

Social Psychology

Revisiting the Differential Centrality of Experiential and Material Purchases to the Self: Replication and Extension of Carter and Gilovich (2012)

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Carter and Gilovich (2012) investigated the centrality of experiential and material purchases to the self and concluded people have stronger associations with their experiential than their material purchases. In a pre-registered experiment with a US American Amazon Mechanical Turk sample, ($N=743$), we successfully replicated their Studies 3A, 3B, 3C, and 5. Experiential purchases were perceived as more reflective of true-self than material purchases for both self ($d=0.65[0.57,0.73]$) and for strangers ($d=0.88[0.80,0.96]$), and that when meeting a new person, information about experiential purchases was considered to be more insightful ($d=1.13[1.04,1.22]$), useful ($d=1.14[1.05,1.23]$), and fun to talk about ($d=1.96[1.83,2.08]$) than material purchases. Self-concept was more strongly associated with experiential purchases than with material purchases ($d=0.39[0.25,0.54]$), and that there was a negative association between experiential purchase satisfaction and the willingness to exchange memory ($r=-.34[-.43,-.24]$) (all effects above were $p<.001$). We added an extension examining change in evaluations of material and experiential purchases over time and found that current evaluations were more negative than past evaluations, yet to a lesser extent for experiential compared to material purchases. Materials, data, and code are available on: <https://osf.io/v2w5h/>

A common proverb is that money cannot buy happiness. Scholars studying happiness have in recent years suggested that money may indirectly “purchase” subjective well-being after all, depending on the type of purchase: people tend to be happier when purchasing experiences than when purchasing material goods (Carter & Gilovich, 2010; Van Boven & Gilovich, 2003).

Material purchases are the consumption of tangible goods, such as cars and clothes, with a strong emphasis on the ownership of goods lasting for an extended period of time. Experiential purchases, on the other hand, emphasize the purpose of gaining experiences. They are intangible in nature and constitute an important part of one’s memory. Prior studies demonstrated that people achieve more satisfaction from experiences than from possessions because of the greater difficulty in comparing the hedonic value of experiences from memories, than in comparing that of tangible physical possessions (Carter & Gilovich, 2010). Extending this line of research, Carter and Gilovich (2012) explored the relationship between purchase type and self,

further suggesting that greater satisfaction results from a close association between experiences and the self, such that people perceived their experiential purchases as more connected to the self than material possessions.

We conducted a very close replication of Carter and Gilovich (2012) aiming to revisit the findings regarding the centrality of experiential and material purchases to the self. We begin by briefly reviewing the links between different types of purchases and the self, and then outline our motivations for the replication. Next, we review that target article, and outline the hypotheses, methods, and experimental design.

The Centrality of Experiences and Possessions to the Self

The self is closely associated with one’s memories (Klein, 2001). Memories of experiences play a major role in forming the self (Conway, 2005; Greenwald, 1981). People tend to access memories in a way that is consistent with their pre-

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sent image in order to maintain a consistent self (Conway et al., 2004), and the way that people make sense of experiences largely shapes their understanding of themselves (Oyserman, 2001). In contrast, material possessions are tangible objects that dwell outside of our memory (Carter & Gilovich, 2012). They are seen as an extension of the self in that they serve as an enhancement of who we are and as a reminder of who we were, therefore contributing to the central aspect of the self-concept to a lesser extent than experiences (Belk, 1988).

Carter and Gilovich (2012) proposed several reasons why relating experiences to the self could result in higher satisfaction with experiential purchases than with material purchases. First, people aim to maintain a positive self-impression, and may therefore associate experiences with more positive recollections than in reality (Dunning, 2005; Mitchell et al., 1997). Second, the intangible and ambiguous nature of experiences makes it easier for people to reconstruct experiences in one's favor to enhance their self-image and boost their self-esteem (Carter & Gilovich, 2012; Dunning et al., 1995; Kunda, 1990). Third, the abstract nature of experiences also allows people to associate experiences with high-order purposes that they find important and valuable, and are, therefore, more closely linked to one's self-concept (Trope & Liberman, 2003).

In addition, Carter and Gilovich (2012) highlighted individual differences in materialism as predicting people's likelihood of attributing experiences to their self-image, as measured by the Material Values Scale (MVS; Richins & Dawson, 1992). According to Richins and Dawson (1992), materialists tend to define themselves through their possessions by considering possessions to be central in their lives, and attributing success and happiness to the material goods they own. Those who are more materialistic tend to indulge in more material possessions as they believe that possessions and money are essential for one's happiness and social progress (Ward & Wackman, 1971). Therefore, individual differences in materialism may moderate the relationship between the two types of purchase (i.e., material and experiential purchases) and self.

Chosen Study for Replication: Carter and Gilovich (2012)

We chose the article by Carter and Gilovich (2012) for replication based on its impact and the absence of direct replications.

Carter and Gilovich (2012)'s article has had an impact on scholarly research in the area of consumer behavior, social cognition, and judgment and decision-making. At the time of writing (November 2022), there were 476 Google Scholar citations of the article and many important follow-up theoretical and empirical articles. Some examples are Caprariello and Reis's (2013) research showing that experiences are preferred to material possessions when experiences involve others, Zhang et al.'s (2014) study demonstrating that individual differences in buying tendencies affected the happiness gained from experiential and material purchases, and Lee et al.'s (2018) study on the role of so-

cial class in happiness in experiential purchases versus material possessions.

The phenomenon demonstrated has the potential for practical implications for both personal everyday life and commercial domains. With better knowledge of the associations between experiential and material purchases and self-identity, individuals may aim to overcome the cognitive and behavioral focus on material purchases as a way to affirm their self-identities and instead shift to exploring balancing with more experiential purchases. There are also potential marketing insights, to invest in consumer experience and integrate the understanding that experiences constitute an important aspect of consumer satisfaction with product consumption (Zauberman et al., 2009).

A meta-analysis by Weingarten and Goodman (2020) that summarized over 141 studies, including Carter and Gilovich's (2012), found that consumers gained more happiness through experiential purchases than material possessions, $d = 0.39$, 95% CI [0.34, 0.43]. However, the meta-analysis also pointed out that many of the studies in the literature were underpowered, which raises the importance of well-powered independent replications of the phenomenon.

To the best of our knowledge, there are currently no published direct replications of this article. Given the impact of Carter and Gilovich's research, and in response to the growing attention in psychological science for reproducibility and replicability, we revisited the classic phenomenon of Carter and Gilovich's studies by conducting an independent, well-powered, pre-registered, and very close replication (e.g., Brandt et al., 2014; Open Science Collaboration, 2015; Van't Veer & Giner-Sorolla, 2016; Zwaan et al., 2018).

Findings in Original Article and Hypotheses

Carter and Gilovich (2012) conducted seven studies on the differential centrality of experiential and material purchases to the self, with the overarching hypothesis that experiential purchases are more closely associated with the self than material purchases. Of those, we chose to replicate Studies 3A, 3B, 3C, and 5 given their simplified design, better methodological transparency and clarity, and higher feasibility for our intended target online sample. In contrast to the chosen studies, Studies 1, 2 and 4 required manual drawings that were difficult to be conducted on an online platform, required multiple raters for data analysis, and had less complete information about their process, which impeded reproduction and replication. We felt that these studies would best be examined following a successful replication of the baseline phenomenon.

Studies 3A, 3B, and 3C had within-subjects designs in which participants recalled both an experiential purchase and a material purchase and then compared the two types of purchases on how informative these were about a person's true self. They found that people tend to view experiential purchases as providing greater insights into one's true self than material purchases. Study 5 used a between-subjects design where participants imagined deleting the memory of either an experiential or a material purchase, and then rated the perceived change to their true self and

Table 1. Replication Hypotheses

Study	Hypothesis	Description
3A	H1	Knowledge of one's experiential purchases is perceived as providing greater insight into one's true self than knowledge of one's material purchases.
3B	H2	Knowledge of a stranger's experiential purchases is perceived as providing greater insight into the stranger's true self than knowledge of the stranger's material purchases.
3C	H3	Knowledge of new others' experiential purchases is perceived as providing greater insight than new others' material purchases (such as when getting to know someone new).
5	H4	Deletion of experiential purchases memories is considered as having a bigger impact on self-concept than deletion of material purchases memories.
5	H5	Deleting memories of experiential purchases (vs. material purchases) have a greater impact on their self-concept (H4), which is positively associated with greater satisfaction derived from experiential purchases.

their satisfaction with the purchase. They found that deletion of experiential purchases had a greater impact on one's self-concept than deletion of material purchases, which was positively associated with greater satisfaction derived from experiential compared to material purchases. We summarized the deduced hypotheses from the studies in [Table 1](#).

Extension: Changes in Evaluations of Material and Experiential Purchases over Time

We added an extension to investigate changes in evaluations of material and experiential purchases over time. Past research has demonstrated evidence that different types of purchases elicit different extents of pleasure and regrets over time. On the one hand, satisfaction from experiential purchases tends to be more enduring than that from material purchases since the pleasure from material purchases can be easily compared with alternatives, thus undermining people's satisfaction with them (Carter & Gilovich, 2010; Van Boven & Gilovich, 2003). On the other hand, material purchases are more likely associated with regrets of actions (buyer's remorse) compared to experiential purchases that are more strongly associated with regrets of inaction (missed opportunity) (Rosenzweig & Gilovich, 2012). Since experiences tend to result in lasting satisfaction whereas material possessions tend to elicit regrets on actions, we set out to include an exploratory comparison of the two on the differences between recalled evaluations of the purchases at the time of purchase compared to current evaluations. We hypothesized that over time, the evaluation of experiential purchases decreases to a less extent than that of material purchases.

Pre-registration and Open Science

We pre-registered the experiment on the Open Science Framework (OSF; <https://osf.io/9vsxt/>), and data collection was launched later that week. Pre-registrations, power analyses, and all materials used in these experiments are available on the OSF: <https://osf.io/v2w5h/>.

All measures, manipulations, exclusions conducted were reported; all studies were pre-registered and data collection was completed before analyses.

Method

Power Analysis

We conducted an a-priori power analysis with “pwr” package version 1.3-0 (Champely, 2020) to obtain the required sample size based on the reported *t* statistics and mean differences in the original article. We aimed for a statistical power of .95 and alpha of .05. Given our adjustment of the Study 5 design from a between-subjects to within-subjects design, we still used the between-subjects as a more conservative estimation.

Across the chosen studies, our power analysis indicated that we require 216 participants for Study 3A, 92 for Study 3B, 26 for Study 3C, and 162 for Study 5. Thus, the smallest sample sizes (that were also smaller than the original sample sizes) were from Studies 3B and 3C. As Study 3C had a higher sample size (i.e., 102) in the original paper than Study 3B (i.e., 101), multiplying the original sample size of Study 3C (102) by 2.5 times provided us with 255, which also exceeded the calculated sample sizes of the other studies. We rounded this number up to 300 in case of any exclusions to detect the smallest effect of replicated studies. Taking into consideration the possibility of weaker effects in replication, we aimed for high power given our allocated budget. Following Simonsohn's (2015) general rule of thumb of multiplying by 2.5, we set out data collection goal to 750. We provided our calculations and more details in the Supplementary materials.

Participants

A total of 759 American Amazon Mechanical Turk (MTurk) participants completed the study on CloudResearch/TurkPrime (Litman et al., 2017) with USD 1.00 compensation, with 743 included in the analyses after pre-registered exclusions ($M_{age} = 41.39$, $SD = 12.90$; 343 males, 393 females, 4 others; 3 rather not disclose). We include sample exclusion criteria and compare our sample with the sample of original article in the Supplementary materials (sections “Exclusion criteria” and “Pre-exclusions versus post-exclusions”).

Design and Procedure

Study 3A had two parts, purchase recalls (3A-1), and a single question comparison (3A-2). Because Studies 3A-2, 3B, and 3C from Carter and Gilovich (2012) had a very similar design, we combined the studies into a singular unified design of the studies presented in random order (Block Y). Studies 3A-1 and Study 5 also had a similar method prompting for recalls and were therefore combined into the survey with a unified within-subjects design, presented in random order (Block X). We note that Study 5 was originally a between-subjects design, yet we adjusted it to a within-subjects design with an order of appearance randomized and recorded, which allowed us to mirror the original article's between-subjects analyses by focusing on the first displayed condition.

After completing a consent form and verification checks, participants answered Block X and Block Y, in a randomized order. In Block X participants recalled both types of purchase, and for each indicated the cost, time, satisfaction (Study 3A-1), importance of purchase, willingness to exchange, happiness if exchanged, importance of memories, centrality to self, and past and current evaluations of the purchase (Study 5). In Block Y, participants compared material and experiential evaluations for self (Study 3A), strangers (Study 3B), and a new person (Study 3C).

Studies 3A-2, 3B, 3C (Block Y)

We provided details of the measurements used in Studies 3A-2, 3B, and 3C in [Table 2](#). In each sub-study of Study 3, participants were asked to imagine different perspectives and indicated whether experiential or material purchases provided greater insight into a person's true self. The scenario in Study 3A-2 was related to a stranger's perspective on the participant (1 = *Material purchases*; 9 = *Experiential purchases*). In Study 3B, the scenario shifted to the participant's perspective of a stranger. Finally, in Study 3C, the scenario was based on the participant meeting a new person that could be potentially important in the participant's life. The questions in 3B and 3C were on a 0 (material) to 100 (experiential) scale.

Additionally, we measured individual differences in materialism using the 15-item MVS (Richins, 2004). Participants rated statements related to materialism and material consumption on a 5-point scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Higher scores indicate more personality variables related to materialism traits and a greater orientation towards materialism.

Study 5 and Study 3A-1 (Block X)

We provided details of the measurements used in Studies 3A-1 and 5 in [Table 3](#).

In Study 5 we examined the impact of participants imagining the deletion of a past purchase memory on their self-concept. Participants recalled material and experiential purchases from the past five years and indicated satisfaction with (item shared with Study 3A-1) and importance

of purchase (1 = *Not at all important*, 5 = *Somewhat important*, 9 = *Extremely important*).

They then imagined that they went back in time to the past and had an opportunity to change the recalled memory. They indicated their willingness to make such a change (1 = *Absolutely not*, 9 = *Definitely*), their happiness if they did so (1 = *Much less happy*, 9 = *Much happier*), the importance of the recalled memory (1 = *Not at all important*, 9 = *Very important*), and the perceived change to their self-concept if they made that change (1 = *Not at all*, 9 = *A great deal*).

Extension: Past and Current Purchase Evaluations

We added an extension to Block X with two items per each purchase type aimed to investigate whether people's evaluations of material and experiential purchases change differently over time.

Participants were asked about their feelings towards a recollected purchase. Participants reported their recalled feelings at the time of purchase ("Please rate how you felt about the material/experiential purchase you had recalled back then, at the time of purchase?") and how they currently feel about their past purchases ("Please rate how you feel about the material/experiential purchase you had recalled now?") (-5 = *Very negative*, 0 = *Neutral*, 5 = *Very positive*).

Deviations from the Original Articles

We summarized the replication as "close" using the criteria by LeBel et al. (2018; see Supplementary for details). The classification of the replications compared to the originals are summarized in [Table 4](#).

Results

We first conducted *t*-tests and Pearson's *r* correlation analyses following the original article's analyses. We provided descriptive statistics of all studies in [Table 5](#).

We added several extensions to the original article. First, we extended the correlational analysis of MVS and type of purchase ratings to Study 3A, going beyond the original analyses applied to Study 3B and Study 3C. Second, both a between-subjects design and within-subjects design analyses were performed for Study 5 as a comparison to the between-subjects design analysis in the original article. Third, we further added correlation and partial correlation analyses to test whether greater satisfaction derived from experiential purchases was positively correlated with one's self-concept affected by the willingness to exchange memories. Lastly, we compared current and past evaluations of material and experiential purchases to examine differences in change over time.

Study 3A-2 Replication: Insight into Self (Block Y)

We conducted a one-sample *t*-test (two-tailed) against the scale midpoint of 5. Consistent with H1, we found that a person with experiential purchase knowledge is perceived to have a greater insight into one's true self than a person

Table 2. Studies 3A-2, 3B, and 3C replications (Block Y): Design

Individual differences Material Values Scale (Richins, 2004)	
Study 3A part 2	<p>Evaluation of self by purchase types</p> <p>Please imagine two people, one of whom knew all about your material purchases (Person M), and the other knew all about your experiential purchases (Person E), but neither knew anything else about you.</p> <p>Which person would better know the real you, your true, essential self? (1 = <i>Definitely Person M (material)</i>, 5 = <i>Both equally</i>, 9 = <i>Definitely Person E (experiential)</i>).</p> <p>[Analysis: One sample <i>t</i>-test against scale midpoint of 5]</p>
Study 3B	<p>Evaluation of stranger by purchase type</p> <p>"Please imagine there were two people, strangers to you, and you knew all about one person's experiential purchases (Person E) and knew all about the other person's material purchases (Person M) but knew nothing else about either person.</p> <p>Which person do you think you would know better? In other words, would you have greater insight into Person M or Person E's true, essential self? (0 = <i>Person M (material)</i>, 100 = <i>Person E (experiential)</i>).</p> <p>[Analysis: One sample <i>t</i>-test against scale midpoint of 50]</p>
Study 3C	<p>Evaluation of new person by purchase types</p> <p>Please imagine that you are going to be meeting a new person who might be important in your life (such as a blind date, or maybe you've been assigned to work on a project together), and you can learn just one thing about this person beforehand, either about their material possessions, or about the experiences they've purchased.</p> <p>Please rate how much you would rather know about their material possessions or experiences in the following scenarios:</p> <ul style="list-style-type: none"> - Which information would provide more insight into other person's true self? - Which information would be most useful upon meeting the individual? - Which information would be more fun to talk about? <p>(0 = <i>Definitely their possessions</i>, 100 = <i>Definitely their experiences</i>)</p> <p>[Analysis: One sample <i>t</i>-test against scale midpoint of 50 for each sub-question]</p>

Note. We provided more detailed information in the Supplementary.

with material purchase knowledge ($M = 6.43$, $SD = 2.22$, $t(742) = 17.61$, $p < .001$, $d = 0.65$, 95% CI [0.57, 0.73]).

We extended the analysis of the original article and conducted Pearson's r correlation analysis between the MVS ($\alpha = .92$) and ratings of the purchase type in providing insights into the participant's true self. We found support for a negative correlation between MVS and Study 3A scores ($r(741) = -0.20$, $p < .001$, 95% CI [-0.27, -0.13]). That is, people who rated higher on trait materialism were less likely to believe that knowing one's experiences would provide greater insight into one's true nature.

Study 3B Replication: Insight into Other (Block Y)

We conducted a one-sample t -test (two-tailed) against the scale midpoint of 50. Since the rating was heavily left-skewed (skewness = -1.12, $SE = .09$), we also ran the analysis on the data with square transformation. However, as we found support for the hypotheses regardless of whether the transformation was conducted, we reported untransformed data for the convenience of comparison with the original study. Analyses for the transformed data analysis can be found in the Supplementary.

We found support for H2 that knowledge of a stranger's experiences was perceived to give participants greater insight into the stranger's true self than knowledge of possessions ($M = 72.08$, $SD = 25.08$), $t(742) = 24.00$, $p < .001$, $d = 0.88$, 95% CI [0.80, 0.96].

In addition, a Pearson's r correlation analysis showed that responses to the MVS were negatively correlated with the scores from Study 3B, $r(741) = -0.19$, $p < .001$, 95% CI [-0.26, -0.12]. That is, people who rated higher on trait materialism were less likely to believe that knowing the experiences of a person would provide greater insight into the person's true self.

Study 3C Replication: Insight into a New Person (Block Y)

We conducted a one-sample t -test against the scale midpoint of 50 for each of the sub-questions in Study 3C. Since the scores were heavily left-skewed (skewness_{insight} = -1.17, $SE = .09$; skewness_{useful} = -1.23, $SE = .09$, skewness_{fun} = -2.03; $SE = .09$), a cubic transformation was performed. However, as we found support for the hypotheses regardless of whether the transformation was conducted, we reported untransformed data for the convenience of comparison

Table 3. Study 3A-1 and Study 5 replications (Block X): Design

IV1: Experiential Condition (Within)	IV1: Material Condition (Within)
IV1: Recollection of an experiential purchases	IV1: Recollection of a material purchase
Participants to recall and describe a past experiential purchase made within the past 5 years	Participants to recall and describe a past material purchase made within the past 5 years
IV2: Exchange memory of recollected experiential purchase	IV2: Exchange memory of recollected material purchase
Scenario on the replacement of current memory of experiential purchase keeping everything else in the participant's life unchanged	Scenario on the replacement of current memory of material purchase keeping everything else in the participant's life unchanged
Replication Dependent Variables	
Importance and satisfaction of past purchase	
"How satisfied you are with the material purchase you had recalled." (Shared for Study 3A-1 and 5)	
"How important the material purchase you had recalled is to you." (Study 5)	
(1 = <i>Not at all satisfied/important</i> , 9 = <i>Extremely satisfied/important</i>).	
[Analysis: Independent Welch's <i>t</i> -test on the first appearance condition and paired <i>t</i> -test.]	
Impact of memory exchange on self-concept (Study 5)	
"How willing would you be to make such an exchange of this memory?"	
(1 = <i>Absolutely not</i> , 9 = <i>Definitely</i>).	
"How much happier would you be if you made such an exchange?"	
(1 = <i>Much less happy</i> , 9 = <i>Much more happy</i>)	
"How important are your current memories to you?" (reversed)	
(1 = <i>Not at all important</i> , 9 = <i>Very important</i>)	
"To what degree such an exchange would alter who you are?" (reversed)	
(1 = <i>Not at all</i> , 9 = <i>A great deal</i>).	
[Aggregate: The mean of the sum of scores for the four questions in Study 5 was used to create an "exchange" index; higher scores indicated a greater willingness for memory exchange.]	
[Analysis: Independent Welch's <i>t</i> -test on the first appearance condition, supplemented by a paired <i>t</i> -test.]	

Note. Within refers to within-subjects design. IV refers to independent variable. DV refers to dependent variable. Recall was grouped with Study 3A so that participants only recollected their purchases once. See Table 2 in Study 3A row.

with the original study. Analyses for transformed data can be found in the Supplementary.

In the case of meeting someone new, we found that a person's experience was perceived to provide greater insight into a person's true self, ($M = 76.35$, $SD = 23.37$), $t(742) = 30.74$, $p < .001$, $d = 1.13$, 95% CI [1.04, 1.22], that a person's experience was perceived to be more useful, ($M = 76.27$, $SD = 23.04$), $t(742) = 31.08$, $p < .001$, $d = 1.14$, 95% CI [1.05, 1.23], and that a person's experience was perceived to be more fun to talk about, ($M = 85.10$, $SD = 17.95$), $t(742) = 53.32$, $p < .001$, $d = 1.96$, 95% CI [1.83, 2.08] than their material purchases. Thus, the H3 was supported.

We also conducted Pearson's r correlation analyses in the case of meeting a new person and found that responses to the MVS were negatively correlated with knowledge of experiences providing greater insight into a person, $r(741) = -0.15$, $p < .001$, 95% CI [-0.22, -0.08], knowledge of experiences being more useful, $r(741) = -0.20$, $p < .001$, 95% CI [-0.26, -0.13], or that knowledge of experiences would be more fun to talk about, $r(741) = -0.22$, $p < .001$, 95% CI [-0.29, -0.15]. That is, when meeting someone new, people who rated higher on trait materialism were less likely to believe that knowing the experiences of a person would pro-

vide greater insight into the person's true self, be more useful to know the person and be more fun to talk about. We summarized the correlational analyses in Table 6.

Study 5 and Study 3A-1 Replications (Block X)

To replicate Study 3A examining satisfaction of purchases based on the recalls of both experiential and material purchases, we ran a two-tailed paired *t*-test and found that participants were more satisfied with experiential purchases ($N = 743$, $M = 8.10$, $SD = 1.31$) than material purchases ($M = 7.92$, $SD = 1.28$), $t(742) = 3.15$, $p = .002$, $d = 0.15$, 95% CI [0.07, 0.22].

To replicate Study 5's within-subjects design, we first separated the data into experiential and material conditions based on the first condition seen by participants to replicate the between-subjects design conducted by the original article. After averaging the scores of four memory exchange items, we created a composite "memory exchange index" (please refer to the Supplementary for Cronbach Alpha of different conditions) to represent the willingness to replace memories of past purchases with new memories.

Table 4. Classification of the Replication, Based on LeBel et al. (2018)

Design facet	Replication	Details of deviation
Effect/hypothesis	Same	
IV construct	Same	
DV construct	Same	
IV operationalization	Same	
DV operationalization	Similar	In Studies 3A-3C, we did not randomly flip the order of choice (i.e., 1=Person E vs. 9=Person E), to keep this consistent across all studies. We consider this a minor technical more conservative deviation.
IV stimuli	Similar	Minor adjustments in Studies 3A, 3B and 5 by including “material” and “experiential” in the description and scales for clarity. In Study 5, a within-subjects design was conducted instead of a between-subjects design to provide a contrast between the two designs.
DV stimuli	Similar	Minor changes to wordings to combine Studies 3A and 5 recall questions by using “extremely” instead of “very”.
Procedural details	Different	We used a unified design and the same sample for all studies instead of running separate surveys. We compensated participants with monetary payment, which was different from the original article.
Population (e.g., age)	Different	We recruited US American participants on Amazon MTurk. The original was conducted at the Chicago’s Museum of Science and Industry or Cornell University Students.
Physical settings	Different	We used an online survey (Qualtrics), whereas some of the original studies used physical surveys.
Contextual variables	Different	Original study was conducted in 2012 whereas this study was conducted in 2021, but other factors (culture, language) are similar.
Replication classification	Close replication	

We ran an independent Welch’s *t*-test (two-tailed) comparing the material and experiential exchange indexes and found support for H4. That is, deleting experiential purchase memories was believed to have a greater impact on one’s self-concept, such that participants in the material condition ($M = 4.75$, $SD = 1.36$, $N = 393$) were more willing to exchange their memories than participants in the experiential condition ($M = 4.22$, $SD = 1.33$, $N = 350$), $t(741) = 5.36$, $p < .001$, $d = 0.39$, 95% CI [0.25, 0.54]. In addition, participants in the experiential condition were more satisfied with their purchase ($M = 8.21$, $SD = 1.21$, $N = 350$), than participants in the material condition, ($M = 8.00$, $SD = 1.11$, $N = 393$), $t(741) = 2.51$, $p = .01$, $d = 0.18$, 95% CI [0.04, 0.33].

We extended Study 5’s analysis of the original article and conducted two-tailed paired *t*-tests based on a within-subjects design. Consistent with the results of between-subjects analyses, participants were more willing to exchange their memories of material purchases ($M = 4.90$, $SD = 1.42$, $N = 743$) than their memories of experiences ($M = 4.11$, $SD = 1.44$, $N = 743$); $t(742) = 12.24$, $p < .001$, $d = 0.55$, 95% CI [0.47, 0.62]). Additionally, as reported in Study 3A, participants were more satisfied with experiential purchases ($M = 8.10$, $SD = 1.31$, $N = 743$) than material purchases ($M = 7.92$, $SD = 1.28$, $N = 743$), $t(742) = 3.15$, $p = .002$, $d = 0.15$, 95% CI [0.07, 0.22].

We conducted two correlational analyses and found support for H5 that the greater satisfaction derived from experiential purchases was negatively associated with the willingness to exchange memory. First, a Pearson’s *r* correlation analysis between the exchange index of experiential purchases and satisfaction of experience purchases

revealed that the exchange index was negatively correlated with satisfaction, $r(348) = -0.34$, $p < .001$, 95% CI [-0.43, -0.24]. Second, we further conducted a Pearson’s *r* partial correlation analysis between the two items while controlling for the satisfaction of material purchases. The result also showed a negative correlation, $r(348) = -0.36$, $p < .001$, 95% CI [-0.45, -0.26], which confirmed findings of Pearson’s *r* correlation analysis.

Extension: Past and Current Feelings Regarding Purchases (Exploratory)

We added an exploratory extension comparing changes in evaluations of material purchases and experiential purchases over time. We conducted a 2 (purchase type: material vs. experiential) \times 2 (feeling time: current vs. past) within-subjects two-way ANOVA and found support for the main effects of purchase type and time. Overall, participants rated past feelings ($M = 3.24$, $SD = 1.95$) as more positive than current feelings ($M = 2.66$, $SD = 2.24$; $F(1, 742) = 101.10$, $p < .001$, $\eta^2p = 0.12$, CI[0.08, 0.17]), and perceived experiential purchases ($M = 3.21$, $SD = 2.09$) as more positive than material purchases ($M = 2.69$, $SD = 2.12$; $F(1, 742) = 54.70$, $p < .001$, $\eta^2p = 0.07$, CI[0.04, 0.11]).

We also found support for an interaction between purchase type and feeling type ($F(1, 742) = 5.54$, $p = .019$, $\eta^2p = 0.01$, CI[0.00, 0.02]). Participants’ current evaluation of experiential purchases ($M_{\text{now}} = 2.97$, $SD_{\text{now}} = 2.21$; $M_{\text{past}} = 3.45$, $SD_{\text{past}} = 1.93$) decreased to a lesser extent than that

Table 5. Descriptive Statistics for All Replication Conditions

Design: Study	One Sample T-Test		Experiential purchase		Material purchase		Effect
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Block Y: Studies 3A-2, 3B, and 3C							
Study 3A-2: Insight into self	6.43	2.22	-	-	-	-	0.65 [0.57, 0.73]
Study 3B: Insight into a stranger	72.08	25.08	-	-	-	-	0.88 [0.80, 0.96]
Study 3C: Insight into a new person	76.35	23.37	-	-	-	-	1.13 [1.04, 1.22]
Study 3C: Usefulness	76.27	23.04	-	-	-	-	1.14 [1.05, 1.23]
Study 3C: Fun	85.10	17.95	-	-	-	-	1.96 [1.83, 2.08]
Block X: Study 3A-1 and Study 5							
Studies 3A-1 & 5: Satisfaction [replication] (between-subjects on first condition mirroring original's analysis)	-	-	8.21	1.21	8.00	1.11	0.18 [0.04, 0.33]
Studies 3A-1/5: Satisfaction [extension] (within-subjects design)	-	-	8.10	1.31	7.92	1.28	0.15 [0.07, 0.22]
Study 5: Importance [replication] (between-subjects on first condition mirroring original's analysis)	-	-	7.32	1.82	6.80	1.75	0.29 [0.14, 0.43]
Study 5: Importance [extension] (within-subjects design)	-	-	7.33	1.88	6.71	1.93	0.25 [0.18, 0.32]
Study 5: Memory exchange willingness [replication] (between-subjects on first condition mirroring original's analysis)	-	-	4.22	1.33	4.75	1.36	0.39 [0.25, 0.54]
Study 5: Memory exchange willingness [extension] (within-subjects design)	-	-	4.11	1.44	4.90	1.42	0.55 [0.47, 0.62]
Block X: Extension							
Purchase evaluations (now)	-	-	2.97	2.21	2.35	2.23	0.28 [0.21, 0.36]
Purchase evaluations (past)	-	-	3.45	1.93	3.04	1.95	0.21 [0.14, 0.28]

Note. *M* refers to mean; *SD* refers to standard deviation. Effect = Cohen's d / η^2p . For replications, one-sample converted to Cohen's d and comparisons between one-sample, within, and between Cohen's d effects should be interpreted with caution. In a between design: experiential $n = 350$ and material $n = 393$). In a one-sample and within-design: $N = 743$. For extension, η^2p is calculated with statistic from repeated measure two-way ANOVA.

Table 6. Summary of Correlational Analysis Between MVS and Study Factor

Study	Factor	Effect	CIL	CIH	<i>p</i>
3A	True nature of self	-0.20	-0.27	-0.13	< .001
3B	True nature of a stranger	-0.19	-0.26	-0.12	< .001
3C	True nature of a new person	-0.15	-0.22	-0.08	< .001
3C	Usefulness	-0.20	-0.26	-0.13	< .001
3C	Fun	-0.22	-0.29	-0.15	< .001

Note. Effect = Pearson's *r* coefficient. CIL = lower bounds of 95% confidence intervals. CIH = higher bounds of 95% confidence intervals. Degrees of freedom for all = 741.

Table 7. Feelings: Time and Purchase Type interaction

Effect	<i>F</i>	<i>p</i>	η^2p and 95% CI
Time: Now versus time of purchase	101.10	< .001	0.12 [0.08, 0.17]
Purchase Type: Material versus experiential	54.70	< .001	0.07 [0.04, 0.11]
Feeling Time × Purchase Type interaction	5.54	0.019	0.01 [0.00, 0.02]

Note. Repeated measures two-way ANOVA. Dependent variable = Positivity of the purchase measured on a 11-point scale (-5 = very negative, 0 = neutral, 5 = very positive). Degrees of freedom = 1, 742.

of material purchases ($M_{\text{now}} = 2.35$, $SD_{\text{now}} = 2.23$; $M_{\text{past}} = 3.04$, $SD_{\text{past}} = 1.95$). We summarized descriptive statistics and statistical tests in [Table 5](#) and [Table 7](#), respectively.

Summary of Findings

In sum, both between-subjects design and within-subjects design support our hypotheses. Participants were less willing to exchange their experiential purchase memories than material purchase memories. Also, deleting memories of experiential purchases (vs. material purchases) had a greater impact on their self-concept, which was positively associated with greater satisfaction derived from experiential purchases. The effect size of between-subjects design on willingness to exchange memories, $d = 0.39$, was smaller and below the range of confidence intervals of that of within-subjects design, $d = 0.55$, 95% CI [0.47, 0.62]. Similarly, the effect size of between-subjects design on the association between the willingness to exchange experiential memories and satisfaction with experiential purchases, $r = -0.34$, was smaller and below the range of confidence intervals in the correlation analysis compared to that of within-subjects design ($r(741) = -0.43$, 95% CI [-0.49, -0.37]), as well as in the partial correlation analysis, $r = -0.36$, compared to the within-subjects design's effect size ($r(741) = -0.44$, 95% CI [-0.50, -0.38]).

Comparing Replication to Original Findings

For all our chosen studies, we were able to successfully replicate the original findings. For Studies 3A, 3B, and 3C, the replication effect sizes were larger than the original findings, and the replication range of confidence intervals did not cover the original effect size point. For Study 5, the replication effect sizes were smaller than the original findings, and the replication range of confidence intervals did not cover the original effect size point. A comparison of the

statistical tests of replication and original effects is in [Table 8](#).

Discussion

In a unified design replication of four studies reported in Carter and Gilovich (2012), we found strong support for the core hypotheses that experiential purchases were more closely associated with the self, which leads to higher satisfaction in experiential purchases than material purchases. In Studies 3A, 3B, and 3C, we found that knowledge of experiential purchase was perceived to provide greater insight into a person's true self, a stranger's true self, and as more useful, insightful, and fun to know when meeting someone new. With both between-subjects analyses and the extended within-subjects analyses in Study 5, we found that deleting experiential purchase memories would have a greater impact on self-concept than material purchase memories, and that the willingness to exchange memories was negatively associated with experiential purchase satisfaction. We also added an extension and found that experiential purchases were evaluated more positively than material purchases, that evaluations of material and experiential purchases declined over time, and that the decline for experiential purchases was weaker than that of material purchases.

Our findings contribute in several ways to the growing research about purchase types, the self, and satisfaction levels (Caprariello & Reis, 2013; Carter & Gilovich, 2010; Van Boven & Gilovich, 2003). First, our study supported the original research with a high-powered diverse sample and mostly found effects consistent with and larger than in the original (above $d = 0.8$ for Studies 3B and 3C, exceeding 0.38 and 0.74 reported in the original research). Previous research demonstrated that the disappointment that people feel during an event was short-lived and dissipated quickly, leaving one with a rosy retrospection (Mitchell et al., 1997). In contrast, people often adapt to features of

Table 8. Summary of Statistical Tests and Comparison with Original Effect Sizes

	<i>t</i>	<i>df</i>	<i>p</i>	Replication Effect and CI	Original Effect and CI	Interpretation
Study 3 - One sample <i>t</i> -test (two-tailed)						
3A: Insight into self	17.61	742	< .001	$d = 0.65 [0.57, 0.73]$	$d = 0.37 [0.19, 0.55]$	Signal/inconsistent/larger
3B: Insight into a stranger	24.00	742	< .001	$d = 0.88 [0.80, 0.96]$	$d = 0.38 [0.18, 0.58]$	Signal/inconsistent/larger
3C: Insight into a new person	30.74	742	< .001	$d = 1.13 [1.04, 1.22]$	$d = 0.74 [0.52, 0.96]$	Signal/inconsistent/larger
3C: Usefulness	31.08	742	< .001	$d = 1.14 [1.05, 1.23]$	$d = 0.74 [0.52, 0.96]$	Signal/inconsistent/larger
3C: Fun	53.32	742	< .001	$d = 1.96 [1.83, 2.08]$	$d = 0.74 [0.52, 0.96]$	Signal/inconsistent/larger
Study 5 - Independent Welch's <i>t</i> -test (two-tailed)						
Impact of memory exchange	5.36	741	< .001	$d = 0.39 [0.25, 0.54]$	$d = 0.75 [0.22, 1.27]$	Signal/inconsistent/smaller
Satisfaction	2.51	741	.01	$d = 0.18 [0.04, 0.33]$	$d = 0.57 [0.05, 1.08]$	Signal/inconsistent/smaller
Importance	3.93	741	< .001	$d = 0.29 [0.14, 0.43]$	Not reported	Signal
Study 5 - Paired <i>t</i> -test (two-tailed)						
Impact of memory exchange	12.24	742	< .001	$d = 0.55 [0.47, 0.62]$	Not reported	Signal
Satisfaction	3.15	742	.002	$d = 0.15 [0.07, 0.22]$	Not reported	Signal
Importance	6.79	742	< .001	$d = 0.25 [0.18, 0.32]$	Not reported	Signal
Study 5 - Pearson's <i>r</i> correlation analysis						
Association of exchange and satisfaction (between-subjects design)	-	348	< .001	$r = -.34 [-.43, -.24]$	Regression analysis	Signal, same direction
Association of exchange and satisfaction (within-subjects design)	-	741	< .001	$r = -.43 [-.49, -.37]$	Not reported	Signal
Study 5 - Pearson's <i>r</i> partial correlation analysis						
Association of exchange and satisfaction (between-subjects design)	-	348	< .001	$r = -.36 [-.45, -.26]$	Not reported	Signal
Association of exchange and satisfaction (within-subjects design)	-	741	< .001	$r = -.44 [-.50, -.38]$	Not reported	Signal

Note. Overall sample size: $N = 743$, $n = 350$ in experiential condition, $n = 393$ in material condition. Effect = Cohen's d or Pearson's r correlation coefficient. All confidence intervals in brackets are 95%. The interpretation of outcome is based on LeBel et al. (2019): signal refers to replication CI of effect sizes not containing 0, consistency refers to replication CI's inclusion of original effect size point, smaller/larger refers to the magnitude of replication effect size in the same direction compared to original effect size.

material possessions, and thus, the pleasure derived from them decreases over time (Frederick & Loewenstein, 1999; Van Boven, 2005). Our research replicated Carter and Gilovich's findings and pointed out that the reason behind the positive association between experiential purchases and satisfaction levels is related to one's self-concept. We demonstrated that experiential purchases have a greater impact on self-concept than material purchases, which is positively associated with satisfaction of purchases in the experiential condition.

We also found that experiential purchases were perceived as more positive and that these positive evaluations declined less over time than material purchases. This aligns with prior research that satisfaction from experiential purchases tends to be more enduring than that from material purchases (Carter & Gilovich, 2010; Rosenzweig & Gilovich, 2012; Van Boven & Gilovich, 2003).

Limitations and Future Directions

Our replication had some limitations which suggest several directions for future research. First, one limitation of the current investigation is related to the generalizability of our sample, where the majority classified themselves to be from working to middle-class income families in the United States. We asked participants to recall purchases of at least USD 50, and participants were expected to have discretionary income that allows them to afford such purchases. Therefore, it is possible that findings would differ for more diverse and non-WEIRD populations (Western, Educated, Industrialized, Rich, and Democratic; Henrich et al., 2010). Future research could examine the effect in other countries and broader demographics to examine purchases of lower monetary amounts.

Second, there is an implicit assumption of a shared clear interpretation of the definition of material or experiential purchases, yet the boundaries between experiential and material purchases are not always clear. For example, certain goods may lie in between these two categories due to the experience they provide despite being physical objects (Carter & Gilovich, 2012; Van Boven & Gilovich, 2003). Hence, it is possible that participants have different categorizations of the purchase type for the same goods, which we have observed in our experiment. Future research could counter the issue by using specific, well-defined stimuli to test the effect.

We asked participants to recall their purchases and feelings, relying on participants' ability to reconstruct their memories. Retrospective reports and evaluations may be affected by memory and feelings regarding the experiences, and thus might not accurately reflect true behaviors, cognitive and affect feelings in the past (Kahneman & Krueger, 2006; Kahneman & Riis, 2005). Future research may aim to adopt more direct measures, such as the Experiencing Sampling Method and Day Reconstruction Method, in which participants would be prompted to record their experiences, evaluations, and feelings as close as possible to the occurrence (Kahneman et al., 2004; Kahneman & Krueger, 2006; Stone & Shiffman, 2002).

Conclusion

Ten years after Carter and Gilovich (2012), we found strong support for their findings with several successful extensions highlighting differences between material and experiential purchases. We conclude these findings as a consistent reliable phenomenon and laid out several promising directions for future research.

Competing Interests

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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Author Contributions

Michelle Chee conducted the replication as her thesis. Yiyu Chen verified, reviewed, and drafted the manuscript for submission. Gilad advised and supervised each step, conducted the pre-registrations, ran data collection, and edited the manuscript for submission.

Contributor Roles Taxonomy

In the table below, employ CRediT (Contributor Roles Taxonomy) to identify the contribution and roles played by the contributors in the current replication effort. Please refer to <https://www.casrai.org/credit.html> for details and definitions of each of the roles listed below.

Data Accessibility Statement

Role	Yiyu Chen	Michelle Chee	Gilad Feldman
Conceptualization			X
Pre-registration		X	X
Data curation			X
Formal analysis		X	
Funding acquisition			X
Investigation		X	
Pre-registration peer review / verification	X		X
Data analysis peer review / verification	X		
Methodology		X	
Project administration			X
Resources			X
Software	X	X	
Supervision			X
Validation	X	X	
Visualization		X	
Writing-original draft		X	
Writing-review and editing	X		X

Materials, data, and code are available on: <https://osf.io/v2w5h/>

Important Links and Information

Citation of the target research article:

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