, I compared the potentially mitigating effects of material objects with two other conditions—one in which people were engaged in a neutral task while in the third condition, people thought about a significant other.

Although I predicted that thinking about a loved material object would promote emotion regulation compared with the neutral condition, I was less certain about how the material object condition would compare with the significant other condition. On the one hand, it could be just as successful a strategy. On the other hand, given how important and influential loves ones are in our lives, thinking about a material object could be more beneficial than a neutral condition, but not as influential as thinking about a significant other.

Studies 5a and 5b: Using material objects to buffer against and recover from sadness

The goal of these studies was to test the effect of thinking about a cherished possession before and after people are induced with sadness. I chose to examine sadness because sadness has been reliably induced in the lab with certain stimuli, particularly film clips, without inducing other emotions (for a review, see Rottenberg, Ray, & Gross, 2007). As discussed previously, I predicted that thinking about a cherished possession would buffer and increase recovery from the

sadness induction compared to the control condition. However, I was unsure if the manipulation would be as successful as thinking about a loved one.

Method

In both Studies 5a and 5b, participants watched a three-minute film clip from *The Champ*, which depicted a boy responding to the death of his mentor.   In Study 5a, participants wrote about a favorite person, favorite possession, or errands they needed to do that day *after* they watched the film clip while participants in Study 5b completed the writing task *before* watching the film clip.

Participants. Cornell University students were recruited for Studies 5a and 5b in exchange for course credit. Ninety-two students participated in Study 5a and one hundred eight students participated in Study 5b

Materials and Procedures

Participants were seated at a computer in an individual cubicle and were informed that the study involved a series of unrelated tasks and measures. In Study 5a, participants first watched the sad film clip and then were randomly assigned to write about a favorite person, a favorite possession, or errands they had to do that day. After writing for three minutes, participants then filled out the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) as well as questions about how engaged they were in the study and how much they liked the clip. In Study 5b, participants first completed the writing task, then watched the sad film clip, and filled out the affect measure and follow-up questions afterwards.

Results

Study 5a. The one way ANOVA revealed a significant difference in positive affect by condition (see Figure 5), $F(2, 90) = 4.34$, $p < .01$. Contrast analyses revealed that people in the control condition report significantly less positive affect compared to people who thought about a favorite possession or favorite person, $F(1, 91) = 7.96$, $p < .01$. Interestingly, there was no difference across conditions in negative affect, $F(2, 90) = 2.01$, $p = .14$.

Study 5b. The one way ANOVA revealed no differences across conditions in both positive affect and negative affect, $F(2, 106) = 2.18$, $p = .13$, $F(2, 105) = .73$, $p = .48$. In fact, contrast analyses revealed that people reported less positive affect in the person condition compared to the other two conditions $F(1, 107) = 4.16$, $p < .04$.
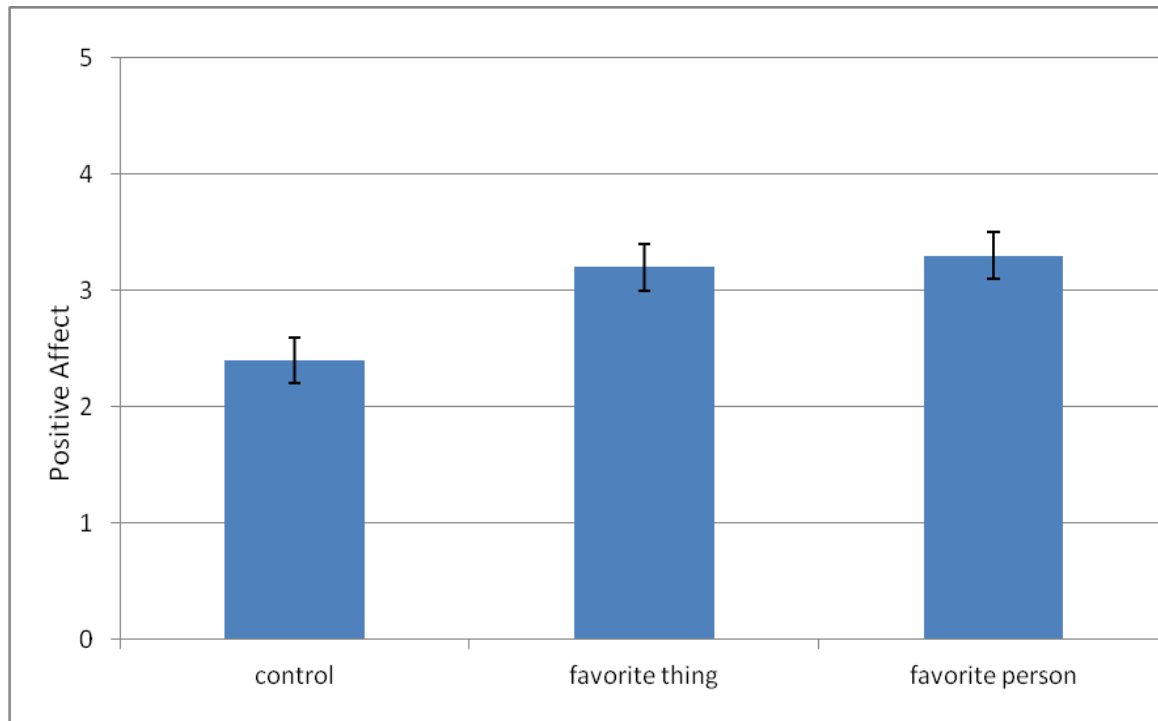
Figure 5: Positive affect by condition in Study 5a.

Discussion

Studies 5a and 5b yielded some interesting and surprising results. Compared with a neutral writing task, writing about a favorite person and writing about a favorite possession can

lead to greater positive affect after being induced with sadness. However, the results of Study 5b suggest that when people think about a favorite person or favorite possession *before* they are induced with sadness, such thoughts do not appear to buffer people from negative affect. In contrast, there is evidence that people reported less positive affect in the person condition compared to the other conditions.

Although there are several studies showing that thinking about a loved one can buffer people from negative consequences (e.g., Hennessy, Kaiser, & Sachser, 2009), the lack of a buffering effect is consistent with work on attachment figures and buffering effects (Selcuk, Zayas, Günaydin, Hazan & Kross, 2012). Although priming an attachment figure allowed people to recover after thinking about an upsetting memory, priming the attachment figure before thinking about the upsetting memory did not buffer people from increased negative affect. The authors of this finding suggest that in the buffering condition, the attachment figure may influence how individuals reflect on these events, while in the post upsetting memory condition, the attachment figure represents a soothing figure. Indeed, evidence from the debriefings suggest that thinking about the favorite person prior to watching the sad film clip changed the way people viewed the film clip. Because the film clip was about a boy losing a mentor, participants seemed to think about the scene in terms of how they would feel if they lost the favorite person of their lives.

Also surprising was that across both studies, there were no significant differences by condition on negative affect. This may be due, in part, to the relatively low ratings of negative affect. Consistent with the findings from Chapter 2, people may be unwilling to indicate feeling negative emotions.

Study 6: Thinking about favorite material objects to buffer pain

Social support is associated with reduced pain experience across several domains, such as in chronic pain situations (Cogan & Spinnato, 1988; Kulik & Mahler, 1989; Zaza & Baine, 2002). Furthermore, experimental studies suggest that this connection may reflect a causal relationship. Participants who received interactive support during a cold pressor task reported less pain than participants who completed the task alone or engaged in non-supportive interactions (Brown, Sheffield, Leary, & Robinson, 2003; Jackson, Iezzi, Chen, Ebnet, & Eglitis, 2005). Moreover, the mere presence of another supportive individual (vs. being alone) reduced pain ratings in a cold pressor task (Brown et al., 2003). Previous work has shown that activating mental representations of important others can produce effects similar to those created by the actual presence of these individuals (Fitzsimons & Bargh, 2003; Mikulincer & Shaver, 2001). More recently, it has been shown that merely viewing the photograph of a significant other can reduce pain ratings during a cold pressor task (Master et al., 2009).

If just thinking about important others can lead to reduced feelings of pain, can thinking about important possessions lead to the same effect? Although Study 5b failed to demonstrate a buffering effect when people are faced with watching a sad film clip, the reasons why it failed do not seem to apply to a situation in which people must endure physical discomfort. While it seems that watching the sad film clip after thinking about their favorite person made people think about what it would be like to lose their favorite person, it is unlikely that going through uncomfortable task would have the same effect. Furthermore, as previously mentioned, previous research has already documented that thinking about a significant other leads to reduced pain ratings. Thus, in this study, I tested if thinking about a favorite material object has the same pain buffering effects of thinking about a favorite person.

Method

   *Participants.* One hundred thirty-four undergraduates at Cornell University completed the study for course credit or $5. One of the participants was unable to complete the water presser task, so her data were not included in the analyses.

       Materials and procedure. Participants were seated at a table and were informed that they would take part of multiple unrelated studies. For their first task, which was in actuality the manipulation, participants wrote about their favorite possession, a favorite person, or their day yesterday (control) for three minutes. All participants then placed their non-dominant hand in cold water for three minutes. The water was prepared and measured to be 35°F, as determined by a digital liquids thermometer. The temperature of the room was kept constant at 72°F. After the cold water task, participants immediately completed a series of questions about how painful the task was, how cold they believed the water to be, as well as several filler questions to keep participants from knowing the purpose of the questions.

Results

       Consistent with past research women reported marginally more pain ($M = 4.70$, $SD = .14$) than men ($M = 4.27$, $SD = .15$), $F(1, 132) = 2.19$, $p = .15$. A one way ANOVA yielded a significant difference in pain ratings across conditions $F(2, 132) = 3.80$, $p = .02$ (see means in Figure 6). Surprisingly, planned contrast analyses revealed that the average pain ratings in the favorite possession condition were significantly lower than the favorite person and control conditions, $F(1, 133) = 6.98$ $p < .01$. In order to better understand this result, I looked at how gender interacts with condition and pain ratings. There is a trending interaction such that females report more pain compared to males in the person condition but report the same amount

of pain compared to men in the other two conditions , $F(2, 132) = 2.01$ $p = .12$.
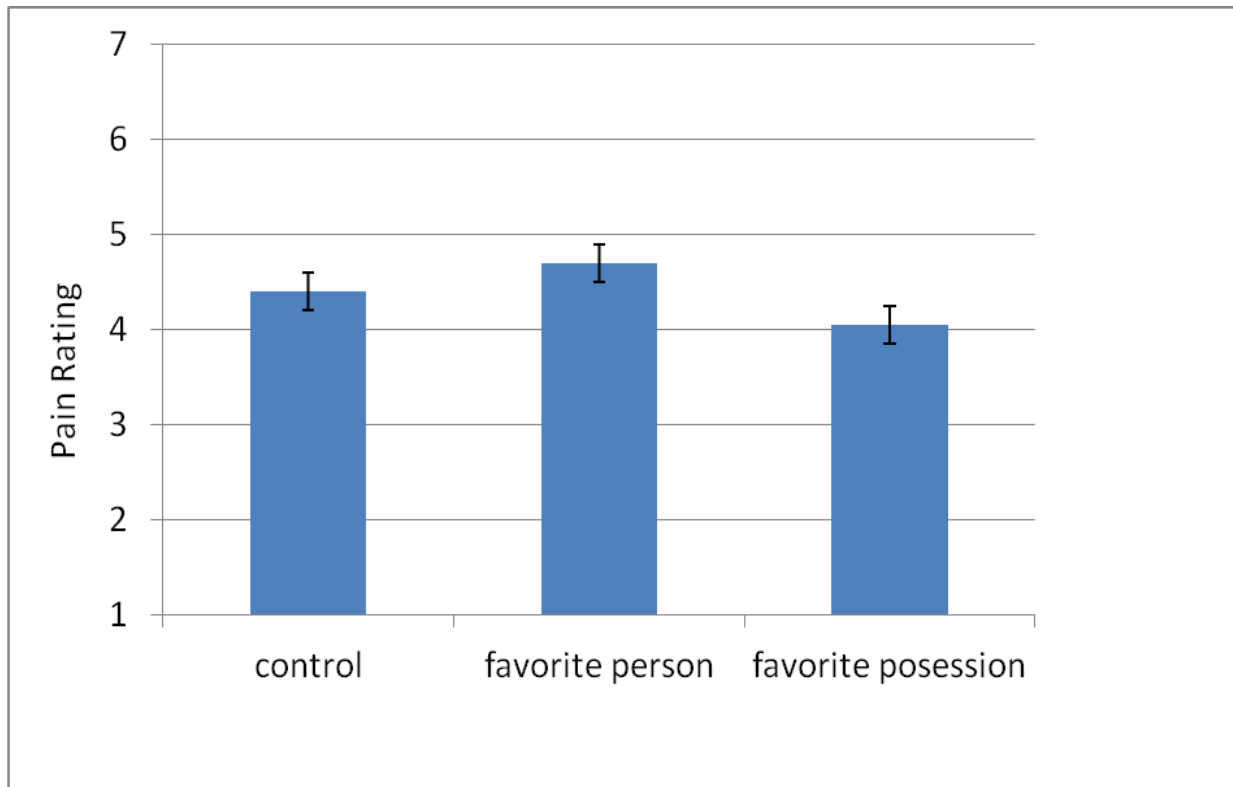
Figure 6: Pain ratings by condition in Study 6.

Discussion

Study 6 shows that thinking about a favorite possession leads to lower pain ratings than thinking about a favorite person or the control condition. These results are surprising given past research demonstrating that thinking about significant others can reduce pain ratings. A deeper look at the literature reveals that there is work demonstrating significant gender effects–one study found that women (but not men) actually report more pain when there is a same-sex friend in a room compared to when there isn't (McClelland, & McCubbin, 2008). Furthermore, this effect was mediated by how supported the participants felt. The authors of this study interpret this finding not as women experiencing more pain when they are socially comforted, but feeling

free to express more pain.

In the current study, the experimenter was always female. It may be that women in the study were construing the experimenter as more of a friend in the favorite person condition compared to the other conditions. However, future studies would need to be done to confirm this possibility.

Although it is certainly interesting that thinking about a favorite possession can reduce pain ratings, there are still open questions about what the reduced pain ratings actually mean. Do they reflect less experience of pain? Or, do they reflect people's willingness to express pain. Physiological measures of pain, like fMRI and cortisol stress levels, would be better measures to answer these questions.

Study 7: Re-examining the endowment effect and sadness

The endowment effect is the tendency people have to place greater value on an object they possess compared to what they would be willing to pay to acquire that same item (Thaler, 1980). This effect is one of the most important and robust economic anomalies (see Kahneman, Knetsch, & Thaler, 1991).

Despite the robustness of this effect, recently, Lerner, Small, & Loewenstein (2004) demonstrated a reverse endowment effect when people were induced with sadness. The authors argued that people want to change their state when they are sad—therefore, they are willing to let go of an object they own at a lower price than they are willing to receive an item. However, based on the same logic (that people want to change their state when they are sad), what the endowed object is should matter. If the endowed object can be used to change the sad state, then people who are endowed with the item should be motivated to keep the item, while those who

are not endowed with the item should be willing to pay a great deal for the item.

Given that Studies 5a and 6 show that thinking about a favorite object can have mitigating effects, the same could be true for a comforting object, even if it is not a favorite object, per se. Lerner et al. used highlighters as the endowed object, which are probably not construed as something that can change people's sad state. But what about a comforting object, like a teddy bear? Thus, in this study, I was predicting a replication of Lerner et al. (2004) in that people who are given highlighters after watching a sad film clip be willing to get rid of those for a fairly low price, while the people who are not endowed with them yet will be willing to pay a relatively higher price for them. In contrast, people who are endowed with a comforting object will only be willing to sell the object for a relatively high price, while people who are not endowed with the comforting item yet would likewise be willing to pay a high price for the item.

Method

Participants. Ninety-five female undergraduates from Cornell University completed the study for course credit. Only females were used in this study because males reported not liking the teddy bears in a pre-study. Two participants' data were excluded because they did not follow instructions and one participant's data are unavailable because of computer failure.

Materials and Procedure

A between-subjects design crossed an object type manipulation (highlighters, teddy bear) with an owner manipulation: half the subjects were endowed with the object at the beginning of the study and then given the opportunity to sell the item after watching the film clip (sell condition) while the other half were shown, but not given, the object and were asked at the end of the study whether they would prefer the object or various cash amounts (choice condition).

Items were pretested so that the highlighters and teddy bear used were perceived as being worth about the same amount of money (about $3.50).

Participants were seated in individual computer cubicles and told that they would be filling out and completing various unrelated measures and tasks. After filling out baseline emotion measures (Positive and Negative Affect Schedule: Watson, Clark, & Tellegen, 1988), participants were randomly assigned to a condition. Those in the sell condition were endowed with a teddy bear or highlighter set, while those in the choice condition were merely shown the one of the items. Then, all participants watched the sad film clip used in Studies 5a and 5B and reported their affect.

Participants assigned to the sell condition, who were already in possession of a highlighter set or a teddy bear, received a price-elicitation form that presented them with a series of pair-wise choices. On each of 14 lines, they chose between keeping the endowed item or trading it for an amount of cash; the amounts ranged from $0.50 to $7.00 in $0.50 increments. So that participants would have an incentive to reveal their true values, they were told (truthfully) that one of these choices would be randomly selected to determine what they received at the conclusion of the experiment.

Participants assigned to the choice condition were given a series of choices that were equivalent to those in the sell condition but involved getting the highlighter set or teddy bear (which they did not yet own) or getting the various cash amounts.

Results

The 2 (ownership: seller, chooser) x 2 (item: bear, highlighters) between-subjects ANOVA revealed a replication of the endowment effect, captured by a main effect of ownership, $F(1, 88)$ 5.22, $p < .05$ (see Figure 7). However, there was no main effect of item, $F(1, 88)$ 2.38,

$p = .13$, and no ownership x item interaction, $F(1, 88) < 1$, $p > .57$. Thus, these results fail to replicate Lerner et al. (2004). Rather, the contrast analyses indicate that there was evidence of an endowment effect in the highlighter condition—people in the seller condition wanted more money for the highlighters than people in the chooser condition were willing to pay $F(1, 89) = 5.22$, $p < .01$. There was no difference between the chooser and seller condition in the teddy bear condition $F(1, 89) = 1.16$, $p = .28$.
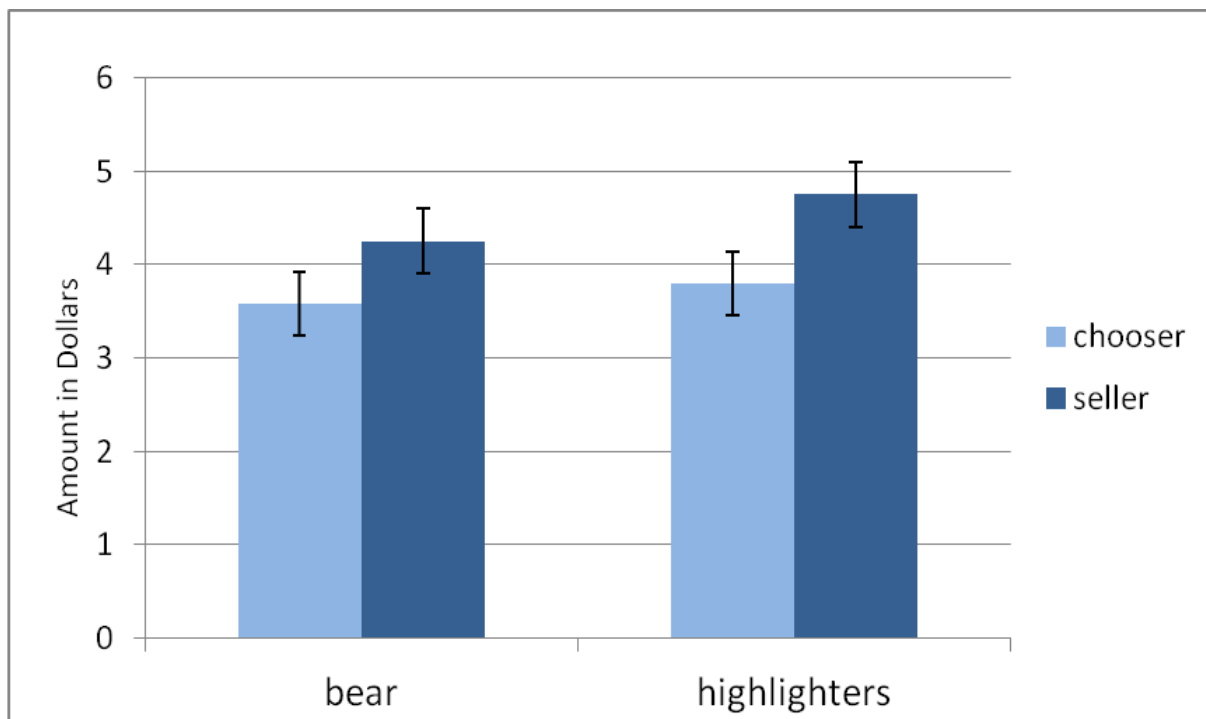
Figure 7: Valuation of item by condition.

Discussion

The goal of this study was to re-examine the claim that there is a reversed endowment effect when people are induced with sadness. I intended to show that the kind of endowed item would make a difference on how endowed and not yet endowed items would be valued when people are sad. However, one of the obstacles in this endeavor was that I did not replicate the

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reversed endowment effect. On the contrary, I found that people in the seller condition were asking more for the highlighter set than what choosers were willing to pay.

Another limitation of this study was that because there was no control emotion condition, it is not evident what was happening in the teddy bear condition. It does appear that people in both the chooser and the bear condition were overvaluing the bear ($M = 4.25$, $SD = 1.1$), since the mean price was higher than the pretested price ($M = 3.48$, $SD = 0.9$), however, these numbers cannot be compared against each other since they are not from the same study.

In the next study, I made another attempt to study how sadness affects the valuation of objects that are comforting or not particularly comforting.

Study 8: Sadness and the valuation of material objects

Since the results of Study 7 failed to replicate Lerner et al. (2004), I redesigned the study by looking at the effect of sadness (compared to a neutral condition) on the valuation of comforting vs. not-so-comforting items. Also, because there was no effect of chooser vs. seller in the teddy bear condition, I also left the seller condition out in this study. Therefore, in this study, I was examining the extent to which sadness (compared to a neutral situation) changed the way people valued a comforting (compared to a not-so-comforting) object. Based on the logic of Lerner et al. (2004), that when people are sad, they want to change their situation, I hypothesized that people would not be willing to pay more for the not-so-comforting item when they were in the sad condition compared to when they were in the neutral condition. Conversely, I expected that people would pay more for the comforting item when they were in the sad condition compared to when they were in the neutral condition.

As with Study 7, I pretested items that were judged to be of equal worth. I also decided

to use post-its instead of highlighters, since they were judged to be more neutral than highlighters, which were associated with school and achievement. In the same pre-test, I also tested if people found the teddy bear to be more comforting than the post-it notes. On a scale of 1-5, I had people indicate if the teddy bear and post-it notes were 1 (not comforting at all) to 5 (extremely comforting). People indicated that the bear was more comforting than the post-it notes, $t(68) = 6.05$, $p < .01$.

Method

    Participants. Ninety-two female undergraduates from Cornell University completed the study for course credit. Two participants' data were excluded because they did not follow instructions and one participant's data were unavailable because of computer failure.

Materials and Procedure

    A 2 x 2 between-subjects design crossed an emotion manipulation (sad, neutral) with an object type manipulation (post-it notes, teddy bear). All participants were seated in individual computer cubicles and told that they would be filling out and completing various unrelated measures and tasks. After filling out baseline emotion measures (Positive and Negative Affect Schedule: Watson, Clark, & Tellegen, 1988), participants were briefly shown either the teddy bear or post-its and were then randomly assigned to a 3-minute film clip. The sad clip from "The Champ" was again used while the neutral clip (from the Discovery Channel) discussed various factors that influence the weather. Participants then indicated how they were feeling using a reduced form of the Positive and Negative Affect Schedules.

    All participants then received a price-elicitation form that presented them with a series of pair-wise choices. On each of 14 lines, they chose between receiving the item they were shown

at the beginning of the study, or receiving an amount of cash. The amounts ranged from $0.50 to $7.00 in $0.50 increments. So that participants would have an incentive to reveal their true values, they were told that one of these choices would be randomly selected to determine what they received at the conclusion of the experiment.

Results

One outlier was excluded from the analysis due to an uncommon Cook's distance. Including this datum did not significantly alter the findings. A 2 (emotion: sad, neutral) x 2 (item: bear, post-its) between-subjects ANOVA revealed the expected interaction between emotion and item, $F(2, 88) = 4.08$, $p < .01$, as well as main effects of emotion, $F(1, 89) = 2.11$, $p < .05$ and item , $F(1, 89) = 2.07$, $p < .05$ (see Figure 8). Contrast analyses reveal that the interaction was driven by the higher amount people in the sad/bear condition were willing to pay compared with the other conditions, $F(1, 89) = 9.06$, $p < .01$.
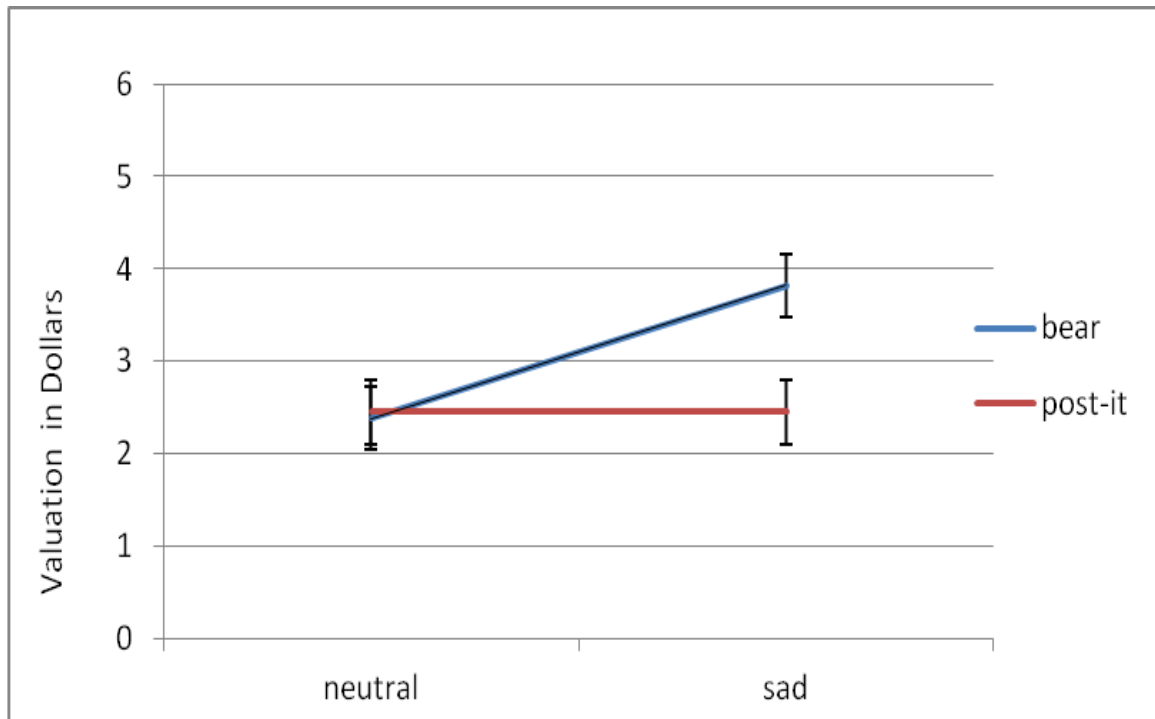
Figure 8: Valuation of item in dollars by condition, Study 8.

Discussion

The results of this study suggest that people are willing to pay more for an item when they are feeling sad compared to when they are not, but only when the item is perceived as comforting. These results potentially challenge those of Lerner et al. (2004), but without replicating those results, I will not be able to pose a direct dispute to their findings and conclusions.

General Discussion

Across 3 successful studies, I showed that people can use material objects and the memories of favorite material objects to regulate emotions and pain responses. Interestingly, in certain cases, it may be even more advantageous to think about a significant material possession

compared to thinking about a significant other.   Although these findings shed light on how

material objects can be used to promote positive emotions, the results raise several questions.

What is the mechanism?

The studies did not test the mechanism behind how thinking about a favorite possession

increases emotion and pain regulation responses. In the case of Study 5a, does thinking about a

favorite possession create positive affect because of the happy memories that come to mind or,

compared to the control condition, is it more distracting to write about a favorite possession, thus

allowing the sad feelings from the film clip to dissipate.   In Study 6, are people really feeling

less pain compared to the control and favorite person conditions or is the pattern of data more

reflective of what people are willing to want to disclose, rather than pain perception?

Does item type and the associations with those items matter?

Participants in Studies 5a, 5b, and 6, wrote about a wide variety of material objects.

Some of these objects were indeed related to memories of loved ones (like a necklace from a

favorite aunt). However, many of these items were related to achievement (a trophy from a

soccer competition), aesthetics (a pretty dress), and even practicality (an iPhone). I am currently

analyzing these descriptions to investigate if the type of item people wrote about predicts how

well people were able to regulate.

What are the long term effects of using material objects to regulate emotion and pain?

As previously discussed, these studies challenge the claim that the valuing and pursuit of

material goods are necessarily linked with negative outcomes and can only occur at the cost of

healthy relationships and self-competence. Interestingly, many of the possessions people

described were reflective of healthy relationships and self-competence. At the same time, although these studies demonstrate short-term, positive outcomes of thinking about a favorite possession, they do not provide a sense of how thinking about and turning to material goods in the long term affect well-being. For example, although alcohol consumption may successfully induce positive affect after social rejection, alcohol consumption as a chronic and long-term solution will probably lead to negative outcomes. Conversely, taking a third person perspective on a situation has been shown to increase emotion regulation on both a short term and long-term level (see Ochsner, 2008 for a review). Therefore, is thinking about a material object more like the former or latter example? Does the kind of material object and the associations we have with it matter? These long-term questions are difficult to study in the lab. However, there may be ways of measuring chronic and spontaneous responses in the lab, which can serve as a proxy for long-term strategies.

CHAPTER 4

CONCLUSION

The big question that was investigated throughout this paper has been: what is the relationship between people's attitudes toward and use of material goods with well-being? In Chapter 1, I examined the current literature on materialism and well-being and argued that claims that materialism is responsible for negative outcomes are not fully supported by the data or the research methods employed. In Chapter 2, I utilized implicit methods of measuring materialism and well-being to show that the relationship between materialism and well-being may be more nuanced than previously argued—positivity toward material goods and their acquisition is associated with low self-esteem only when this positivity is accompanied by relatively low positivity toward sociality. In Chapter 3, I showed that material goods and thinking about a cherished possession can be used to regulate emotions and pain responses. Since emotion regulation is an important part of psychological well-being, the results suggest that material goods can be successfully used to promote well-being.

Broader implications of the present studies

Results from the studies indicate that not only is the relationship between materialism and negative outcomes not as strong as argued in the materialism literature, positivity towards and the use of material goods may actually promote well-being. This work has implications both on a practical and theoretical level.

At the practical level, results from the present studies suggest that the ways in which people engage with material goods have implications for well-being. Therefore, although Kasser et al. (2004) argue that clinical psychologists should encourage their patients to lead more

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materially simple lifestyles and fewer goals associated with material goods, the present work suggests that it isn't the kind of item or the number of items that have implications for well-being, rather, it is the way in which people engage with material goods that matters. The work also suggests that because the directionality is most likely that negative outcomes lead to materialism rather than the other way around, then a focus on changing behaviors related to material goods may not make people any happier.

At the theoretical level, this work paints a broader landscape of people and their relationship with material goods. Current research on materialism tends to frame people as one of two types: those who care about things and don't care about people (and are miserable) vs. those who care about people and don't care about things (and are happy). In contrast, these studies suggest that there are many more kinds of people---people who pursue material goods to inspire creativity, people who appreciate material goods *and* like people, people who state they don't like material goods and don't espouse materialistic values but exhibit an implicit attraction to material goods nonetheless.

Future Research

Although the present studies have shed some light on materialistic attitudes, using material objects for emotion regulation, and well-being, there are still many unanswered questions that I will continue to pursue in future studies. One question that remains to be addressed is: what is the emotional consequence of choosing a material vs. a social option, particularly after feeling vulnerable? One of the studies I am currently designing will have people engage in either a material or social activity (e.g., spending $8 on Amazon.com or emailing a friend) after they have experienced a social rejection (vs. a control condition). Will both shopping online and emailing a friend lead to a boost in positive affect and self-esteem or

will only the social option lead to a boost? Or, will there be a different trajectory in terms of how quickly and how long people feel good after engaging in the material vs. social activity?

I will also be expanding on the implicit methods of measuring materialism by using different words to better understand which concepts are associated with more negative outcomes. For example, "status" and "fame" were words that were pretested as related to materialism, but were not used in the implicit measures I developed.

I also plan to develop materials so that I can measure materialism and well-being implicitly in male participants to see if the relationships I found are consistent with or diverge from the ones I found in female participants.

In order to better understand the relationship between the use of material goods in emotion and pain regulation, I will be using more physiological measures of affect and regulation, like heart rate, systolic and diastolic blood pressure, and salivary cortical reactivity. These methods will allow me to achieve a greater understanding of what higher and lower self-reports of emotions and pain mean.

_____

1. I admire people who own expensive homes, cars, and clothes.
2. Some of the most important achievements in life include acquiring material possessions.
3. I don't place much emphasis on the amount of material objects people own as a sign of success. (r)
4. The things I own say a lot about how well I'm doing in life.
5. I like to own things that impress people.
6. I don't pay much attention to the material objects other people own. (r)
7. I usually buy only the things I need. (r)
8. I try to keep my life simple as far as possessions are concerned.
9. The things I own aren't all that important to me. (r)
10. I enjoy spending money on things that aren't practical.
11. Buying things gives me a lot of pleasure.
12. I like a lot of luxury in my life.
13. I put less emphasis on material things than most people I know. (r)
14. I have all the things I really need to enjoy life.
15. My life would be better if I owned certain things.
16. I wouldn't be any happier if I owned nicer things. (r)
17. I'd be happier if I could afford to buy more things.
18. It sometimes bothers me quite a bit that I can't afford certain things in life.

_____

Instructions: Below are several statements about you with which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each item by placing the appropriate number on the line preceding that item.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. ____ I enjoy buying items that reflect me as a person. (I)
2. ____ I like to express myself through the things I buy. (I)
3. ____ Well designed goods inspire me. (I)
4. ____ I prefer new and innovative brands, compared to established brands. (I)
5. ____ I would enjoy designing my own clothing or jewelry. (I)
6. ____ I usually buy clothes that I see in a magazine or a fashion website. (E)
7. ____ I often buy items that I see other people have. (E)
8. ____ I feel pressured to buy certain things by the media. (E)
9. ____ I feel pressured to buy certain things by my friends. (E)
10. ____ I prefer brands that are well known. (E)

_____

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