



The Intuitive and Deliberate Valuation of
Experiential and Material Purchases
—
Decision Patterns and Contributing Factors

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Master Thesis

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Abstract

In many situations, people have to decide whether they spend money on experiences or rather on material items. Since research suggests that many of us derive more happiness from experiences, spending money on something material might often be a mistake. Previous research found that experiences were valued lower when deciding deliberately, compared to intuitively, while material goods were valued higher when deciding deliberately. In two studies, using a decision making style manipulation, participants indicated how much they would be willing to pay for a set of experiential and material purchases. This study aimed to conceptually replicate the finding named above and to reveal underlying mechanisms leading to this kind of decision pattern. Whereas in none of the studies the finding of a lower valuation of experiences with deliberate decision making was replicated, multiple factors that predict the valuation of experiential and material purchases were identified and are discussed.

Keywords: experiences, materialism, intuition, deliberation, purchase behavior

The Intuitive and Deliberate Valuation of Experiential and Material Purchases

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Decision Patterns and Contributing Factors

The American film director Cary Fukunaga once said: “I don’t believe happiness comes out of material gain, for sure.” It seems that science agrees. The term *happiness*, related to subjective well-being, which Diener, Oishi, and Lucas (2012) defined as a “person’s cognitive and affective evaluations of his or her life”, is here used to describe a positive and global affective state. Research suggests that experiences contribute more to happiness than material possessions (Howell & Hill, 2009; Van Boven & Gilovich, 2003). Multiple reasons have been identified thus far: Waiting for experiences comes with more positive anticipation than waiting for something material (Kumar, Killingsworth, & Gilovich, 2014) and experiences are more positively evaluated over time (Van Boven & Gilovich, 2003). Moreover, experiences lead less often to potentially harmful comparisons (Van Boven, 2005) and have a greater social value by contributing to social relationships (Van Boven & Gilovich, 2003). Ultimately, experiences, and not so much material possessions, were found to add to one’s identity (Van Boven & Gilovich, 2003).

While many studies found happiness to increase with a higher income, this correlation is often rather small (Diener & Biswas-Diener, 2002). Dunn et al. (2013) argued that the relatively weak association between money and wellbeing is found because people do not spend their money optimally. They suggest multiple ways of spending one’s money better with regard to maximizing one’s happiness. Given that many people aim to increase their happiness with material purchases (Kasser, Cohn, Kanner, & Ryan, 2007), among these suggestions is the advice to spend more money on experiences rather than on material possessions.

If we want to help people to spend their money in a better way we have to solve a puzzle: Why do people spend their money wrongly in the first place? More specifically: Why do people not place more value on experiences and less on material possessions?

In a series of studies, Gallo et al. (2017) showed that the decision making style, either intuitive and quick or deliberate and careful, might play an important role when it comes to purchase decisions involving experiential versus material options.

When asking people who were confronted with such decisions to what extent these decisions should be based on intuition or reasoning, the following pattern was observed: People rely more heavily and place more value on intuition when making experiential purchase decisions, while they rely more heavily and place more value on deliberation when making material purchase decisions.

In a further experiment, Gallo et al. (2017) instructed participants to either decide intuitively or deliberately, when they had to choose between pairs of one experiential and one material purchase. They found that participants chose experiences over material items more often when deciding intuitively rather than when deciding deliberately.

Building on that, in another experiment in which participants were instructed to either decide intuitively or deliberately, they were asked to indicate how much they were willing to pay for a set of purchases. Gallo et al. (2017) found a significant interaction effect between decision making style and purchase category on valuation. Specifically, they found that participants instructed to decide intuitively were willing to pay more for experiences than those who were instructed to decide deliberately. For material purchases, although not significant, decision making style had the opposite effect: Participants instructed to decide deliberately were willing to pay more than those who were instructed to decide intuitively.

It remains unclear if this pattern found by Gallo et al. (2017) is robust and what the underlying mechanisms are. Hence, we were wondering: Do we find the described pattern in a

conceptual replication of the experiments, and, what are possible predictors of the valuation of a purchase item?

In two studies, preceded by a pilot (see Appendix A), we tried to shed light on these questions. In addition to the attempt to conceptually replicate the findings of Gallo et al. (2017) we aimed to investigate which factors explain this pattern of different experiential and material purchase decisions depending on decision making style. Having knowledge about such factors could eventually be used to improve people's decisions about how to spend money, helping them to put more value on experiences and less on material possessions. This in turn could facilitate the goal that we all have: becoming happy.

Intuitive & Deliberate Decision Making

According to the dual-system theory, there are two systems responsible for our decisions. First, an intuitive system (system 1) is providing quick decisions. Then, if cognitive resources are sufficient, a reasoning-based system (system 2) can adjust decisions made before by the intuitive system. However, in case cognitive resources are depleted, system 2 might be impaired and cannot regulate the initial, intuitive decision (Kahneman, 2011). While deliberation often is superior to intuition, among other things because it enables us to correct first beliefs that are misled by biases, this superiority does not always apply. For example when decisions are very complex and more factors than people can integrate need to be taken into account, unconscious thinking (Dijksterhuis, 2004) or intuition (Halberstadt & Levine, 1999) may be better suited to make good decisions. In those cases, when the amount of information exceeds the processing capacity of system 2, simple heuristics, reflected by intuitive decisions, can be superior (Gigerenzer & Todd, 2014).

In two studies, we determined factors that have been shown or assumed to be affected by decision making style (that is, relying on intuition or deliberation), and that vary in their degree of manifestation between experiential and material purchases.

First study

Background

Uncertainty

One characteristic that differs between experiences and material objects is the ambiguity that comes with them. Experiences often have more dimensions, that is, a greater range of attributes that potentially are relevant, than material objects (Gallo et al., 2017). Also, the satisfaction one derives from experiences, as compared to material things, is more dependent on situational factors that cannot be foreseen. Hence, experiences, compared to material things, are less predictable and, since the chances of a specific outcome are unknown, more uncertain (Howell, Pchelin, & Iyer, 2012).

When you want to buy a new TV, chances are you can pinpoint a few criteria that matter to you (e.g., size and image quality). It probably is not only few criteria, but you can also easily inform yourself about them before actually making the purchase. Consequently, at the time purchasing the TV you can be quite sure that you will be as satisfied as you expect. When you consider booking a one-week trip to Ireland, however, the situation is different. Admittedly, you can be reasonably confident that, sooner or later, you will find yourself enjoying a cold Guinness while listening to a cover of *With Or Without You*. But there are many more factors affecting the joy you will get from the trip, which are hard if not impossible to forecast: You could wonder whether your flight leaves on time, if you get a table at this highly recommended restaurant on a Saturday night, what kind of people you encounter, and whether you can fully enjoy that scenic hike although it probably is going to rain (after all, we are talking about Ireland).

Ambiguity aversion describes the dislike of situations in which probabilities of an outcome are unknown (Ellsberg, 1961). Past research suggests that intuitive decision making, compared to deliberate decision making, is associated with less ambiguity aversion (Butler, Guiso, & Jappelli, 2011) and a higher tolerance of ambiguity (Butler, Guiso, & Jappelli,

2013). Hence, the logical consequence is that intuition should lead to a more favorable attitude towards experiences.

Expected Happiness versus Economic Value

Other characteristics that might differ between experiential and material purchases are the happiness versus the economic value people expect to obtain by making a purchase.

Mann and Gilovich (2016) conducted a series of studies in which they found that thinking in monetary terms is more closely connected to material than to experiential purchases. Specifically, they provided evidence that the correlation between purchase price and purchase satisfaction is higher for material than for experiential purchases. In line with that, they also showed that a change in price has a bigger impact on purchase satisfaction for material than for experiential purchases.

Pchelin and Howell (2014) explored what people expect when making decisions between experiential and material purchases, and whether these expectations are met when evaluating purchases retrospectively. They found that people expected that their happiness would receive a stronger boost from future experiential than from future material purchases. Participants also indicated to have received more happiness from past experiential purchases than from past material purchases. Furthermore, it was found that participants expected that they would perceive future material purchases as having a greater economic value and saw them as a “better use of their money”, than future experiential purchases. When participants were asked to evaluate purchases they actually made in the past, however, they indicated that they perceived experiential purchases as having a greater economic value and saw them as a better use of their money than material purchases. Thus, when it comes to the perceived economic value of purchases, people make forecasting errors.

In line with these findings, Pchelin and Howell (2014) showed also that participants who were instructed to maximize economic value more often chose material over experiential purchases than participants who were instructed to maximize happiness. Expected happiness

as a crucial factor in purchase decisions seems to make people place more value on experiences than on material goods. When economic value is a crucial factor in purchase decisions, in contrast, people seem to place more value on material than on experiential purchases. Especially when accounting for the forecasting error related to the perceived economic value of purchases, placing too much weight on expected economic value of a purchase could be interpreted as an obstacle when it comes to increase one's happiness, since it promotes spending money on material goods.

We were wondering if the extent to which people place value on expected happiness or expected economic value is affected by decision making style. Epstein (1998) explains that the intuitive system is of high value when it comes to emotions and holistic approaches, while the rational system is particularly valuable when problems can be decomposed and analyzed systematically. Since happiness is an emotional concept, we expected happiness to play a more important role in purchase decisions when deciding intuitively. Economic value, on the contrary, can be seen as a rather rational concept. Hence, we expected it to play a bigger role in purchase decisions when deciding deliberately.

The Present Research

The first aim of this project was to conceptually replicate the finding of Gallo et al. (2017) that experiential purchases are valued higher when using one's intuition and material purchases are valued higher when using reasoning. In addition, the main question we investigated was: Which factors predict the valuation of a purchase item and are affected by decision making style? Specifically, based on research discussed previously, we examined the effect of uncertainty, expected happiness, and expected economic value. In doing so, we distinguished between 1) the extent to which participants took these three factors into account when making purchase decisions either intuitively or deliberately, and 2) the question of how certain each purchase item is perceived, how much happiness is expected to come with each item, and how much of an economic value each item provides. Finally, we investigated

whether specific personality traits (ambiguity aversion, optimism, and materialistic values) predicted the valuation of experiential and material purchases.

In the present study, participants were asked to indicate their valuation, specifically, their willingness to pay (WTP), for a set of hypothetical purchases, which belonged to one of two item categories: experiential or material. While doing that, participants were instructed to decide either intuitively (intuition condition) or deliberately (deliberation condition). After the valuation task, participants answered further questions related to the concepts of uncertainty, expected happiness, and expected economic value. Finally, they filled in some scales assessing personal characteristics.

The study was preregistered on the Open Science Framework:

<https://osf.io/tv6kh/register/5771ca429ad5a1020de2872e>

First of all, we hypothesized to conceptually replicate the findings of Gallo et al. (2017):

H1: Experimental induction of intuitive, quick decision making (compared to deliberate, analytical decision making) will result in higher valuations of experiential purchases (H1a) and lower valuations of material purchases (H1b).

Moreover, we aimed to expose which factors predict the valuation of purchases and how the effect of these factors on valuation depends on decision making style.

H2 to H4 revolve around the question to what extent uncertainty, happiness, and economic value are taken into consideration while making valuation decisions. These variables were assessed once per participant.

H2: Experimental induction of intuitive, quick decision making (compared to deliberate, analytical decision making) will result in taking uncertainty (H2a) and happiness (H2b) to a greater extent into consideration when making valuation decisions, and taking economic value (H2c) to a lower extent into consideration when making valuation decisions.

H3: The extent to which uncertainty is taken into consideration when making valuation decisions negatively predicts the valuations of experiential purchases (H3a), the extent to which happiness is taken into consideration when making valuation decisions positively predicts the valuations of experiential purchases (H3b), and the extent to which economic value is taken into consideration when making valuation decisions positively predicts the valuations of material purchases (H3c).

H4: The positive effect of the experimental induction of intuitive, quick decision making (compared to deliberate, analytical decision making) on the valuations of experiential purchases will be mediated by the taking uncertainty less (H4a), and happiness more into consideration when making valuation decisions (H4b). The negative effect of the experimental induction of intuitive, quick decision making (compared to deliberate, analytical decision making) on the valuations of material purchases will be mediated by taking economic value less into consideration when making valuation decisions (H4c).

RQ1, H5, and H6 revolve around the question of how certain each purchase item is perceived, how much happiness participants expect to obtain from each item, and how much of an economic value participants ascribe to each item. These variables were assessed for each item separately by every participant.

RQ1: Do perceived certainty of an item (RQ1a), expected happiness of an item (RQ1b), and perceived economic value of an item (RQ1c) differ between intuition and deliberation?

H5: Perceived certainty (H5a), expected happiness (H5b) and perceived economic value of an item (H5c) positively predict the valuations of purchases (collapsed across both material and experiential items).

H6: Perceived certainty (H6a) is lower and expected happiness (H6b) is

higher for experiential purchases than for material purchases, while perceived economic value (H6c) is higher for material purchases than for experiential purchases.

H7 revolves around the personal characteristics ambiguity aversion, optimism, and materialistic values of each participant.

H7: Ambiguity aversion negatively correlates with the valuation of experiential purchases (H7a), while optimism positively correlates with the valuation of experiential purchases (H7b). Materialistic values positively correlates with the valuation of material purchases (H7c).

Method

The experiment was approved by the Ethics Committee of Radboud University: ECSW-2017-039R1. It was created on Qualtrics (Qualtrics, Provo, UT) and conducted online via Prolific¹.

Participants

To determine the sample size, a power analysis was conducted in G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007). Assuming an 80% chance of detecting an effect of $f = .25$, two conditions and three covariates (Mediators) ($ndf = 4$; based on the most relevant DV, namely, the valuation of the hypothetical purchases), it yielded a minimum sample size of 196 participants. In order to account for possible necessary data removal, data of 211 participants were collected. As no participants were excluded, the final sample consisted of 211 participants (79% female; $M_{\text{age}} = 36.57$, $SD_{\text{age}} = 10.87$). All participants lived in Great Britain at the time of the experiment, their mother tongue was English, they had a Prolific approval rate of 100%, and they did not participate in the pilot study. Participants gave active consent to participate and were paid according to the Prolific guidelines (£1.65 for an average completion time of 14 minutes).

¹ <https://prolific.ac/>

Procedure

Participants were randomly assigned to either the intuition ($n = 104$) or the deliberation ($n = 107$) condition. After being provided with a short overview of the experiment, all participants answered five questions about personal preferences. The answers to these questions were later used to personalize purchase items participants were presented with (see Appendix B). Thereafter, all participants read the same information about the upcoming valuation task, including an explanation of how to use the slider.

Then, participants were instructed to decide according to their condition and were made aware of the time limit they had per item. The instructions were adapted from Gallo et al. (2017).

Specifically, in the intuition condition, it read: “You only have 12 seconds for each decision. Rely on your overall impressions and feelings. Avoid analytical assessments. In doing so, we’d like you to make simple snap judgments and just go with your immediate gut feelings regarding the value of these purchases. Don’t take any time to think them over or analyze. Please make your decision before the countdown has elapsed. Later responses cannot be taken into account. Make your decisions intuitively, decide quickly.”

In the deliberation condition it read: “Importantly: Base your evaluations on analytical assessments. Ignore your feelings and first impressions. In doing so, we’d like you to think about these purchases carefully, take your time, and analyze the reasons for giving them specific values. Don’t just go with initial snap judgments or gut feelings. You have 60 seconds for each decision. Don’t rush, feel free to use the full 60 seconds. However, please make your decision at the latest once the countdown has elapsed. Later responses cannot be taken into account. Make your decisions carefully, take your time.”

After participants were presented with two test purchases, so that they had a chance to get used to the valuation task, the actual valuation task with the 18 hypothetical purchases started.

Afterwards, all participants were asked to carefully indicate how much their valuation decisions in general were influenced by a1) a feeling of uncertainty about whether the purchases would meet one's expectations, a2) considerations about the economic value of the purchases, and a3) considerations about the happiness one would potentially obtain from purchasing something. While the first questions (uncertainty) came always first, the order of the latter two (economic value and happiness), which built upon the first question, was randomized. We decided to randomize their order since it is thinkable that answering one of these questions affects responses for the following one.

Next, participants were asked again to answer the following questions according to their condition, either intuitively and quickly, or analytically and carefully. On three separate pages, they were asked b1) how certain they are a purchase would meet their expectations, b2) how much they would consider it a good use of money, provided it would indeed meet all their expectations, and b3) how much they would expect it to contribute to their happiness, provided it would indeed meet all their expectations. Importantly, they answered each of these questions separately for every single purchase item. The order of the b1-b3 questions was matched with the order of the a1-a3 questions. For each of these questions b1-b3, all the hypothetical purchases were listed again, always in a randomized order.

Subsequently, by use of five scales, the following characteristics of participants were assessed: c1) Ambiguity-aversion, c2) Optimism, c3) Subjective happiness, c4) Big Five personality traits, and c5) Materialistic values.

Lastly, demographics were assessed.

The procedure is illustrated in Figure 1.

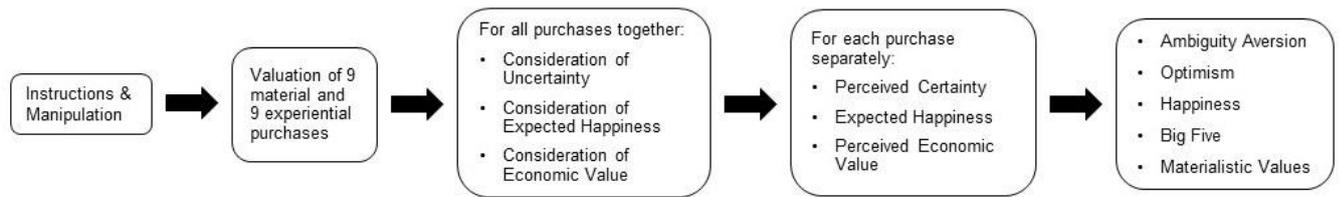


Figure 1. Flow chart of the procedure of study 1.

Measures

Valuation of hypothetical purchases

Participants were presented with 18 hypothetical purchases (nine material and nine experiential). For the full list of purchases, see Appendix B. The items were presented one by one in random order. Participants were asked to indicate the highest price they would be willing to pay for each item by use of a slider scale reaching from £0 to the maximum price determined in a pilot (see Appendix A for a description of the pilot and Appendix B for the maximum prices of each item). On top of the screen a countdown was shown. In the intuition condition the countdown was running down from 12 seconds, while in the deliberation condition, it was running down from 60 seconds. In addition, below the countdown, a brief reminder of the instruction was stated (“Make your decisions intuitively, decide quickly” or “Make your decision carefully, take your time”, respectively).

In the intuitive condition, participants took $M = 10.22$ seconds on average per item ($SD = 2.77$ seconds), while participants in the deliberate condition took $M = 15.88$ seconds per item ($SD = 6.95$ seconds). The difference between the times taken was significant ($t = -7.81, p < .001$). Therefore, the manipulation was considered successful.

To be able to compare different items, not the absolute WTP as indicated by the participants was used. Instead, the indicated WTP was converted to the percentage of the maximum price (the right end of the scale). For example, if a participant indicated a WTP of £72 if the maximum price of this item was £260, a value of 28 (resembling a WTP of 27.60%

of the maximum price) was used for all analyses. Hence, the lowest possible valuation was 0, while the highest possible valuation was 100.

Measurement of the questions a1-3 and b1-b3

The questions a1-a3 as well as b1-b3 were assessed by use of a slider scale, ranging from “Not at all” to “Very much”. While participants could not see any number attached to the position of the slider, their indications were stored as values between 0 (“Not at all”) and 100 (“Very much”).

Overall consideration of uncertainty during decision making (a1)

Participants were asked to indicate to what extent their valuation decisions in general were affected by a feeling of uncertainty about whether the purchases would meet expectations (“How much were the decisions you just made, on average, influenced by a feeling of uncertainty about whether the purchases would meet your expectations? That is, how much were your decisions, on average, influenced by thoughts such as “*How certain can I be that this purchase will meet my expectations?*”?”).

Overall consideration of economic value during decision making (a2)

Participants were asked to indicate to what extent their valuation decisions in general were affected by considerations about the economic value of the purchases (“How much were the decisions you just made, on average, influenced by considering the economic value of the purchases? That is, how much were your decisions, on average, influenced by thoughts such as “*Would this purchase be a good use of my money?*”?”).

Overall consideration of happiness during decision making (a3)

Participants were asked to indicate to what extent their valuation decisions in general were affected by considerations about the happiness one would potentially obtain from purchasing something (“How much were the decisions you just made, on average, influenced by considering the happiness you would potentially obtain from purchasing something? That is, how much were your decisions, on average, influenced by thoughts such as “*How happy could I feel as a consequence of this purchase?*”?”).

Outcome certainty of each purchase (b1)

For each hypothetical purchase separately, participants were asked to indicate how certain they were that this purchase would meet their expectations (“Now, you will see every hypothetical purchase another time. Note that the order of the purchases might be different than before. For each item, please answer the following question, again by use of the slider: How certain are you that this purchase would meet all your expectations?”). Additionally, a reminder to decide intuitively or analytically, depending on the condition, was displayed.

Economic value of each purchase (b2)

Again for each hypothetical purchase separately, participants were asked to indicate to what extent considerations about the economic value of the purchase played a role in their valuation decision (“You will see every hypothetical purchase another time. Note that the order of the purchases might be different than before. For each item, please answer the following question, again by use of the slider: Imagining this purchase would indeed meet all your expectations, how much would you consider it then a good use of money?”). Additionally, another reminder to decide intuitively or analytically, depending on the condition, was displayed.

Expected happiness of each purchase (b3)

A last time for each hypothetical purchase separately, participants were asked to indicate to what extent considerations about the economic value of the purchase played a role in their valuation decision (“You will see every hypothetical purchase another time. Note that the order of the purchases might be different than before. For each item, please answer the following question, again by use of the slider: Imagining this purchase would indeed meet all your expectations, how much would you expect it then to contribute to your happiness?”). A reminder to decide intuitively or analytically, depending on the condition, was displayed again.

Ambiguity aversion (c1)

In order to measure ambiguity aversion, the Intolerance of Uncertainty Scale – Short Form, was used (IUS-S; Carleton, Norton, & Asmundson, 2007). The scale, consisting of twelve items, had an excellent internal reliability ($\alpha = .90$). It originally was developed as a five-point Likert scale, reaching from “Not at all characteristic of me” to “Entirely characteristic of me”. Here, its format was transformed to a slider scale, giving “Not at all characteristic of me” a value of 0 and “Entirely characteristic of me” a value of 100. The numeric values were not displayed to the participants. Items included, for example, “Unforeseen events upset me greatly”. Higher scores indicated greater ambiguity aversion.

Optimism (c2)

To measure optimism, the Life Orientation Test-Revised was used (LOT-R; Carver, 2013). The scale consists of ten items, of which four are fillers. Of the six relevant items of the scale, three were reversed. The scale had a good internal reliability ($\alpha = .85$). It was originally developed as a five-point Likert scale, reaching from “I agree a lot” to “I disagree a lot”, but here translated into a slider-scale reaching from “Not at all characteristic of me” (as a value, 0) to “Entirely characteristic of me” (100). Numeric values were not shown to participants. Items included, for example, “In uncertain times, I usually expect the best”. Higher scores indicated greater optimism.

Subjective happiness (c3)

The Subjective Happiness Scale was used to assess current happiness (SHS; Lyubomirsky & Lepper, 1999). The scale consists of four items, among them one reversed, and had an excellent internal reliability ($\alpha = .90$). Originally developed as a seven-point Likert scale, the scale here was translated into a slider scale reaching from “Disagree strongly” (0) to “Agree strongly” (100). Numeric values were as before not shown to participants. Items included, for example, “In general, I consider myself a happy person”. Higher scores indicated greater subjective happiness.

Big Five personality traits (c4)

In order to measure the Big Five personality domains, the Ten-Item Personality Inventory was used (TIPI; Gosling, Rentfrow, & Swann, 2003). The scale consists of five domains, each consisting of two items, of which one is reversed. Internal reliability differed strongly between domains. While the domains of extraversion ($\alpha = .73$) and neuroticism ($\alpha = .75$) showed good internal reliability, internal reliability for the domains of conscientiousness ($\alpha = .57$), openness to experiences ($\alpha = .47$) and agreeableness ($\alpha = .39$) was poor or not acceptable. While the original scale is a seven-point Likert scale reaching from “Disagree strongly” to “Agree strongly”, we here used the scale as a slider, assigning the ends values of 0 (“Disagree strongly”) and 100 (“Agree strongly”). Participants could again not see these values when using the slider.

Materialism (c5)

To assess materialism, the Material Values Scale as its short (3 item) version was used (MSW; Richins, 2004). It had a questionable internal reliability ($\alpha = .65$). Similar to the scales described before, this scale was developed as a five-point Likert scale and was here translated into a slider scale, reaching from “Disagree strongly” to “Agree strongly”. Again, values from 0 to 100 were assigned to the scale, which the participants could not see when placing their indication. An example for an item is “I admire people who own expensive homes, cars, and clothes”. Higher scores indicated greater materialism.

Demographics

Participants were asked to indicate their gender, age, level of education, current employment status, household income, relationship status, number of children, and kind of neighborhood (urban, sub-urban, or rural) they were living in.

Analysis preparation

Outliers, based on deviations of more than three standard deviations from the mean, were excluded: A total of nine outliers on the valuation of four purchase items, one outlier on the consideration of happiness, a total of six outliers on the perceived certainty of two items, a

total of six outliers on the expected happiness of two items, three outliers on the perceived economic value of an item, and one outlier each on the agreeableness and conscientiousness subscales of the big five personality domains measure. Exclusion of these outliers did not alter any results substantially.

We preregistered certain thresholds of decision times for the valuation of the hypothetical purchases. Based on these criteria, no data points had to be removed.²

Analysis procedure

Data was analyzed in RStudio (version 3.3.2; R Core Team, 2016).

When possible, data was analyzed with linear mixed effect models (LMEMs). This approach was chosen since it accounts for the nested structure of the data (each participant valued multiple purchases, and answered questions about the perceived certainty, expected happiness, and perceived economic value for multiple purchases; purchase items belonged to one of two categories, material or experiential). All linear mixed models analyses used the lmer function of the lme4 package (version 1.1.15; Bates, Mächler, Bolker, & Walker, 2015). P-values were determined using the function mixed from the package afex (version 0.16.1; Singmann, Bolker, Westfall, & Aust, 2016) using type 3 tests and the likelihood-ratio test (LRT) method. If a model failed to converge, we followed the advice of Barr et al. (2013) on how to deal with convergence issues. That is, we always started with maximal LMEMs, defined as models that include the maximal random effects structure, and followed the steps suggested by Barr et al. (2013) in case of convergence issues. Below, we always indicate the final model that we obtained after following these steps. All reported results are based on the analysis of this model.

² We preregistered that observations would be removed if the valuation of an item would be done faster than 1.5 or 3.5 seconds in the intuition or deliberation condition, respectively. However, no valuation was done faster than these thresholds.

Results

Hypothesis 1: Effect of decision making style on valuation of purchases

We analyzed the first hypothesis with a linear mixed effects model. The model included a fixed intercept for the dependent variable valuation, and the following fixed effects: condition, item category, maximum price, and all their interactions. Furthermore, the model included a per-participant random intercept and adjustment to the slopes of item category, as well as a per-item random intercept and adjustment to the slope of condition. To analyze the specific hypotheses H1a and H1b in a post-hoc test, the function `emmeans` of the `emmeans` package (version 1.2.1; Lenth et al., 2018) was used. Using pairwise comparisons (with Bonferroni adjustment of p-values for multiple comparisons), it was investigated whether decision style had an effect on the valuation of material or experiential purchases³.

The analysis revealed that there was a marginally significant effect of decision making style on valuation (Estimate = 1.43, $se = 0.84$; $\chi^2(1,14) = 2.85$, $p = .091$), with higher valuations being associated with deliberate decision making ($M_{\text{intuitive}} = 42.75$, $SD_{\text{intuitive}} = 24.55$; $M_{\text{deliberate}} = 45.55$, $SD_{\text{deliberate}} = 24.78$), but no significant interaction between decision making style and purchase category (Estimate = -0.13, $se = 0.49$; $\chi^2(1,14) = 0.07$, $p = .795$).

The post-hoc analysis revealed that neither the valuation of experiential purchases (Estimate = 3.11, $se = 2.05$; $t(100) = 1.52$, $p = .133$) nor the valuation of material purchases (Estimate = 2.60, $se = 1.84$; $t(76) = 1.41$, $p = .163$) did significantly differ between deliberate and intuitive decision making (see Figure 2).

³ Experiential purchases were valued significantly higher than material purchases ($M_{\text{experiential}} = 48.62$, $SD_{\text{experiential}} = 26.53$; $M_{\text{material}} = 39.69$, $SD_{\text{material}} = 21.84$; $t(3635) = 11.28$, $p < .001$).

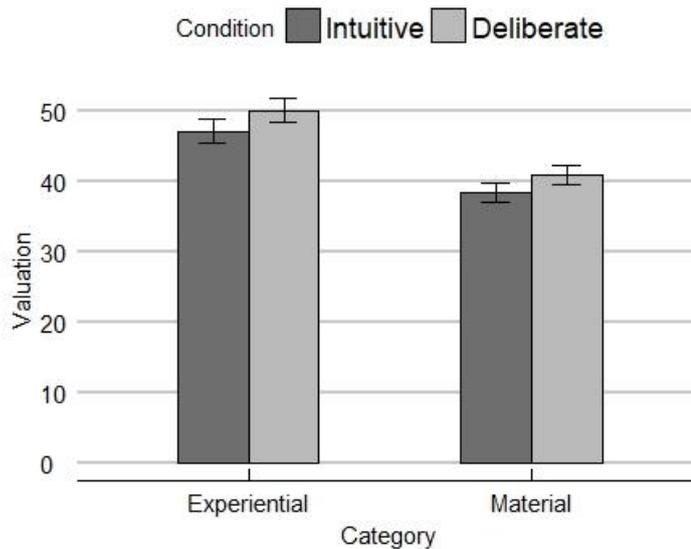


Figure 2. Valuation of hypothetical purchases with intuitive and deliberate decision making, displayed for both categories separately.

In conclusion, there was an overall effect of decision making style on valuation, with deliberate decisions leading to higher valuations than intuitive decisions, but no interaction between decision making style and purchase category. When looking at experiential and material purchases separately, purchases of both categories were valued higher with deliberate decision making. However, these effects did not reach significance.

Thus, neither H1a nor H1b could be confirmed. While the direction of the effect on material purchases was consistent with the prediction of H1b but not significant, the direction of the effect on experiential purchases was opposing the prediction of H1a and not significant.

Hypothesis 2: Effect of decision making style on consideration of uncertainty, happiness and economic value

The second hypothesis was analyzed by three unpaired t-tests.

There was a significant effect of decision making style on consideration of uncertainty ($t(3788) = -2.54, p = .011$), with intuitive decision making being associated with a greater consideration of uncertainty ($M_{\text{intuitive}} = 49.38, SD_{\text{intuitive}} = 26.78; M_{\text{deliberate}} = 47.09, SD_{\text{deliberate}} = 28.77$; see Figure 3). The direction of the effect was opposing the predicted direction.

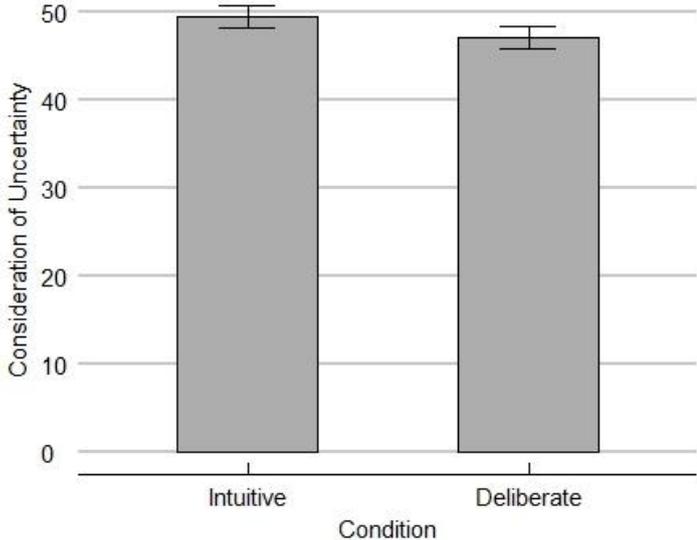


Figure 3. Consideration of uncertainty while making either intuitive or deliberate valuation decisions.

Further, there was a significant effect of decision making style on consideration of happiness ($t(3559) = 7.23, p < .001$), with deliberate decision making being associated with a greater consideration of happiness ($M_{\text{intuitive}} = 69.04, SD_{\text{intuitive}} = 21.11; M_{\text{deliberate}} = 74.17, SD_{\text{deliberate}} = 21.28$; see Figure 4). Again, the direction of the effect was opposing the predicted direction.

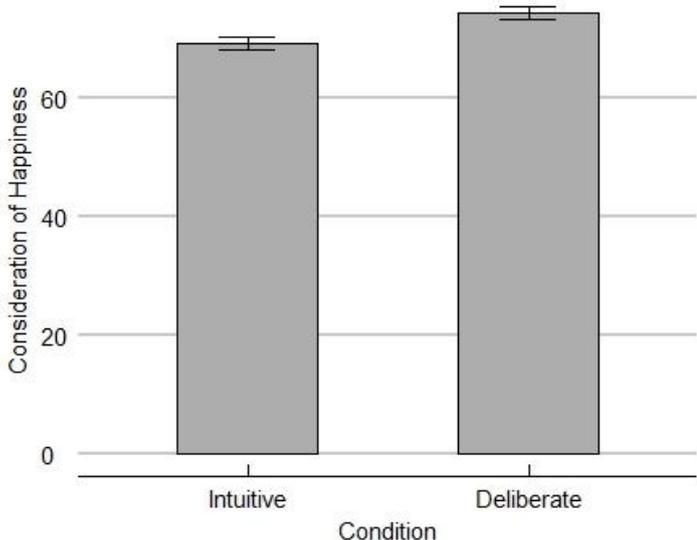


Figure 4. Consideration of happiness while making either intuitive or deliberate valuation decisions.

Lastly, there was no difference on the consideration of economic value between decision making styles ($t(3505) = 7.23, p = .419$).

In conclusion, we found that intuitive decision making was associated with greater consideration of uncertainty while making valuation decisions, while deliberate decision making was associated with a greater consideration of happiness when making valuation decisions.

Consequently, none of the hypotheses H2a, H2b, and H2c were confirmed.

Hypothesis 3: Effect of consideration of uncertainty, happiness, and economic value on valuation of purchases of a specific category

We examined the third hypothesis with linear mixed effects models. The three final models included a fixed intercept for the dependent variable valuation, and the following fixed effects: condition, item category, maximum price, either consideration of uncertainty (H3a), consideration of happiness (H3b), or consideration of economic value (H3c), and all their interactions. Furthermore, the models included a per-participant random intercept and an adjustment to the slope of item category, as well as a per-item random intercept and adjustment to the slope of condition. In case of significant main effects of consideration of uncertainty (H3a), consideration of happiness (H3b) or consideration of economic value (H3c), or significant interactions with item category, Pearson's correlations were assessed.

The analyses revealed that there was neither a main effect of consideration of uncertainty on valuation (Estimate = 0.02, $se = 0.029$; $\chi^2(1,22) = 0.42, p = .519$), nor an interaction effect between consideration of uncertainty and item category on valuation (Estimate = 0.02, $se = 0.02$; $\chi^2(1,22) = 1.96, p = .162$).

Also, there was neither a significant main effect of consideration of happiness on valuation (Estimate = 0.05, $se = 0.039$; $\chi^2(1,22) = 1.31, p = .252$), nor an interaction effect between consideration of happiness and item category on valuation (Estimate = -0.01, $se = 0.02$; $\chi^2(1,22) = 0.05, p = .816$).

Furthermore, there was neither a significant main effect of consideration of economic value on valuation (Estimate = -0.03, $se = 0.036$; $\chi^2(1,22) = 0.71$, $p = .400$), nor an interaction effect between consideration of economic value and item category on valuation (Estimate = -0.01, $se = 0.02$; $\chi^2(1,22) = 0.23$, $p = .635$).

All in all, consideration of uncertainty, happiness, and economic value did not predict the valuation of purchases.

None of the three hypotheses H3a, H3b, and H3c could be confirmed.

Hypothesis 4: Mediation of the effect of decision making style on valuation by consideration of uncertainty, happiness, and economic value

Since none of the three hypotheses H3a, H3b, and H3c could be confirmed, mediation was not possible. Hence, also H4a, H4b, and H4c could not be confirmed.

Research Question 1: Effect of Decision making style on perceived certainty, expected happiness, and perceived economic value

We investigated this research question with linear mixed effects models. The final three models included a fixed intercept for the dependent variable perceived certainty (RQ1a), expected happiness (RQ1b), or perceived economic value (RQ1c), and the following fixed effects: condition, item category, maximum price, and all their interactions. Furthermore, the models included a per-participant random intercept and an adjustment to the slope of item category, as well as a per-item random intercept and adjustment for the slope of condition. In case of significant interaction effects between item category and perceived certainty, expected happiness, or perceived economic value, we conducted post-hoc tests with the function emmeans of the emmeans package (version 1.2.1; Lenth et al., 2018) and pairwise comparisons (with Bonferroni adjustment of p-values for multiple comparisons).

There was a marginally significant main effect of decision making style on perceived certainty of purchases (Estimate = 1.65, $se = 0.96$; $\chi^2(1,14) = 2.94$, $p = .086$), and a significant interaction effect between decision making style and item category on perceived certainty of purchases (Estimate = -1.58, $se = 0.55$; $\chi^2(1,14) = 7.79$, $p = .005$). Post-hoc analysis revealed

that decision making style did not affect perceived certainty for experiential purchases (Estimate = 0.14, $se = 2.09$; $t(130) = 0.07$, $p = .947$), but that decision making style did affect perceived certainty for material purchases (Estimate = 6.45, $se = 2.32$; $t(150) = 2.79$, $p = .006$), with material items perceived as more certain when deciding deliberately (see Figure 5).

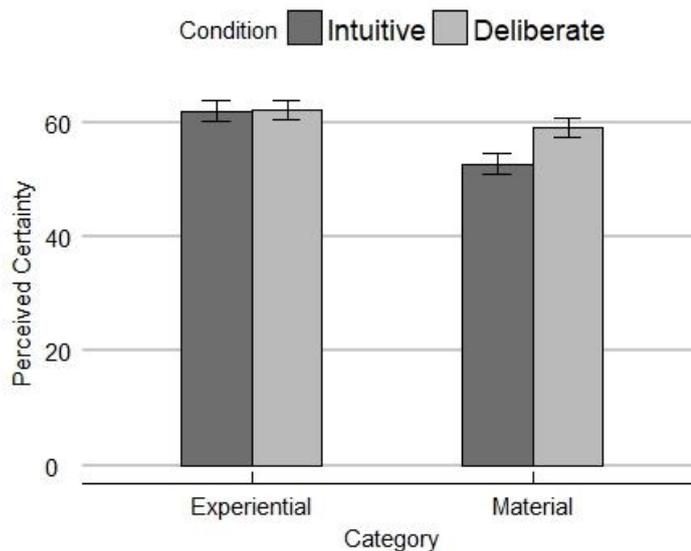


Figure 5. Perceived certainty of hypothetical purchases with either intuitive or deliberate decision making, displayed for both categories separately.

There was no main effect of decision making style on expected happiness (Estimate = 1.13, $se = 1.05$; $\chi^2(1,14) = 1.14$, $p = .285$), but a significant interaction effect between decision making style and item category on expected happiness of purchases (Estimate = -1.40, $se = 0.64$; $\chi^2(1,14) = 4.76$, $p = .029$). Post-hoc analyses revealed that decision making style did not affect expected happiness for experiential purchases (Estimate = -0.56, $se = 2.27$; $t(189) = -0.24$, $p = .808$). However, there was a marginally significant effect of decision making style on expected happiness for material purchases (Estimate = 5.06, $se = 2.63$; $t(200) = 1.92$, $p = .056$), with more happiness expected for material items when deciding deliberately (see Figure 6).

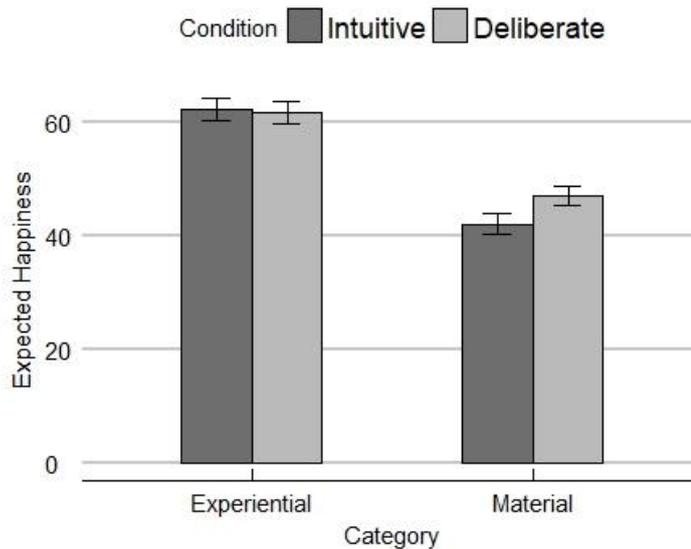


Figure 5. Expected happiness of hypothetical purchases with either intuitive or deliberate decision making, displayed for both categories separately.

There was no main effect of decision making style on perceived economic value of purchases (Estimate = 0.62, $se = 1.14$; $\chi^2(1,14) = 0.29$, $p = .588$), but a marginally significant interaction effect between decision making style and item category on the perceived economic value of purchases (Estimate = -1.20, $se = 0.65$; $\chi^2(1,14) = 3.28$, $p = .070$). However, post-hoc analysis revealed that decision making style did neither affect perceived economic value for experiential (Estimate = -1.16, $se = 2.659$; $t(152) = -0.43$, $p = .665$), nor for material purchases (Estimate = 3.63, $se = 2.60$; $t(148) = 1.40$, $p = .165$).

In conclusion, the investigation of the first research question revealed that deliberate as compared to intuitive decision making was associated with perceiving material purchases as more certain and expecting material purchases to contribute more to happiness.

Hypothesis 5: Effect of perceived certainty, expected happiness, and perceived economic value on valuation

The fifth hypothesis was again tested with linear mixed effects models. The final three models included a fixed intercept for the dependent variable valuation, and the following fixed effects: condition, item category, maximum price, either perceived certainty (H5a), expected happiness (H5b) or perceived economic value (H5c), and all their interactions.

Furthermore, the models included a per-participant random intercept and adjustment to the slope of item category, as well as a per-item random intercept and adjustment to the slope of condition.

The analysis showed that there was a significant effect of perceived certainty on valuation (Estimate = 0.34, $se = 0.01$; $\chi^2(1,22) = 581.30$, $p < .001$), with perceived certainty positively predicting valuation of an item.

Further analysis showed that there was a significant effect of expected happiness on valuation (Estimate = 0.34, $se = 0.01$; $\chi^2(1,22) = 671.62$, $p < .001$), with expected happiness positively predicting valuation of an item.

Eventually, the analysis showed that there was a significant effect of perceived economic value on valuation (Estimate = 0.29, $se = 0.01$; $\chi^2(1,22) = 505.30$, $p < .001$), with perceived economic value positively predicting valuation of an item.

Taken together, perceived certainty, expected happiness, and perceived economic value of an item, all positively predicted the valuation of this item (see Figure 7). This was found to be true in both conditions and for both purchase categories, without any differences of the strength of the prediction. Thus, all three hypotheses H5a, H5b, and H5c could be confirmed.

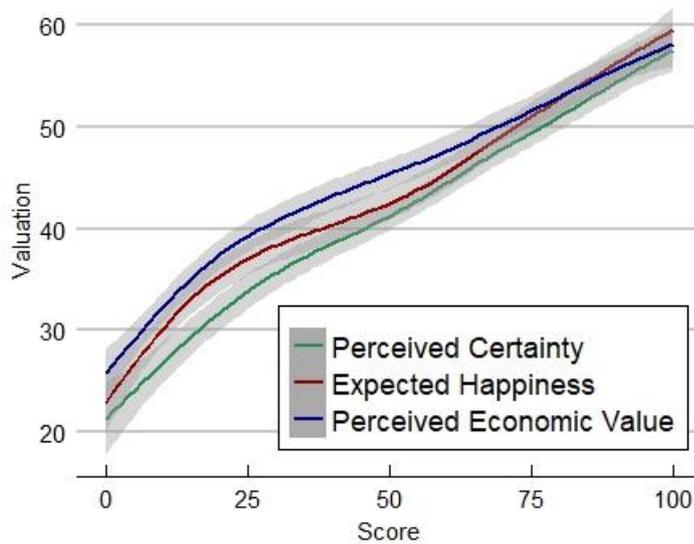


Figure 7. The effect of perceived certainty, expected happiness, and perceived economic value on the valuation of hypothetical purchases.

Hypothesis 6: Effect of item category on perceived certainty, expected happiness, and perceived economic value

We tested this hypothesis with linear mixed effects models. The final three models included a fixed intercept for the dependent variable, either perceived certainty (H6a), expected happiness (H6b), or perceived economic value (H6c), and the following fixed effects: item category, maximum price, their interaction. Furthermore, the models included a per-participant random intercept and adjustment to the slope of item category, as well as a per-item random intercept.

It was shown that there was no effect of item category on perceived certainty (Estimate = 3.17, $se = 2.07$; $\chi^2(1,8) = 2.21$, $p = .137$).

Further, the analysis revealed that there was a significant effect of item category on expected happiness (Estimate = 8.94, $se = 2.406$; $\chi^2(1,8) = 10.39$, $p = .001$), with experiential purchases being associated with greater expected happiness ($M_{\text{experiential}} = 62.03$, $SD_{\text{experiential}} = 30.74$; $M_{\text{material}} = 44.54$, $SD_{\text{material}} = 28.65$; see Figure 8).

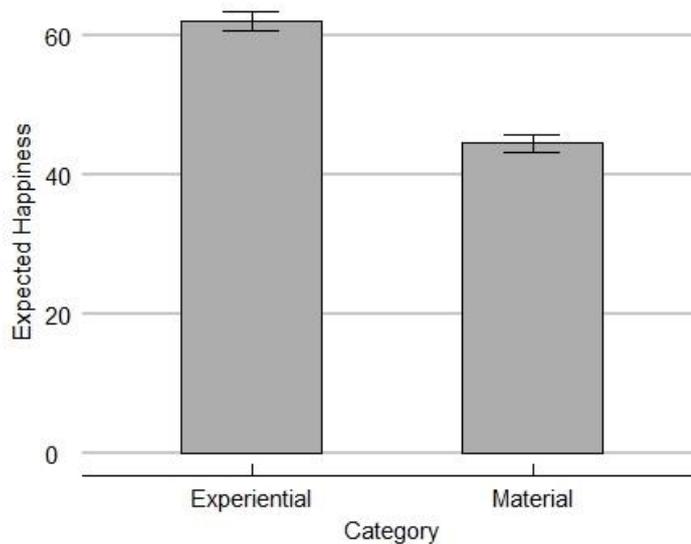


Figure 8. Expected happiness of hypothetical purchases, displayed for both categories separately.

Finally, it was shown that there was no effect of item category on perceived economic value (Estimate = 3.92, $se = 2.48$; $\chi^2(1,8) = 2.34$, $p = .125$).

While perceived certainty and perceived economic value did not differ between item categories, expected happiness was greater for experiential items.

Hence, H6b could be confirmed, while H6a and H6c could not be confirmed.

Hypothesis 7: Correlation between ambiguity aversion, optimism, and materialism with the valuation of material or experiential purchases

We tested this hypothesis with linear mixed effects models. The final three models included a fixed intercept for the dependent variable valuation, and the following fixed effects: condition, either ambiguity aversion (H7a), optimism (H7b), or materialistic values (H7c), item category, maximum price, and all their interactions. Furthermore, the models included a per-participant random intercept and adjustment to the slope of item category, as well as a per-item random intercept and adjustment for the slope of condition. In case of significant main effects or interactions with item category of ambiguity aversion (H7a), optimism (H7b), or materialistic values (H7c), Pearson's correlations were assessed.

The analyses revealed that there was no main effect of ambiguity aversion on valuation (Estimate = 0.03, $se = 0.05$; $\chi^2(1,22) = 0.45$, $p = .504$), but a significant interaction effect between ambiguity aversion and item category on valuation (Estimate = -0.05, $se = 0.02$; $\chi^2(1,22) = 3.98$, $p = .046$). Further analyses showed that there was no significant correlation between ambiguity aversion and valuation of experiential purchases ($r = -.01$, $p = .657$), but a marginally significant positive correlation between ambiguity aversion and valuation of material purchases ($r = .06$, $p = .005$; see Figure 9).

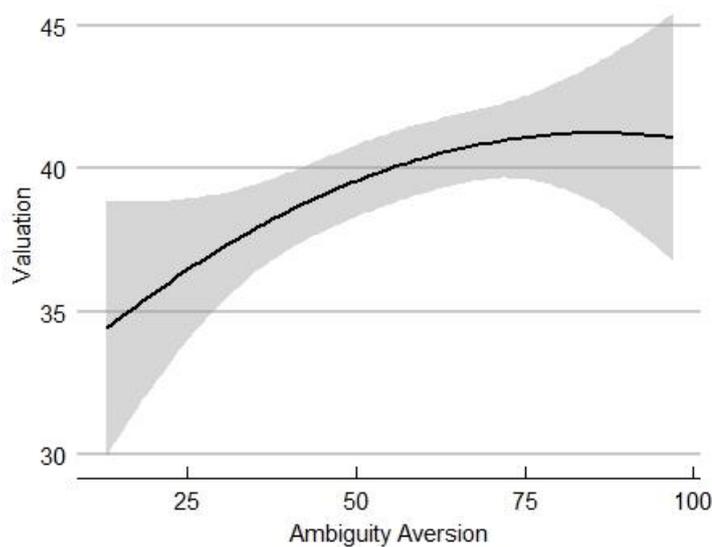


Figure 9. The effect of a person's ambiguity aversion on the valuation of material purchases.

Further analyses revealed that there was no main effect of optimism on valuation (Estimate = -0.01, $se = 0.04$; $\chi^2(1,22) = 0.02$, $p = .903$), and no interaction effect between optimism and item category on valuation (Estimate = -0.02, $se = 0.020$; $\chi^2(1,22) = 0.51$, $p = .475$).

Ultimately, it was shown that there was a significant main effect of materialism on valuation (Estimate = 0.07, $se = 0.04$; $\chi^2(1,22) = 4.49$, $p = .034$), as well as a significant interaction effect between materialism and item category on valuation (Estimate = -0.04, $se = 0.02$; $\chi^2(1,22) = 4.83$, $p = .028$). Further analyses showed that there was no correlation

between materialism and valuation of experiential purchases ($r = .02, p = .358$), but a significant positive correlation between materialism and valuation of material purchases ($r = .12, p < .001$; see Figure 10).

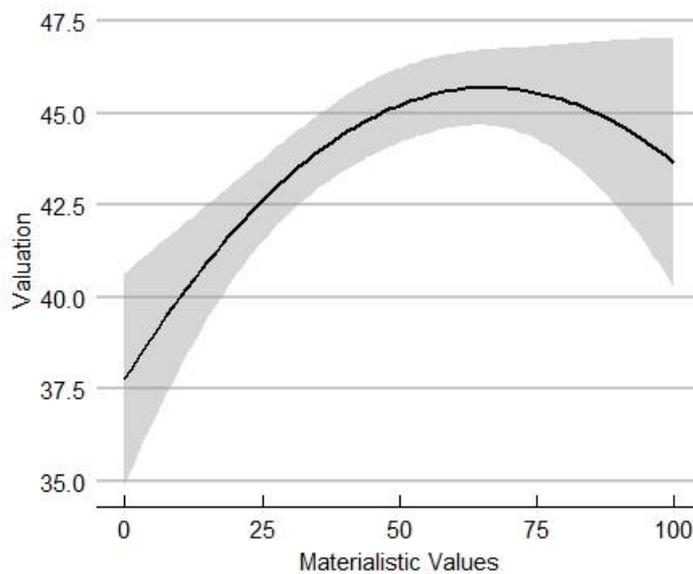


Figure 10. The effect of a person's materialistic values on the valuation of material purchases.

Ambiguity aversion did not negatively predict the valuation of experiential items (as hypothesized), but it did positively predict the valuation of material items. Materialistic values predicted the valuation of material items.

Thus, while H7c was confirmed, H7a and H7b were not confirmed.

Exploratory Analysis: Are there any predictors explaining which purchases (considering both experiential and material items) are valued differently depending on decision style?

While hypothesis 5 confirmed that perceived certainty, expected happiness and perceived economic value of a purchase item all predicted its valuation, we again looked at these variables to get insights about why some purchases were valued differently with intuitive and deliberate decision making style, while others were not.

For each item, we calculated a difference score between average deliberate and average intuitive valuation. A positive difference score means that an item was valued higher with deliberate decision making, while a negative difference score means that an item was

valued higher with intuitive decision making. Pearson's correlations were used to analyze whether the difference score of an item was correlated with its perceived certainty, expected happiness, perceived economic value, or maximum price.

No correlation between difference score and perceived certainty ($r = -.01, p = .621$) and between difference score and expected happiness ($r = -.001, p = .944$) was found.

Analyses revealed a weak but significant correlation between difference score and perceived economic value ($r = -.09, p < .001$). That is, items associated with a low economic value tended to be valued higher with deliberate compared to intuitive decision making, while items associated with a high economic value showed less of a difference in valuation between deliberate and intuitive decision making (see Figure 11).

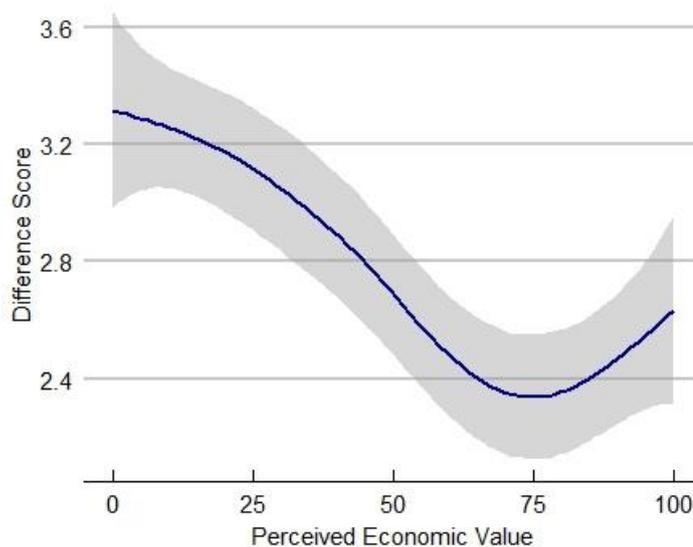


Figure 11. The effect of the perceived economic value of an item on its difference score. More positive difference scores represent a higher average valuation with deliberate, compared to intuitive, decision making.

Exploratory Analysis: Had the time taken to value a purchase an effect on its valuation?

As indicated above, participants in the deliberation condition took on average significantly longer to value an item than participants in the intuition condition. However, despite the significance, we thought that the time participants in the deliberation condition

took was still very little. To shed more light on the effect of the time taken to value a purchase on its valuation, we conducted an additional exploratory analysis.

This was done with another linear mixed effects model. The final model included a fixed intercept for the dependent variable valuation, and the following fixed effects: time taken for valuation, item category, maximum price, and all their interactions. Furthermore, the model included a per-participant random intercept and adjustment to the slope of item category, as well as a per-item random intercept.

The analysis revealed that there was no effect of time taken to value an item on the valuation of this item (Estimate = -0.02, $se = 0.04$; $\chi^2(1,14) = 0.2$, $p = .612$).

Additionally, we repeated the analysis that was done to investigate hypothesis 1, with the deviation that in the deliberate condition we only included participants who took on average 20 seconds or more to value an item. Importantly, that left only 21 participants in the deliberation condition. In line with the results of hypothesis 1, the analysis showed a marginally significant effect of decision making style on the valuation of purchases (Estimate = -2.68, $se = 1.45$; $\chi^2(1,14) = 3.34$, $p = .068$), with higher valuations being associated with deliberate decision making ($M_{\text{intuitive}} = 42.75$, $SD_{\text{intuitive}} = 24.55$; $M_{\text{deliberate}} = 48.07$, $SD_{\text{deliberate}} = 24.52$).

The post-hoc analysis revealed that the valuation of experiential purchases (Estimate = -4.99, $se = 3.58$; $t(84) = -1.39$, $p = .167$) did not differ between intuitive and deliberate decision making while the valuation of material purchases (Estimate = -5.73, $se = 3.04$; $t(60) = 1.89$, $p = .064$) did marginally significantly differ between intuitive and deliberate decision making, with higher valuations being associated with deliberate decision making ($M_{\text{intuitive}} = 38.41$, $SD_{\text{intuitive}} = 21.87$; $M_{\text{deliberate}} = 44.13$, $SD_{\text{deliberate}} = 20.89$).

Discussion

In this first study, we found a marginally significant effect of decision making style on valuation of purchases, with deliberate decision making leading to higher valuations than

intuitive decision making. The findings of Gallo et al. (2017) did not replicate. On the contrary, for experiential purchases, we found that the (non-significant) effect of decision making style on valuation was in the opposite direction compared to the effect described by Gallo et al. (2017), with deliberate decisions being associated with higher valuations.

Moreover, against our expectations, we found that participants who decided intuitively, compared to those who decided deliberately, took uncertainty more and happiness less into account while making purchase decisions. There was no difference between decision making styles when it came to the extent to which economic value was taken into account. Also, the extent to which these factors were taken into account when making valuation decisions, did not affect valuation.

The assessments for each purchase item separately, of how certain a participant was that this item would meet the expectations, of how much happiness a participant expected from it, and of how much of an economic value a participant saw in it, demonstrated two differences between the decision making conditions: Material, but not experiential purchases were perceived as more certain and were associated with more happiness when deciding deliberately, compared to intuitively. In line with our expectations, experiential items were expected to provide more happiness than material items. Against our expectations, however, there was no difference in perceived certainty and perceived economic value between experiential and material purchases. In line with our expectations, all of these three factors positively predicted the valuation of an item.

Against our expectations, a person's optimism and ambiguity aversion did not positively respectively negatively predict the valuation of experiences. Yet, we found that ambiguity aversion positively predicted the valuation of material purchases. Eventually, as expected, a person's materialistic values positively predicted the valuation of material purchases.

Second Study

Background

Since the findings of the first study of this project were not in line with the findings of Gallo et al. (2017), we decided to conduct a second study. Its main purpose was to replicate part of the findings of the first study. Specifically, the effect of decision making style on the valuation of experiential and material purchases was again examined.

While in the first study of this project all participants were British, the majority of participants in the study of Gallo et al. (2017) presumably was American.⁴ Therefore, in an attempt to explain the deviation of the results of the here presented first study from the results of Gallo et al. (2017), this second study included participants with two nationalities: Half of the participants were British, and half of the participants were American.

What is more, the first study of this project showed that some hypothetical purchases were valued differently with intuitive, compared to deliberate, decision making. In order to get more insights about what contributes to the valuation of an item and to the difference in valuation between decision making styles, another factor was assessed in the second study: the vividness of an item.

Purchases that elicit many and strong associations and are very graspable, possibly because one have had or used similar experiences or objects before, can be described as vivid. Chances are that the idea of having dinner at a restaurant provokes a very vivid image (as most people have had this experience many times), whereas the thought of taking cooking classes provokes a less vivid image (as most people are not familiar with it). Research suggests that people are more reluctant of handing something off when it is very vivid

⁴ Gallo et al. (2017) do not explicitly state the nationality of their participants. However, depending on the particular study of the paper, participants were either recruited from a US-university, or online via MTurk and asked to indicate what they were willing to pay in US-dollars. Therefore, it seems reasonable that the findings are based on mainly American participants.

(Maimaran, 2011). Vice versa, it seems plausible that people are willing to pay more for something when it is very vivid. More than that, it seems plausible that for highly vivid items, people quickly know how attractive they find them and, as a consequence, how much they would be willing to spend on them. Time to think about such a purchase would arguably not dramatically change how this item is perceived and how much people are willing to spend on it. By contrast, when a purchase is little vivid, time to think about it could significantly alter how it is perceived and thus how much people are willing to spend on it.

The Present Research

Similar to the first study, participants in this study were asked to indicate their WTP for a set of experiential and material purchases. Participants were again instructed to decide either intuitively (intuition condition) or deliberately (deliberation condition). After the WTP task, participants rated the vividness of each purchase item.

This study was preregistered on the Open Science Framework:

<https://osf.io/wfhny/register/5771ca429ad5a1020de2872e>

First of all, we wanted to replicate the main finding of the first study. Therefore, we hypothesized:

H8: Experimental induction of intuitive, quick decision making (compared to deliberate, analytical decision making) will result in lower valuations of purchases (collapsed across both categories) (H8a). More specifically, the direction of the effect of experimental induction of intuitive, quick decision making (compared to deliberate, analytical decision making) on the valuation of only experiential or only material purchases, will point towards a lower valuation of purchases of both the experiential (H8b) and the material (H8c) category.

In addition, without making predictions, we formulated two additional research questions:

RQ2: Does nationality, either Great Britain or USA, have an effect on the valuation of experiential or material purchases with intuitive or deliberate decision making?

RQ3: Does the vividness of an item predict its valuation (RQ3a) and is the vividness of an item associated with the difference in valuation of this item between intuitive and deliberate decision making (RQ3b)?

Method

The experiment was approved by the Ethics Committee of Radboud University: ECSW-2018-061. It was again created on Qualtrics (Qualtrics, Provo, UT) and conducted online via Prolific⁵.

Participants

To determine the sample size, a power analysis was conducted in G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007). Assuming an 80% chance of detecting an effect of $f = .25$, with two conditions and one covariate, a minimum sample size of 128 participants was required. To account for possible data exclusion, data of 140 participants were collected. Due to the exclusion of participants, the final sample consisted of 130 participants (gender not assessed; $M_{age} = 32.21$, $SD_{age} = 11.95$). Half of the participants ($n = 66$) lived at the time of the experiment in the USA and were American, while the other half of the participants ($n = 64$) lived at the time of the experiment in Great Britain and were British. All participants had a Prolific approval rate of 100%, their mother tongue was English, and they did not participate in the pilot study or the first experiment. Participants gave active consent to participate and were paid according to the Prolific guidelines (£0.90 for an average completion time of 7.5 minutes).

⁵ <https://prolific.ac/>

Procedure

Participants were randomly assigned to either the intuition ($n = 68$) or the deliberation ($n = 62$) condition.

From the beginning of the experiment to the end of the valuation task, the procedure of this experiment was identical to the procedure of the first experiment.

Thereafter, for every hypothetical purchase separately, participants were asked how easy they found it to vividly imagine having or using this object or having this experience.

Lastly, demographics were assessed.

The procedure is illustrated in Figure 12.

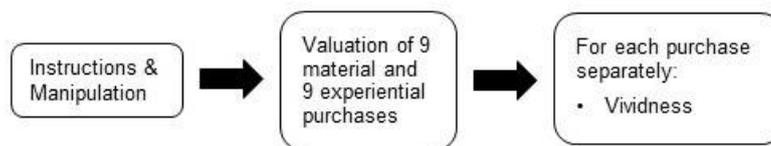


Figure 12. Flow chart of the procedure of study 2.

Measures

Valuation of hypothetical purchases

Identical to study 1, participants were presented with the 18 hypothetical purchases (nine material and nine experiential ones) as listed in Appendix B one by one in a randomized order. Instructions given to the participants were identical to the instructions given in experiment 1, except that American participants were presented with USD as currency (opposing GBP in the British subset of participants). In line with that, the price ranges for the hypothetical purchases were adjusted. The maximum price, determined as described above in GBP, was converted into USD. Hence, the absolute values of maximum prices were different for American than for British participants. Therefore, similar to the first experiment, the valuations were converted into values between 0 and 100.

In the intuitive condition, participants took $M = 11.62$ seconds per item ($SD = 4.90$ seconds), while participants in the deliberate condition took $M = 13.06$ seconds per item ($SD = 5.72$ seconds). The difference between the times taken was not significant ($t = -1.51, p = .134$). Consequently, the manipulation was not considered successful.

Vividness

For each hypothetical purchase separately, participants were asked to indicate how vivid they find this purchase (“How easy do you find it to vividly imagine having or using this object or having this experience? More specifically, please try to imagine how you would feel when using this object or having this experience.”). Each item was linked to a slider scale, reaching from “Not at all easy” to “Very easy”. While participants again could not see any number attached to the position of the slider, their indications were stored as values between 0 (“Not at all easy”) and 100 (“Very easy”), with higher scores representing greater vividness.

Demographics

Finally, demographics were assessed. In specific, participants were asked to indicate their age, current employment status, and household income.

Analysis Preparation

The experiment included two attention checks, one during the valuation task and one during the vividness measure. Eleven participants were excluded from the analysis as they failed one or both attention checks.

Outliers, based on deviations of more than three standard deviations from the mean, were excluded: One outlier on the valuation of an item, and a total of four outliers on the vividness of two items. Exclusion of these outliers did not substantially alter any results.

Data were analyzed in RStudio (version 3.3.2; R Core Team, 2016).

Results

Hypothesis 8: Effect of decision making style on valuation of purchases

We analyzed the eighth hypothesis with a linear mixed effects model⁶, using the lmer function of the lme4 package (version 1.1.15; Bates, Mächler, Bolker, & Walker, 2015). P-values were determined using the function mixed from the package afex (version 0.16.1; Singmann, Bolker, Westfall, & Aust, 2016) using type 3 tests and the LRT method. The maximal model we initially created failed to converge. Following the steps suggested by Barr et al. (2013) resulted in a final model, which included a fixed intercept for the dependent variable valuation, and the following fixed effects: condition, item category, nationality, maximum price, vividness and all their interactions. Furthermore, the model included a per-participant random intercept and adjustment to the slope of item category, as well as a per-item random intercept and adjustment to the slopes of condition and nationality. For post-hoc tests, the function emmeans of the emmeans package (version 1.2.1; Lenth et al., 2018) was used. Using pairwise comparisons (with Bonferroni adjustment of p-values for multiple comparisons), it was investigated whether decision style had an effect on the valuation of material or experiential purchases.

The analysis showed that there was no effect of decision making style on valuation (Estimate = 1.36, $se = 1.47$; $\chi^2(1,22) = 0.82$, $p = .365$; $M_{\text{intuitive}} = 42.13$, $SD_{\text{intuitive}} = 27.35$; $M_{\text{deliberate}} = 42.49$, $SD_{\text{deliberate}} = 25.12$) and no interaction between decision making style and purchase category (Estimate = -0.05, $se = 0.56$; $\chi^2(1,22) = 0.01$, $p = .928$).

The post-hoc analysis revealed that the neither the valuation of experiential purchases (Estimate = 1.02, $se = 2.35$; $t(85) = 0.44$, $p = .664$; $M_{\text{intuitive}} = 44.53$, $SD_{\text{intuitive}} = 28.06$; $M_{\text{deliberate}} = 44.88$, $SD_{\text{deliberate}} = 25.87$) nor the valuation of material purchases (Estimate = 0.82,

⁶ In the preregistration, ANCOVA was named as the analysis procedure of choice. Since this approach would not be able to account for the nested structure of the data, the mixed model approach seemed more appropriate after all. Reported results did not substantially differ from results obtained by ANCOVA, which was done in addition.

$se = 2.80$; $t(103) = 0.2$, $p = .770$; $M_{\text{intuitive}} = 39.72$, $SD_{\text{intuitive}} = 26.43$; $M_{\text{deliberate}} = 40.10$,

$SD_{\text{deliberate}} = 24.15$) did differ between deliberate and intuitive decision making (see Figure 13).

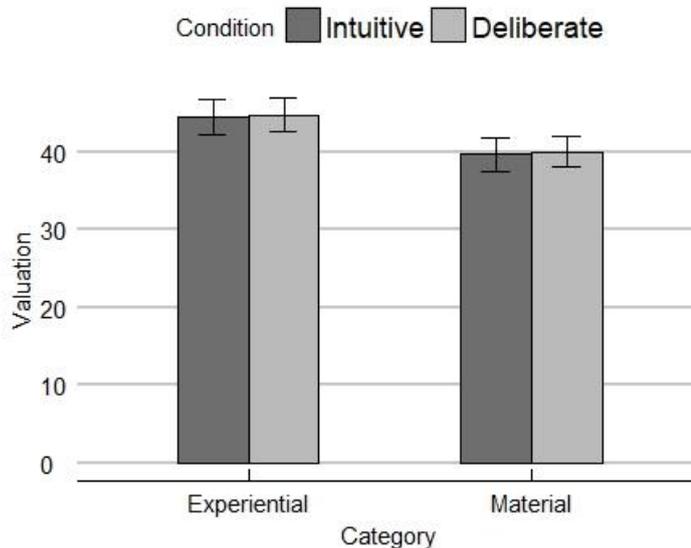


Figure 13. Valuation of hypothetical purchases with either intuitive or deliberate decision making, displayed separately for purchase categories.

In summary, decision making style had no effect on the valuation of purchases and there was no interaction effect between decision making style and purchase category.

Thus, neither H8a nor H8b nor H8c could be confirmed.

When looking at the subset of only British participants or only American participants, the results did not change. In both subsets, there was no effect of decision making style on the valuation of purchases, and no interaction between decision making style and purchase category.

Research Question 2: Effect of nationality on valuation of purchases

Using the same linear mixed effects model⁷, including the same specifications, as used

⁷ In the preregistration, ANCOVA was named as the analysis procedure of choice. Since this approach would not be able to account for the nested structure of the data, the mixed model approach seemed more appropriate after all. In case results obtained from an ANCOVA differ in any way from results obtained with mixed model, it is clearly stated in the corresponding section.

to analyze H8 (see above), we investigated whether people from different nationalities (British or American) valued purchases differently.

Analyzing the data showed that there was no effect of nationality on valuation (Estimate = 1.42, $se = 1.47$; $\chi^2(1,22) = 0.93$, $p = .335$) but a marginally significant interaction effect between nationality and item category on valuation (Estimate = 1.93, $se = 1.01$; $\chi^2(1,22) = 3.52$, $p = .061$). However, post-hoc analysis revealed that the neither the valuation of experiential purchases (Estimate = 2.75, $se = 2.32$; $t(130) = 1.19$, $p = .238$) nor the valuation of material purchases (Estimate = 2.02, $se = 2.77$; $t(129) = 0.73$, $p = .467$) did significantly differ between nationalities.

In conclusion, nationality of participants did not have any effect on the valuation of items, neither with deliberate nor with intuitive decision making, and neither on material nor on experiential purchases.

Research Question 3: Effect of vividness on valuation in general and on differences between deliberate and intuitive valuation

We analyzed the third research question as follows: First, the linear mixed effect model used to investigate H8 and RQ2 (see above) was assessed again in order to check whether vividness predicts valuation of an item.

Second, aiming to explain why some items were valued differently with intuitive and deliberate decision making style, difference scores between average deliberate and average intuitive valuation were calculated for each hypothetical purchase. Positive difference scores mean that an item was valued higher with deliberate decision making, while negative difference scores mean that an item was valued higher with intuitive decision making.

Pearson's correlation was used to analyze whether the difference score of an item was predicted by its vividness.⁸

First, we found that the vividness of an item had a significant effect on its valuation (Estimate = 0.216, $se = 0.02$; $\chi^2(1,22) = 177.27$, $p < .001$). That is, the higher the vividness of a purchase, the higher the price people are willing to pay for it (see Figure 14). This was found to be true in both conditions and for both purchase categories, without any differences of the strength of this effect.

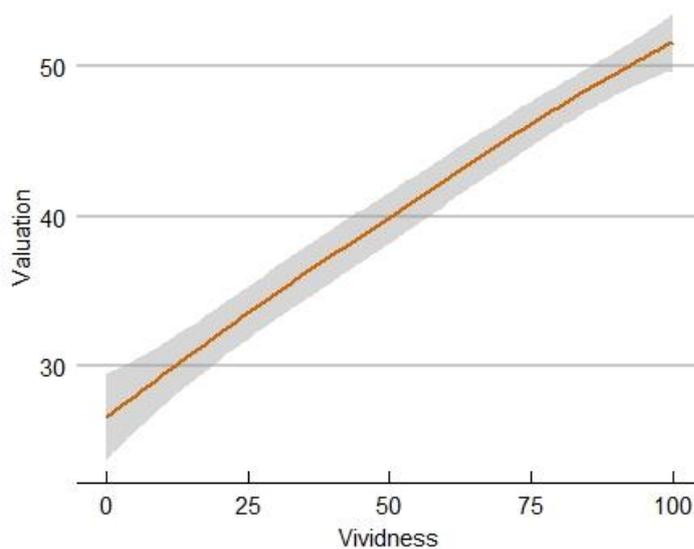


Figure 14. The effect of vividness of an item on its valuation.

Second, investigating the different scores, a significant but weak negative correlation between difference score and vividness of an item was found ($r = -.13$, $p < .001$). That is, not very vivid items tended to be valued higher with deliberate, compared to intuitive, decision making, while highly vivid items tended to not be valued higher with deliberate decision making, or even to be valued higher with intuitive decision making (see Figure 15).

⁸ Material purchases were perceived as significantly more vivid than experiential purchases ($M_{\text{experiential}} = 58.48$, $SD_{\text{experiential}} = 33.45$; $M_{\text{material}} = 63.41$, $SD_{\text{material}} = 31.88$; $t(2326) = -3.65$, $p < .001$).

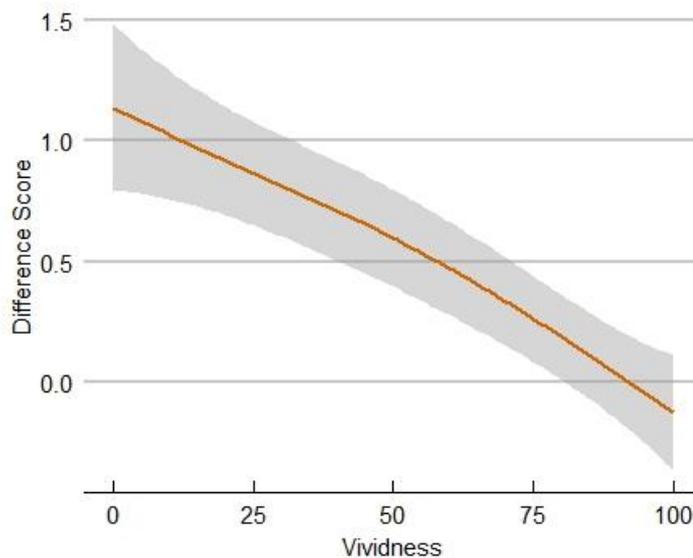


Figure 15. The effect of vividness of an item on its difference score. Positive difference scores represent a higher average valuation with deliberate decision making, while negative difference scores represent a higher average valuation with intuitive decision making.

Discussion

In this study, the manipulation of decision making style was probably not successful, as the time taken did not significantly differ between decision making styles. However, it is possible that the instructions to decide intuitively or deliberately nevertheless had an impact on participants' mindsets while valuing the purchases, since deliberate decisions do not necessarily need to be slow (Evans, Dillon, & Rand, 2015).

We did not find an effect of decision making style on the valuation of neither experiential nor material purchases. Hence, this study did neither conceptually replicate the findings of Gallo et al. (2017), nor did it directly replicate the findings of the first study of this research project. Furthermore, we did not find any effect of nationality on valuation.

Vividness of an item was found to be a significant predictor of its valuation. The strength of the prediction did not substantially differ between decision making styles or item categories. However, the per-item difference scores of valuation between decision making styles showed an interesting tendency: The valuation of highly vivid items did not seem to differ between

deliberate and intuitive decisions, while the valuation of non-vivid items seemed to be higher with deliberate than with intuitive decision making.

General Discussion

The current research, involving two studies, aimed to conceptually replicate findings of an earlier study which found that intuitive (compared to deliberate) decision making was associated with a higher valuation of experiential and a lower valuation of material purchases (Gallo et al., 2017). Furthermore, we examined which factors predicted the valuation of experiential and material purchases and whether these factors differed with regard to their effect on valuation between intuitive and deliberate decision making.

Results of both studies indicated that there was no significant effect of decision making style on the valuation of items. When looking at the direction of the (non-significant) effect, the first study demonstrated that, against what was found in past research (Gallo et al., 2017), both experiential and material purchases were valued higher by participants who were instructed to make deliberate decisions. Besides, findings showed that participants who were instructed to decide intuitively took uncertainty more and happiness less into account when making valuation decisions than participants who were instructed to decide deliberately. The degree to which uncertainty, happiness and economic value were taken into account did not predict the valuation of any purchases. The valuation of each item separately was positively predicted by its perceived certainty, expected happiness, perceived economic value, and vividness. Participants who were instructed to use deliberation perceived material items, but not experiential items, as more certain and expected more happiness coming with them, than participants who were instructed to rely on intuition. While participants expected experiential items to add more to their happiness than material items, experiential and material items did not differ with regard to their perceived certainty and economic value. What is more, it was

demonstrated that the valuation of material, but not experiential items, was positively predicted by a person's materialistic values and ambiguity aversion.

The original study we aimed to replicate in the current study (Gallo et al., 2017; study 5) found that experiential purchases were valued significantly higher by participants deciding intuitively, compared to those who decided deliberately. In addition, Gallo et al. (2017; study 5) found that material purchases were valued higher by participants using deliberation than by those using intuition. Although this effect did not reach significance, it was supported by the other studies presented in the paper. In two studies, we did not find a significant effect of decision making style on the valuation of experiential or material purchases. Whereas we found a marginally significant overall effect of decision making style on valuation in the first study, with deliberate decisions leading to higher valuations of both experiential and material purchases, there was no effect in the second study.

Effectiveness of the decision making style manipulation

The first possible reason for not finding a significant difference in valuation between decision making styles or a significant interaction effect between decision making style and purchase category is that the manipulation of decision making style was not successful. In the first study, participants in the deliberation condition took significantly longer for each valuation decision than those in the intuition condition. Despite the statistical significance, people in the deliberation decision were a lot faster than we expected them to be ($M = 15.88$ seconds). These expectations were based on a testing phase that was done before the actual study was conducted. In these test trials, participants in the deliberate condition took around 30 seconds per item. In the second study, participants in the deliberation condition were even faster and their decision time did not differ from the time participants in the intuition condition took. While it is possible that, regardless of the time taken, the given instructions made participants decide more deliberately (Evans et al., 2015), the decision times suggest that the manipulation did not work ideally, to say the least. Gallo et al. (2017; study 5) found a

significant difference between conditions in time taken to fill the whole survey. However, they did not report how long participants took to make a decision for a single item. Therefore, it is not possible to directly compare response times across the studies.

Support for the assumption that an unsuccessful manipulation prevented a significant difference in valuation between decision making styles was provided by an exploratory analysis of study 1. When we included only participants who took at least 20 seconds to value an item in the deliberation condition, the effect of decision making style on valuation was still not significant, but the p-value was smaller than when all participants initially assigned to the deliberation condition were included. However, this hint should be taken with a grain of salt since the exploratory deliberation condition only included very few participants ($n = 21$). To get further insights into this issue, we also examined whether time taken to value an item affected its valuation whereby we did not find an effect.

A possible reason for the fast response times might be the online setting in which the studies were conducted. Due to a lack of interaction with a researcher, participants were anonymous and could not be negatively evaluated by another person for not doing the study properly. As a consequence, since the payment for completing the study was fixed regardless of how long it took someone to complete it, the motivation to complete the study as fast as possible might have exceeded the feeling of responsibility to do the study exactly as instructed (that is, decide deliberately, in the respective condition). This behavior would be in line with studies that found people to behave more anti-social and feel less accountable for their actions in an online setting (Christopherson, 2007). While we tried to avoid this by only accepting participants with a 100% Prolific approval rate and by including attention checks (in study 2), we must conclude that it nevertheless is questionable whether the online setting is appropriate for a study that aims to assess deliberate decisions.

Effect of decision making style on valuation

If we assume that the decision making style manipulation did have the desired effect, our research suggests that there was an effect of decision making style on the valuation of purchases, with deliberate decisions being associated with a higher willingness to pay regardless of the purchase category. However, there was no interaction effect between decision making style and purchase category. Such an effect, which would oppose Gallo's et al. (2017) findings, was indicated by our first study. While it was only marginally significant, it is possible that the effect is small and we would have found a significant effect with more power. A possible explanation may be provided by the endowment effect, according to which people ascribe a lot of value to what they already own, what in this case is money (Thaler, 1980). Intuitively, people might try to avoid the loss of money (Kahnemann & Tversky, 1979). Then, the more they deliberate a possible purchase and the more (positive) associations are formed, the more they are willing to spend on it.

This explanation would be in line with our finding that very vivid purchase items did not differ with regard to their valuation between intuitive and deliberate decision making, while less vivid items were valued higher in the deliberation condition than in the intuition condition. Past research found that vividness affects availability heuristics and judgements (Shedler & Manis, 1986). As very vivid items are characterized by a high availability, their intuitive and initial image may contain enough positive associations to know immediately how much one likes that item and how much one is willing to pay for it. Not very vivid items, on the contrary, may not seem very appealing to begin with due to a lack of positive associations. More time to think about these items may increase the number of positive associations which in turn increases their valuation in the deliberation condition. It might be the case that especially new experiences, because of their novelty, are perceived as not very vivid and as a result are valued lower than they should. In such a case, people's decisions

could be improved if they knew about this bias and thus would think twice instead of relying on their initial gut feeling.

Effect of decision making style on uncertainty

The unexpected finding that participants in the intuition condition took uncertainty more into account when making valuation decisions than participants in the deliberation condition, could be explained by a gender effect: While the instructions to decide intuitively or deliberately used in our two studies were adapted from Gallo et al. (2017), we added a time limit, which was always visible for the participant as a countdown of 12 or 60 seconds in the intuition or deliberation condition, respectively. The 12 seconds countdown in the intuition condition, intended to enhance the intuitive decision style, could have caused a stress response. Studies found a gender difference for decisions made under stress: While men tend to take more risks, women tend to take fewer risks (Mather & Lighthall, 2012). When conducting the respective analysis (see hypothesis 2) separately for female and male participants, we indeed only found a significant effect with a higher consideration of uncertainty in the intuition, as compared to the deliberation condition, for females. For males, on the contrary, we found a non-significant effect ($p = .182$) in the opposite direction, that is, a higher consideration of uncertainty was displayed in the deliberation condition. This distinction is relevant, as the majority of participants was female (79% in study 1; gender was not assessed in study 2).

Effect of personality characteristics on valuation

Examining personality characteristics, we did not find that optimism positively and ambiguity aversion negatively predicted the valuation of experiences, as expected, but we found evidence that ambiguity aversion positively predicted the valuation of material things. Although not hypothesized, this supported our general idea of how these personality traits affect purchase behavior: People who are shying away from uncertainty were suspected to

spend less money on experiences, which seems natural to be accompanied by spending more on material purchases as an alternative.

Critical discussion of previous research

In the study we aimed to (conceptually) replicate (Gallo et al., 2017; study 5), participants were presented with only 4 purchases (which were framed as a material good for some participants and as an experience for others). We therefore think that it is possible that the results were substantially affected by the specific characteristics of the few particular items.

Aside from that, examining the results of Gallo's et al. (2017) study in detail, it should be noted that no p-value was significant at a level lower than .05, which suggests a low strength of evidence. Table 1 displays effects and corresponding p-values found in the study.

Table 1. *Effects and corresponding p-values as described in Gallo et al. (2017), study 5.*

Effect	p-value
Interaction between decision making style and purchase category (aggregated)	< .05
Interaction between decision making style and purchase category (item 1)	< .05
Interaction between decision making style and purchase category (item 2)	< .10
Interaction between decision making style and purchase category (item 3)	> .10
Interaction between decision making style and purchase category (item 4)	> .10
Decision making style on valuation of experiential items	< .05
Decision making style on valuation of material items	> .10

It should be noted that the effects found in other studies presented in the paper (Gallo et al., 2017) can be seen as support for the interaction between decision making style and purchase category. Nevertheless, we think it is possible that the effect found by Gallo et al. (2017) in this particular study (study 5) is neither generalizable nor very robust. Hence, we

think it is possible that the valuation of experiential and material purchases does actually not differ between decision making styles.

Strengths and limitations of the present research

The current research has multiple strengths and advantages over previous research.

We presented participants with nine experiential and nine material purchase items.

This is more than former studies that investigated similar research questions, such as Gallo et al. (2017). Therefore, we think that our range of items reflected the two purchase categories, experiential and material, more accurately and comprehensively than previous research. Our approach of matching the average (maximum) prices of experiential with the average (maximum) prices of material purchases and analyzing willingness to pay as relative values enabled us furthermore to easily compare experiential with material purchases.

Further strong points of our study included testing whether age or nationality (American or British) moderated the effects of condition and category on valuation. Moreover, we replicated our own results in a second study. Finally, we placed value on transparency and made our approaches replicable by preregistering both studies.

With that said, the current research is subject to some limitations. Based on these, we will also suggest future directions in what follows.

First of all, the manipulation of decision making style was probably not successful. While the experimental induction of deliberate decision making was maybe not effective enough in making participants decide truly deliberately, the induction of intuitive decision making was maybe accompanied by an unwanted stress induction. In future research, it is crucial to design the manipulation in such a way that participants, depending on the condition, either reliably decide deliberately (we recommend to conduct lab instead of online studies) or decide intuitively without experiencing stress (we recommend to avoid explicit time pressure in the manipulation).

Secondly, while the average (maximum) prices of experiential and material purchases were matched, the maximum prices were not distributed evenly. That is, the set of purchases contained many items with maximum prices around £200 and only three items with maximum prices over £500 (with two of these of an experiential nature). That prevented us from adequately analyzing effects of price category. Future research should try to vary price ranges more systematically and match each experiential purchase with a material purchase of the same price. While this is difficult when aiming to provide a high number of purchases, an opportunity would be to use a 2x2 factorial design (IVs: decision making style and purchase category) with four groups and provide participants with purchases that allow for a material and an experiential interpretation (e.g. music speakers). Participants in the material conditions value the same purchases as participants in the experiential conditions, but while the former ones are instructed to think of the items as something material, the latter ones are instructed to think of them in terms of experiences (Carter & Gilovich, 2010).

Thirdly, it is unclear to what extent findings are generalizable to other populations. For instance, some studies found Chinese people to be more materialistic than inhabitants of Western countries (e.g., Podoshen, Li, & Zhang, 2011). Such cultural differences likely have an impact on purchase behavior and its determinants and should be taken into account in future studies.

What is more, we think it would be interesting to design a study in a within-subject design, in which one and the same participant values purchases twice, first intuitively and then deliberately. That would allow for assessing the actual difference between intuitive and deliberate purchase behavior on a person-level. Finally, it is thinkable that hypothetical purchase behavior does not accurately resemble real purchase behavior, as the lack of consequences might alter decisions. Therefore, it would be worthwhile to base a study not on hypothetical but on actual purchases. A possibility could be to conduct a longitudinal study in which participants keep a journal of their expenses, and examine what proportion of their

income they spend on material and experiential purchases. In this case, not the momentary decision making style but the decision making or processing type (on a trait level) could be investigated as a predictor.

Conclusion

To conclude, the present research did not find an effect of decision making style on the valuation of experiential or material purchases, thereby opposing past findings. Recalling the initial aim for the current studies, namely, to determine reasons why people fail to place more value on experiences and less on material goods, we can infer that factors related to deliberation do not seem to be a reason to value experiences less than one should. While we determined a number of predictors of the valuation of purchases, their effect did not differ between purchase categories and/or decision making styles. However, as the vividness of a potential purchase affects its valuation, our research indicated that this could especially impair appropriate valuations of unfamiliar experiential purchases.

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Appendix A

Pilot

As participants in this research project were asked to make a number of hypothetical purchase decisions, we wanted to specify a price range to choose from for each purchase item.

In order to do so, first a pilot was created with Qualtrics (Qualtrics, Provo, UT) and conducted online via Prolific⁹. 30 participants (67% female; $M_{\text{age}} = 33.73$, $SD_{\text{age}} = 12.48$), at the time of the experiment living in Great Britain and being native English speakers, took part in this pilot, and were paid according to the Prolific guidelines.

After giving active consent, participants were presented with 20 hypothetical purchases, 10 of them of an experiential nature, and 10 of them of a material nature. Among these 20 items were the 18 items listed in Appendix B. Firstly, participants answered the five personalization questions, as named in Appendix B. Then, for each purchase separately, participants were asked what they think is a common price for this item.

For every item, the mean price was calculated. Outliers, based on 3SD deviance, were removed, to obtain the final mean prices for each item. In order to (as far as possible) match the average price of all material items with the average price of all experiential prices, the cheapest material item and the most expensive experiential item were removed. Consequently, a total of 18 items, among them nine material items ($M_{\text{price}} = \text{£}153$, $Mdn_{\text{price}} = \text{£}100$) and nine experiential items ($M_{\text{price}} = \text{£}141$, $Mdn_{\text{price}} = \text{£}110$) was determined to be used in the following studies. In these studies, participants were presented with a different price range for each hypothetical purchase. A price range for an item always reached from £0 to a maximum price which was two times the final mean price, obtained as described above. Hence, when the pilot yielded a final mean price of £130 for item x, the maximum price for item x was £260, and thus the price range for item x was £0-£260. For the full list of purchase items including their maximum prices, see Appendix B.

⁹<https://prolific.ac/>

Appendix B

Table 2. *Hypothetical purchases including purchase category and their maximum price in GBP and USD.*

Item No.	Category	Hypothetical Purchase	Maximum Price (GBP; USD)
1	Material	High quality Tablet computer of a brand of choice	(770; 1080)
2	Material	Pair of sneakers of a lifestyle brand of choice	(160; 220)
3	Material	Headphones of a lifestyle brand of choice	(170; 240)
4	Material	Perfume of choice	(90; 130)
5	Material	Backpack or purse of a lifestyle brand of choice	(120; 170)
6	Material	High quality three-person pop-up tent	(260; 360)
7	Material	Special Edition Blue-Ray collection of all movies of []*(³) including a limited movie poster	(200; 280)
8	Material	High quality jacket or coat of a lifestyle brand of choice	(270; 380)
9	Material	Dolby-Surround speaker system of a high quality brand of choice	(680; 950)
10	Experiential	Dinner at a good []*(⁵) restaurant	(60; 80)
11	Experiential	A ticket for a []*(⁴) concert at a special, intimate venue	(190; 270)
12	Experiential	Private []*(⁵) cooking lesson, taught by a Michelin star chef	(340; 480)
13	Experiential	Day at a spa including an extensive full-body massage	(220; 310)
14	Experiential	A ticket for the world premiere of the new []*(³) movie	(230; 320)
15	Experiential	Meet and Greet with []*(⁴)	(750; 1050)
16	Experiential	An extensive []*(¹) tasting	(60; 80)
17	Experiential	Weekend trip to []*(²) including flights and two nights at a good hotel	(590; 830)
18	Experiential	Outdoor day trip including guided hiking and rafting	(130; 180)

*These items were personalized. At the very beginning of the study, each participant answered the questions named below. Personal answers were then plugged in into the corresponding items. For example, when question 1 was answered with “Gin Tonic”, purchase item 16 read “An extensive Gin Tonic tasting”.

*⁽¹⁾ Please name a drink you would like to try in special variants (for example beer, wine, or whiskey).

*^(2; GB-version) Please name a European city you've never been to which you would like to visit.

*^(2; US-version) Please name an American city you've never been to which you would like to visit.

*⁽³⁾ Please name your favorite actor or movie director. If you don't have a single favorite, please simply name one you like a lot.

*⁽⁴⁾ Please name your favorite still existing artist or band. If you don't have a single favorite, please simply name one you like a lot.

*⁽⁵⁾ Please name your favorite cuisine. If you don't have a single favorite, please simply name one you like a lot.

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Conflict of Interests

All authors involved in this study declare that they have no conflict of interest.