

THE TRADE-UPGRADE FRAMING EFFECT ON PURCHASE DECISION MAKINGS

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ABSTRACT

When making decisions, consumers often do not follow principles of normative economic theories but those of behavioral ones. Framing effect – one of the most robust phenomena in behavioral research – has been found to influence consumers’ choices and judgment in purchase decisions. In price promotion practices, however, it is not well understood whether framing a product replacement purchase as a trade-in or an upgrade affects consumers’ purchase decision making process. This dissertation research aims to explore the trade-upgrade framing effect on product replacement purchase decisions and to examine the mechanisms through which such effect manifests itself. The results have demonstrated that consumers prefer a price promotion framed as upgrade to a financially equivalent one framed as trade-in, especially when the upgrade promotion is presented after the trade-in one. Furthermore, the framing effect and order effect are mediated by affect and influenced by cognitive focus, semantic cues, and systematic processing. The theoretical and practical implications are discussed at the end.

I would love to dedicate my work to my parents –
Mr. Duanming Wu and Ms. Songguo Zhang –
and my grandparents – Mr. Yage Wu, Ms. Rengai Wang,
Mr. Zhixing Zhang, and Ms. Guifang Huang –
for their unconditional love and unequivocal support.

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CHAPTER 1

INTRODUCTION

Consumers nowadays encounter increasingly complicated purchase decisions because stores are offering various seemingly attractive price promotions, usually temporary price reductions, to lure more customers. These price promotions can be found in a myriad of consumer goods categories, including personal electronic devices (e.g., cell phones, tablets, and digital cameras), automobiles, home appliances, music instruments, apparel, and books, hence it is fair to assume that all consumers, at some point in their lives, must have made a purchase decision involving some form of price promotion. However, are all price promotions created equal? Do some of them save consumers more money than others? Do consumers prefer one form to another even though they are financially equivalent? This dissertation research aims to answer the questions above, with a special focus on two forms of commonly seen price promotions, “*trade-in*” and “*upgrade*”, both of which involve giving up one’s used product in order to obtain a newer and better version for a lower net payment. Although they are considered financially equivalent (i.e., both promotions could produce an identical net payment), these two promotions are framed differently. Imagine that you are considering replacing your used cell phone with the latest model (priced at \$899) and two equally reputable retailers are offering you different promotions. Store A offers you a trade-in promotion – we will pay \$245 for your used phone, if you purchase the latest model at \$899. Store B, in comparison, offers you an upgrade promotion – if you give in your used phone, we will give you a discount, so you can purchase the latest model at \$654. Assuming

everything else being identical, which promotion would you prefer? Is your preference affected by how the promotions are framed?

When trade-in and upgrade price promotions are financially equivalent (e.g., a net payment of \$654 resulted in both deals in the example above), the standard theory of choice predicts that you, as a rational value maximizer, should be indifferent between the two promotions. This is dictated by the descriptive invariance principle – a choice should remain the same regardless of changes in a problem’s surface descriptions (Tversky and Kahneman 1981). Abundant evidence, however, suggests that consumers often violate normative principles when they make decisions. One of the most common deviations from the descriptive invariance principle is the framing effect – preferences are often changed depending on how a problem is framed – and this phenomenon is robust in many domains, including gambling, purchase decisions, and public policy (e.g., Tversky and Kahneman 1981, Tversky, Sattath, and Slovic 1988). In the context of pricing, studies have shown that consumers’ preferences are affected by different price presentations. For example, preferences are affected by whether a final price is shown as partitioned or consolidated (e.g., Chakravarti et al. 2002, Morwitz, Greenleaf, and Johnson 1998, Xia and Monroe 2004, Yadav 1994) and by how the total price is partitioned (e.g., Hamilton and Srivastava 2008). As a result, it is reasonable to deduce that you are probably *not* indifferent between the trade-in and the upgrade promotions, but the question remains – which one do you prefer?

Some theories, such as the endowment effect, suggest that you may prefer the *trade-in* promotion. Endowment effect is a phenomenon where consumers overvalue their endowments in order to compensate the pain of giving up their possessions (Purohit

1995, Kim et al. 2011, Zhu, Chen, and Dasgupta 2008). Since payments received in trade-in transactions make the compensation salient, consumers should prefer a trade-in to an upgrade promotion. This prediction is consistent with the findings regarding mental accounts. Okada (2001) pointed out that, when giving up one's possessions during a product replacement decision, a consumer needs to close the associated mental account and to forsake the remaining mental book value. This painful process can be alleviated by a trade-in compensation, particularly because the consumer becomes an active seller during a buying process.

Other evidence suggests, however, that you may prefer the *upgrade* promotion. Although giving up an endowment is painful, paying a large amount of money for a new product is also agonizing. By presenting one discounted final price, an upgrade deal effectively eases that agony, leading to a more favorable attitude (e.g., Kim et al. 2011). Furthermore, upgrade promotions do not, as much as trade-in ones, invoke the seller mindset in consumers, helping mask the unpleasant relinquishment of their possessions (Srivastava and Chakravarti 2011).

While the extant research suggests that price promotions in either frame could be preferred, there is no empirical examination of a direct comparison of consumers' preferences between trade-in and upgrade promotions. Even though, in the domain of pricing research, a considerable amount of work has been done on topics such as partitioned-consolidated prices and trade-in transactions, it remains unclear whether or how consumers' preferences can be influenced by trade-upgrade framing effect. This is because research in partitioned-consolidated price presentation typically focuses on the price of a bundle with multiple components, and the decision makers are usually not

concerned with giving up their current possessions to obtain better ones. Furthermore, although research involving trade-in transactions requires decision makers to give up their current possessions, it often treats trade-in and upgrade promotions as identical and uses these two terms interchangeably. To delineate the trade-upgrade framing effect, this research sets out to investigate: 1) whether price promotions framed as trade-in or upgrade is preferred over the other by consumers, 2) whether such a preference is robust, and 3) what boundary conditions influence such a preference.

The remainder of the dissertation is organized as follows. First, in the conceptual background section, prospect theory and the related mental accounting principles will be presented first. Then, the price presentation literature, including research on partitioned-consolidated prices and trade-in transactions, will be discussed in detail. In addition, a theoretical framework is proposed to explain the framing effect and order effect. Second, consumers' preferences for price promotions framed as upgrade (vs. trade-in) are supported by five studies. Furthermore, underlying mechanisms – anchoring and affect heuristics – are tested. In the end, theoretical and practical implications will be discussed.

CHAPTER 2

CONCEPTUAL BACKGROUND

Expected utility theory, one of the most accepted normative theories, has been used to describe the behavior of economic agents (Neumann and Morgenstern 1944). According to the expected utility theory, normative behaviors should follow four fundamental principles – *cancellation*, *transitivity*, *dominance*, and *invariance*. The invariance principle, in particular, posits that the preference should remain the same regardless of the presentations of the same decision problem (e.g., Tversky and Kahneman 1986). This rule, however, is commonly violated in real life, resulting in phenomena such as framing effect. Take partitioned-consolidated pricing for example. The invariance principle predicts that, as long as the net payment is constant, whether the price of a multi-component bundle is presented with separate prices (partitioned) or a single net price (consolidated) should not affect a consumer's preference. However, a meta-analysis of the extant partitioned-consolidated pricing literature shows that consumers' attitudes toward these two forms of price presentation may vary, depending on factors such as presentation mode, price magnitude, and product category (Abraham and Hamilton 2018).

The conceptual background section is organized as follows. First, evidence to support predictions of preference for a price promotion framed as trade-in or upgrade is presented, and a pilot study shows that an upgrade (vs. trade-in) frame is preferred. Second, heuristic processing is proposed as the underlying mechanism. Specifically, anchoring and affect heuristics are proposed as explanatory factors for the framing and

order effects. Last, three manipulations are proposed to moderate the framing and order effects by altering affective states.

For simplicity of illustration, the previous cell phone replacement example will be used. Recall that you are contemplating replacing your current cell phone with the latest model that costs \$899, and Stores A and B are offering you different promotions, both of which require you give up your current cell phone. The difference is that Store A offers you a trade-in deal (an instant cash back of \$245 for your current phone when you pay \$899 for the new phone), while Store B offers you an upgrade deal (an instant \$245 discount so that you will pay \$654 for the new phone).

Prospect Theory and Mental Accounting

To reconcile deviations from normative behaviors, Kahneman and Tversky (1979) proposed a descriptive model – prospect theory. The value function characterized by prospect theory departs from the utility function in three aspects (Kahneman and Tversky 1984, Thaler 1985, Kahneman and Tversky 1979). First, gains and losses are coded separately relative to some reference point, implying that outcomes from a multi-component decision problem are initially evaluated separately (i.e., outcome separability) rather than jointly (Kim et al. 2011). Second, the value function is an S-shaped curve: concave in the domain of gains and convex in that of losses, with diminishing marginal sensitivities. Third, the value function is steeper in the domain of losses than that of gains, meaning that changes of the same magnitude would result in greater value changes in losses than in gains. This is also known as loss aversion; for instance, the value change resulting from losing \$5 is greater than that resulting from gaining \$5. These three

properties determine how framing effect manifests itself in the process of judgment and decision making – by changing the reference point, the same decision problem can be framed as a gain, a loss, or different mixes of the two, resulting in different net values.

Thaler (1985) extended the original prospect theory into the domain of consumer behavior and proposed the concept of mental accounting. Thaler argued that since gains and losses were coded separately, a compound outcome with multiple transactions could potentially be evaluated separately (segregated) or jointly (integrated) with the corresponding mental accounts. According to his analysis, he proposed a general rule that gains should be segregated and losses should be integrated.

As preferences are reference contingent, either a trade-in or an upgrade frame can be preferred depending on decision makers' reference points. On the one hand, a trade-in frame is preferred if consumers use their current monetary state as a natural reference point (usually \$0; Kim et al. 2011, Srivastava and Chakravarti 2011). In other words, a payment for the new phone (\$899) is coded as a *loss* and the cash back received for your current phone (\$245) is coded as a *gain*. A loss of \$899 is far from the reference point, hence a reduction of \$245 from \$899 in loss (due to diminishing marginal sensitivity) does not increase the value as much as a gain of \$245. This silver lining effect – segregation of a large loss and a small gain – predicts that the trade-in promotion is preferred to an upgrade one. On the other hand, the prediction reverses when consumers use the new cell phone price as a reference point (Srivastava and Chakravarti 2011), changing the goal to loss reduction. Because consumers are aversive to losses, not losing \$245 (in upgrade) is more valuable than gaining \$245 (in trade-in).

Price Presentation

Prospect theory and mental accounting are the foundation of pricing research, and price presentation, such as partitioned-consolidated prices and trade-in transactions, is essentially a manifestation of framing. Due to the complexity of price presentation, however, the effects observed and the mechanisms discovered have not been consistent.

Research has shown that partitioned-consolidated prices of a multi-component bundle can influence consumer preferences (e.g., Morwitz, Greenleaf, and Johnson 1998, Yadav 1994), however, empirical evidence is conflicting (e.g., Heath, Chatterjee, and France 1995, Wang 1996, Zhou and Gu 2015, Drumwright 1992). On the one hand, prices paid for a multi-component bundle can be coded as losses, thus mental accounting principles predict that a consolidated price – an integration of losses – should be preferred (e.g., Drumwright 1992, Johnson, Herrmann, and Bauer 1999). On the other hand, prices paid can be viewed as costs to acquire benefits from the new products (Thaler 1999), predicting that partitioned prices – a segregation of gains – should be preferred (e.g., Chakravarti et al. 2002, Morwitz, Greenleaf, and Johnson 1998). Indeed, partitioned prices are generally deemed beneficial in marketing, for example, they increase consumers' demand by reducing the recalled total price (Morwitz, Greenleaf, and Johnson 1998), enhance consumers' satisfaction and intention to purchase (Xia and Monroe 2004), and improve product bundle evaluation (Chakravarti et al. 2002). These effects are moderated by altered attention arousal. When a price is partitioned, consumers pay more attention to a bundle's non-focal attributes or secondary benefits, which are largely masked in a consolidated price presentation. As a result, consumers become more susceptible to manipulations of these non-primary characteristics of a bundle,

consequently changing their preferences (Chakravarti et al. 2002), demands (Bertini and Wathieu 2008), or price sensitivities (Hamilton and Srivastava 2008).

Although research in trade-in transactions closely relates to that in partitioned prices, it differs from the latter in behaviors studied – trade-ins typically involve both buying a new product and selling an old one, while partitioned-consolidated prices literature reckons buying a bundle with multiple components (Kim et al. 2011).

Consumers engaging in trade-in transactions must sell or give up something they own as their endowment, thus triggering the endowment effect (Thaler 1980, 1985). Endowment effect describes a phenomenon where consumers usually overvalue their own possessions, because selling them constitutes a loss, which is weighed more heavily than a gain from the same items, according to mental accounting principles. Such overvaluation results in consumers' preference for being overpaid on the traded product (Purohit 1995), even at the expense of a higher net payment for the new one (Zhu, Chen, and Dasgupta 2008). In contrast, however, Srivastava and Chakravarti (2011) reported that consumers' preferences are primarily influenced by the new product's price (i.e., a lower new product's price with an underpayment for the traded product is preferred), but the traded product's price can carry more weight when trade-ins are perceived as more important or when the seller (vs. buyer) role is made more salient. Furthermore, Kim et al. (2011) built a more nuanced analytical model, showing that preferences for over- or underpayments depend on the ratio of the price of the traded product to that of the new one – overpayments (underpayments) are preferred when this ratio is low (high).

Given the mixed findings in the extant literature, a pair of competing hypotheses are proposed – a price promotion framed either as trade-in or as upgrade is preferred – and a pilot study was conducted to test these hypotheses.

H1a: A price promotion framed as trade-in is preferred to a financially equivalent promotion framed as upgrade.

H1b: A price promotion framed as upgrade is preferred to a financially equivalent promotion framed as trade-in.

Given the abundance of research in price presentation, it is surprising that little research has been done on framing effect of trade-in vs. upgrade, both of which are common price promotion strategies. Okada (2001) was probably the first to directly compare the framing effect of trade-in vs. upgrade and found that a trade-in promotion was preferred to a financially equivalent upgrade promotion, even when participants could keep their used product in the upgrade promotion. Okada explains this finding with mental value book, which is defined as, at any given time, “the positive difference between the initial purchase price and the cumulative enjoyment up to that point” (Okada 2001, p. 435). She argues that purchasing a new product opens a mental account with depreciating mental book value. Therefore, if a consumer does not think s/he has acquired enough enjoyment out of her/his possession, then this mental account still has residual mental book value, which must be written off when the account is closed (e.g., when a previously owned product is traded in). Such unrealized mental book value is

coded as a loss, for which consumers demand compensations – salient in a trade-in but not in an upgrade promotion. Sun and Mellers (2016) made similar arguments, but they showed that the trade-upgrade framing effect was mediated by the perceived loss from the *exchange cost*, not the traded product itself.

The current research is different from the aforementioned studies. None of the previous experiments explicitly mentioned that the used products must be given up in upgrade transactions, leading to plausible alternative explanations other than trade-upgrade framing effect. In this research, in contrast, the loss of the used product is made explicit across both trade-in and upgrade conditions.

Pilot Study

A pilot study was conducted to test H1a & b and showed that consumers preferred price promotions framed as upgrade (vs. trade-in) and such a preference was robust from both an observer's and an actor's perspectives.

Design and Procedure

Two hundred and ninety U.S. residents ($M_{\text{age}} = 35.1$, 50% male) participated in the one-level design study on Amazon Mechanical Turk (MTurk) for a nominal payment, but data from 32 participants, who failed the attention check (described below), were excluded ($M_{\text{age}} = 37.5$, 47% male). After reading the instructions, all participants read a camera purchase scenario, where both Mr. X and Mr. Y owned the same digital camera model but decided to replace it with the same newer model that better met their needs. Participants were told that the lowest price for this newer model was \$745 and Mr. X and

Mr. Y were considering deals from two retailers, respectively. One man was considering a trade-in deal from a retailer who offered \$187 for his old digital camera if he purchased the new one for \$745. Another man was considering an upgrade deal from a retailer who offered to sell the new digital camera at \$558 if he gave in his old one. The presentation order of the two deals was counterbalanced (a sample stimulus is illustrated in Appendix A). After reading the scenario, participants proceeded to indicate their choices and judgments. First, choice for others was measured by a single choice question: “In your opinion, who is likely to be happier? (Mr. X, Mr. Y, or No difference).” Second, choice for self was measured by another single choice question: “If you were considering the two deals, which would you prefer? (Mr. X/Y’s upgrade deal or Mr. Y/X’s trade-in deal).” Third, relative importance of price components was measured by the following question: “Considering the overall transaction, which is more important to Mr. X and Mr. Y? (1 = Receiving as much as possible for their current cameras; 9 = Paying as little as possible for the new camera).” Before answering the demographic questions, participants completed an attention check as such: “Modern theories of decision making recognize the fact that decisions do not take place in a vacuum. Individual preferences and knowledge, along with situational variables can greatly impact the decision process. In order to facilitate our research on decision making, we are interested in knowing certain factors about you, the decision maker. Specifically, we are interested in whether you have been able to carefully read the directions; if not, then some of our manipulations that rely on changes in the instructions will be ineffective. So, in order to demonstrate that you have read the instructions, please select the option marked ‘Other’ and write ‘consumer behavior’ in the space below. DO NOT check the camera. Thank you for participating

and taking the time to read through the questions carefully.” The same procedure was used in all the studies in this research.

Results

Choice for Others

The choice proportions are presented in Table 1. A chi-square test revealed a marginal effect of presentation order on choice for others ($\chi^2(2) = 5.67, p = .059$). When the upgrade deal was presented first, participants preferred the upgrade to the trade-in deal (38.2% vs. 18.3%; $\chi^2(1) = 8.44, p < .01$), but such a differential preference disappeared when the trade-in deal was presented first (24.4% vs. 22.0%; $\chi^2(1) = .06, p = .81$). Despite the marginal order effect, however, the overall trend was apparent when the aggregated data were analyzed. Almost half of the participants considered both deals as equal (48.4%), while 31.4% of them preferred the upgrade deal and 20.2% of them preferred the trade-in one. The overall proportional difference among the three options was significantly different from a random event ($\chi^2(2) = 31.42, p < .001$), as was the difference between the upgrade and trade-in options ($\chi^2(1) = 5.90, p < .05$).

Choice for Self

The choice proportions are presented in Table 1. A chi-square test revealed a significant effect of presentation order on choice for self ($\chi^2(1) = 7.07, p < .01$). Specifically, participants chose the upgrade over the trade-in deal significantly more when the upgrade deal was presented first (72.5% vs. 27.5%; $\chi^2(1) = 25.68, p < .001$), but not when the trade-in deal was presented first (56.7% vs. 43.3%; $\chi^2(1) = 2.02, p = .16$). In

aggregate, however, almost twice as many participants preferred the upgrade to the trade-in deal (64.7% vs. 35.5%; $\chi^2(1) = 21.8, p < .001$).

Table 1.

Choice proportions in the pilot study

Presentation Order	Choice for Others			Choice for Self	
	Upgrade	Trade-in	No Difference	Upgrade	Trade-in
Upgrade First	50 38.2%	24 18.3%	57 43.5%	95 72.5%	36 27.5%
Trade-in First	31 24.4%	28 22.0%	68 53.5%	72 56.7%	55 43.3%
Aggregated	81 31.4%	52 20.2%	125 48.4%	167 64.7%	91 35.3%

Relative Importance of Price Components

Overall, a one-sample t-test showed that participants considered the price paid for the new product to be more important than value received for the current possession ($M = 6.24, SD = 2.13; t(257) = 9.37, p < .001$). An independent-samples t-test showed that participants, who chose the upgrade over the trade-in deal for self, considered paying as little as possible for the new camera was more important, while those who preferred the trade-in deal had more balanced thoughts ($M_{\text{upgrade}} = 6.45$ vs. $M_{\text{trade-in}} = 5.86; t(256) = 2.151, p < .05$). A binary logistic regression further showed that relative importance significantly predicted choice for self – if a participant thought that paying as little as

possible for the new camera was more important, then s/he was more likely to choose the upgrade over the trade-in deal for self ($B = .13$, $SE = .06$, $Wald = 4.49$, $df = 1$, $p < .05$).

Discussion

Even though the upgrade and trade-in promotions were financially equivalent (i.e., the net payment for the new camera was \$558 in both deals), half of the participants clearly did not consider them as equal. It is evident that the upgrade promotion was the preferred choice (H1b), from both an observer's and an actor's point of view. Furthermore, participants who preferred the upgrade (vs. trade-in) promotion placed more weight on the new product's price, indicating that they may not have sufficiently incorporated the trade-in value in the net payment calculation. This could lead to a higher perceived net payment for the trade-in promotion, making it an inferior option. The following section will propose a theoretical framework to explain the trade-upgrade framing effect on preferences.

A Proposed Theoretical Framework

The pilot study demonstrated that a price promotion framed as upgrade (vs. trade-in) was preferred and more weight was placed on the new product's price during the decision making process. As discussed prior to the pilot study, this finding is consistent with the loss aversion prediction, indicating that a natural reference point (\$0) is highly unlikely to be used as an anchor during the decision making process, otherwise, the silver lining effect would predict the opposite. This suggests that heuristics play a role in the trade-upgrade framing effect, hence heuristic processing is proposed as an overarching

theme in the theoretical framework. In this research, specifically, two heuristics – anchoring and affect – are most likely to be responsible for the findings and three manipulations will be employed to investigate it.

Order Effect

The pilot study indicated that consumers were more likely to use the new product's price as a reference point. As anchoring effect (for a review, see Furnham and Boo 2011) suggests, consumers begin the decision making process with the new product's price as an anchor and adjust downwards from \$745. This strategy works well when a price promotion is presented in an upgrade frame because the new product's price is a suitable reference for upgrade. As a result, the evaluation process should be more straightforward in the upgrade than the trade-in frame, because only one combined outcome (i.e., a smaller loss) is judged in an upgrade scenario.

The evaluation process is a bit more complicated in the trade-in scenario. At first, the gains and losses in a trade-in promotion are likely to be evaluated separately because the two price components – the new product's price and the traded product's value – are separable (Kim et al. 2011). Specifically, the traded product's value would be evaluated more intently because the new product's price stays the same. Unfortunately, without any apparent anchor for the trade-in value, consumers are likely to use \$0 as a natural anchor and adjust upwards to infer a trade-in value. However, adjustments are usually insufficient, resulting in seemingly undervaluation or unfavorable attitudes towards the trade-in promotion (e.g., Rottenstreich and Tversky 1997, Simonson and Drolet 2004, Wegener et al. 2010, Jung, Perfecto, and Nelson 2016). In order to utilize the suitable

anchor, consumers need to employ an alternative strategy – combining gains and losses to infer a net payment, which can be more readily compared against the new product’s price or the upgrade promotion (when available). Yet, this effortful strategy challenges consumers’ natural tendency (effort-reducing) and may invoke two heuristics in the judgment and decision making process.

The first is anchoring heuristic, which may produce an inaccurate (usually higher) net payment estimation of the trade-in promotion, due to an inadequate incorporation of the trade-in value into the new product’s price. This could lead to a misconception that the upgrade (vs. trade-in) promotion costs less even when they are financially equivalent. Since the numerical calculations are relatively simple in the daily product replacement decisions, it is more likely that misjudgments of this kind are caused by effort-reducing heuristic processing rather than the inability to calculate (Shah and Oppenheimer 2008).

The usage of anchoring heuristic presumably manifests as the consistent preferences for upgrade over trade-in, yet surprisingly, it may have also produced an order effect – preferences for an upgrade (vs. trade-in) promotion are augmented when it is presented after a trade-in one. This order effect has been robust, as it was found in the majority of the studies conducted in this research, however, it was not observed in the pilot study or Study 2. Nonetheless, different theories would suggest different effects, hence it is worth discussing what may have caused this order effect.

When a trade-in promotion is presented first, consumers may initially be content with a seemingly reasonable trade-in value offered, due to the lack of a suitable reference point (i.e., low evaluability; Hsee et al. 2013). The effort-reduction framework of heuristics (Shah and Oppenheimer 2008) posits that consumers would stop spending

more effort on the trade-in promotion evaluation because a judgment has been made. The inadequate incorporation potentially produces a higher net payment estimation, which would subsequently be used as a reference point when the latter upgrade promotion is evaluated. As a result, the upgrade promotion offers an apparently lower net payment, hence preferences for the upgrade promotion over the trade-in one become even stronger. In contrast, when an upgrade promotion is presented first, consumers would first evaluate the discounted price for the new product, which subsequently serves as a focal reference point for the following trade-in promotion evaluation. This suitable anchor (i.e., high evaluability) may encourage and help consumers to infer a more accurate net payment of the trade-in promotion, hence the stronger preferences for upgrade (vs. trade-in) are attenuated.

Research on sequence preferences also predicts the order effect. It has been shown that consumers prefer an improving sequence to a constant or declining sequence (Loewenstein and Prelec 1993). When an upgrade promotion is presented after a trade-in one, it effectively constitutes an improving sequence because the upgrade promotion seems to cost less than the trade-in one and the positive affect induced by the upgrade promotion is much better than the mixed affect induced by the trade-in one. When the presentation order is reversed, in contrast, it constitutes a constant or declining sequence, hence the order effect is attenuated.

H2: Preferences for an upgrade (vs. a trade-in) price promotion are stronger when it is presented after a trade-in one.

Mediators and Moderators

In addition to anchoring heuristic, affect heuristic may also be invoked by the mentally taxing evaluations of price promotions. Affect, as defined by Slovic et al. (2007 p.1333), is “the specific quality of ‘goodness’ or ‘badness’ (i) experienced as a feeling state (with or without consciousness) and (ii) demarcating a positive or negative quality of a stimulus.” Affect heuristic, widely used in daily lives, refers to a mental process that uses affective responses to influence judgment and decision making (Slovic et al. 2007). Affect heuristic can be so powerful because affective responses are automatic and fast (Winkielman et al. 2007), and affect has long been shown to be a strong predictor for preferences (Zajonc and Markus 1982). In this research, specifically, affect heuristic can explain not only the affective aspects of product replacement decisions, but also the cognitive processes illustrated above (Slovic et al. 2007). The evidence suggests that affect is a potential mediator, whose effect may be moderated by cognitive focus, semantic cues, and systematic processing.

The Mediating Effect of Affect

Affect may mediate the trade-upgrade framing effect and order effect on preferences for three reasons. First, the effort-reduction framework posits that affect heuristic are likely to be used in complex cognitive processes, because affect is a cue that is relatively easy to evaluate, store, and retrieve (Shah and Oppenheimer 2008). In a product replacement decision making process, paying a large sum of money for the new product is coded as a big loss, inducing major bad feelings (i.e., negative affect). In comparison, an upgrade promotion would induce good feelings (i.e., positive affect)

because the discounted price for the new product reduces a big loss in a salient manner. A trade-in promotion, in contrast, would induce both major bad feelings and minor good feelings at the same time, possibly leading to a generally negative affective state. Second, processing fluency model posits that the ease of information processing contributes to a positive affective state (Lee and Aaker 2004), and greater processing fluency predicts more positive attitudes (Novemsky et al. 2007, Lee and Labroo 2004). As a result, an upgrade (vs. a trade-in) promotion would be preferred because it does not require as much cognitive effort, making it a more fluent process. More importantly, the different affect induced by these frames are used as anchors for evaluations, leading to the order effect. Third, research on sequence preferences suggests that the preference for improvement is due to perceived gain – an improving (declining) sequence is coded as a gain (loss) regardless of the actual experiences (Loewenstein and Prelec 1993, Read and Powell 2002). In summary, it is proposed that the order effect (i.e., stronger preferences for an upgrade promotion when it is presented after a trade-in one) is mediated by improved affect, which can be measured by Positive and Negative Affect Schedule (PANAS) and perceived gain.

H3: Improved affect mediates the stronger preferences for an upgrade (vs. a trade-in) price promotion when it is presented after a trade-in one.

If affect acts as a mediator, then altering consumers' affective states will change their preferences. The following three constructs – cognitive focus, semantic cues, and systematic processing – are proposed to moderate decision makers' affect, influencing the

order effect. The operationalization of each construct is discussed in detail in the remainder of this section.

Cognitive Focus

As a piece of information used in decision making processes, affect shares similar characteristics with other kinds of information. For example, affect may be weighed or be disregarded if deemed irrelevant or inaccurate in a judgment (Novemsky et al. 2007, Mellers, Richards, and Birnbaum 1992). These effects usually occur due to consumers' attention being directed to different information (Novemsky et al. 2007, Lee and Aaker 2004), hence the affective evaluation of price promotions may also change if consumers shift their foci.

Cognitive processing theories suggest that more attention is paid to information that is consistent with the task context, hence that information is processed faster and is perceived to be more important in a decision making process (Johnson, Häubl, and Keinan 2007, Carmon and Ariely 2000, Morewedge and Glibin 2015). Take the findings from the endowment effect research for example. When a buyer mindset is activated, consumers base their decisions more on the money they must forsake to acquire a good. When a seller mindset is activated, however, consumers make their decisions with a heavier focus on the good they must forgo in exchange for money (Johnson, Häubl, and Keinan 2007).

Similarly, research involving trade-in transactions has shown that consumers' preference for trade-in is also affected by where her/his attention is directed. Srivastava and Chakravarti (2011) reported that when trade-in was made more important or when a

seller mindset was primed, consumers paid more attention to the value received for the traded product, leading to a greater preference for the trade-in promotions. This indicates that consumers may place more weight on the positive affect induced by the trade-in value received when their focus is shifted to the context-consistent information. This may make the affective evaluation of a trade-in promotion less negative, or even positive, leading to greater preferences for trade-in promotions and the attenuation of the order effect.

H4: When focusing on the traded (vs. new) product, consumers' improved affect due to the presentation order is diminished, attenuating the stronger preferences for an upgrade price promotion when it is presented after a trade-in one.

Semantic Cues

Besides financial gains and losses, affect can be induced by many cues (Slovic et al. 2007), and one of the most powerful cues is probably semantic (e.g., words). Many words are affect-laden and they can elicit affective responses very quickly – most people probably cannot help but feel good with the word “smile”. Semantic cues are so potent that the word-association technique is widely used as an affect-inducing manipulation.

If semantic cues can induce affective responses, it is possible that the framing of “upgrade” and “trade-in” makes consumers feel differently because they have different connotations. Sun and Mellers (2016) concludes that the word “upgrade” makes people feel better because it is associated with gains and improvements while the word “trade-

in” makes people feel worse because it is associated with losses. As a result, when the affect-laden labels are available, consumers may judge the price promotions based on their affective responses and be less motivated to engage in actual calculations. In contrast, when these labels are absent, consumers must spend more effort to process the messages and prices, attenuating the framing effect and order effect.

H5: When the affect-laden promotional labels are absent (vs. present), consumers’ improved affect due to the presentation order is diminished, attenuating the stronger preferences for an upgrade price promotion when it is presented after a trade-in one.

Systematic Processing

Heuristic-systematic model contends that people have two information processing modes – heuristic and systematic (Petty, Cacioppo, and Schumann 1983). People make decisions with heuristics constantly because it is fast and requires little mental resource (Gigerenzer et al. 1999; Shah and Oppenheimer 2008). While heuristic processing is effective most of the time, it is also prone to introduce biases, resulting in suboptimal decisions. Systematic processing, on the other hand, requires more effort but usually produces more optimal decisions. These two modes are not mutually exclusive; instead, they often interact with each other during the decision making process (Bohner, Chaiken, and Hunyadi 1994). For example, Chaiken and Maheswaran (1994) showed that heuristic processing dictated participants’ attitude when a task was of low importance, but systematic processing took over when the task became important. In other words, people

process information systematically when motivated to do so, diminishing biases introduced by heuristic processing.

Presumably, consumers want to pay less in a price reduction promotion, and the upgrade promotion seems to cost less than the trade-in one, even though they are financially equivalent. In order to diminish this bias against the trade-in promotion, a net payment calculation task will be employed for two reasons: 1) net payment estimation for the trade-in promotion should become more accurate, and 2) systematic processing should reduce consumers' reliance on heuristic processing. In combination, it is expected that the differential preferences for upgrade (vs. trade-in) will be attenuated.

H6: When systematic processing is (vs. not) activated, consumers' improved affect due to the presentation order is diminished, attenuating the stronger preferences for an upgrade price promotion when it is presented after a trade-in one.

In summary, this research examines whether trade-in or upgrade price promotion is preferred in product replacement decision makings. In addition, this research demonstrates that such a preference is robust across different types of task. Furthermore, one mediator (affect) and three boundary conditions (cognitive focus, semantic cues, and systematic processing) are tested as the underlying mechanisms. The proposed theoretical model is shown in Figure 1.

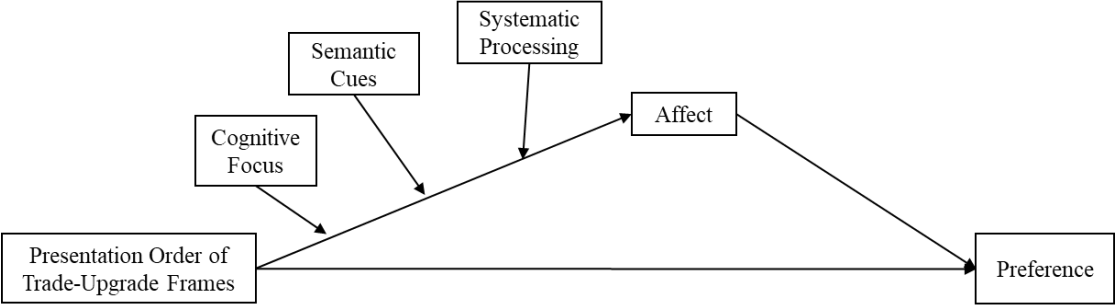


Figure 1. Theoretical model

CHAPTER 3

STUDIES

Overview

Preferences for a price promotion framed as upgrade (vs. trade-in) shown in the pilot study was unambiguous, and the following studies were conducted to test the robustness of such preferences and to investigate the underlying mechanisms.

Study 1 would show that participants, when asked to estimate their expected payments for a cell phone replacement promotion (upgrade vs. trade-in), reported lower net payments for the new cell phone in the upgrade (vs. trade-in) frame. Study 2, once again, showed that even when the two financially equivalent promotions were presented side-by-side, the upgrade deal was still preferred to the trade-in one. In addition, the preference for price promotions framed as upgrade positively correlated with the relative importance of the price paid for the new product, similar to the pilot study's finding.

The remaining studies showed a robust order effect – the preference for an upgrade (vs. trade-in) promotion was even stronger when the trade-in promotion was presented first. Furthermore, they consistently showed that the process was mediated by improved affect. Three manipulations were employed to examine how the improved affect acted as a mediator and how it could be diminished, attenuating the stronger preferences for an upgrade (vs. a trade-in) promotion. Cognitive focus was manipulated in Study 3, in an attempt to shift participants' attention to different price components. However, such a manipulation did not affect participants' preferences for the upgrade promotion or their affect. Study 4 explored whether the promotional labels – upgrade and

trade-in – could induce improved affect, leading to strong preferences for upgrade. The results indicated such a possibility but did not rule out an alternative explanation – in the absence of labels, participants were forced to process the promotional messages, rendering them less likely to engage in heuristic processing. In other words, they were more likely to calculate the net payments, leading to a more balanced appraisal of the two promotions. Study 5 tested this notion with a calculation task and found that preferences for the upgrade promotion were attenuated when participants were forced to calculate the net payments for both promotions.

Prior to executing any of the experiments in this dissertation research, *a priori* criteria for subject removal (i.e., data from participants who did not pass the attention check would be removed) were established, hence no analyses would be conducted on data collected from these subjects.

Study 1

Study 1 aims to further confirm consumers' preferences for a price promotion framed as upgrade (vs. trade-in) by asking them to estimate promotional prices (H1a & b).

Design and Procedure

The experiment consists of a two-level (frame: upgrade, trade-in) between-subjects design. Two hundred and fifty-four U.S. residents ($M_{\text{age}} = 35.7$, 46% male) participated in the study on Amazon Mechanical Turk (MTurk) for a nominal payment, but data from 32 participants, who failed the attention check, were excluded ($M_{\text{age}} = 33.1$, 50% male). After the instructions, they read a phone purchase scenario, where they currently owned a cell phone but were considering purchasing the latest model for better features. They were told that the lowest price for the latest model was \$738, and they were considering a deal offered by Store A. Then, participants were randomly presented stimulus in either the upgrade or the trade-in frame. In the upgrade frame, participants were told that Store A offered an “upgrade” program where Store A would give them a discount on the price of \$738 for the new cell phone if they gave their current cell phone to Store A at the time of purchase, and then participants indicated the dollar amount they were willing to pay for the upgrade to the new cell phone (i.e., net payment, P_{net}). In the trade-in frame, participants were told that Store A offered a “trade-in” program where Store A would pay them cash for their current cell phone if they gave it to Store A at the time of purchasing the new cell phone for \$738, and then participants indicated the dollar

amount they were willing to accept as trade-in value for their current cell phone (P_{current}). A sample stimulus is illustrated in Appendix B.

Results

Data were analyzed in terms of estimations of both net payment and current phone value, and P_{current} was converted to P_{net} , and vice versa ($P_{\text{net}} + P_{\text{current}} = 738$). An independent-samples t-test revealed a significant effect of framing on participants' estimations ($t(220) = -5.07, p < .001$). Specifically, participants in the upgrade frame reported lower net payment for the new phone than their counterparts in the trade-in frame ($M_{\text{upgrade}} = \$343.7$ vs. $M_{\text{trade-in}} = \$460.2$; Fig. 2). Conversely, participants in the trade-in frame estimated a lower current phone value than their counterparts in the upgrade frame ($M_{\text{trade-in}} = \$277.8$ vs. $M_{\text{upgrade}} = \$394.4$; Fig. 2).

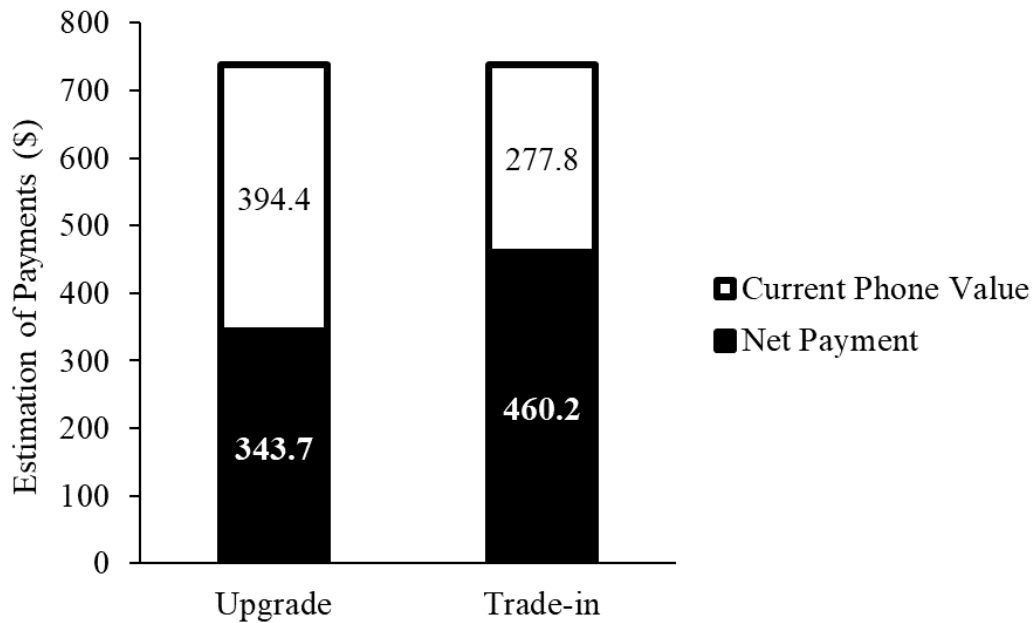


Figure 2. Estimation of net payments in Study 1

Discussion

Study 1 ostensibly showed that participants in the trade-in frame did not value their current phone as much as their counterparts in the upgrade frame. This contradicted the endowment effect, which would predict higher estimations for the current phone value, leading to lower net payment for the new phone. One possible explanation is that, in the upgrade frame, participants were adjusting the new phone price from \$738 (a provided anchor) and they wanted to lower that price as much as they could but did not consider whether the resulting difference (i.e., the current phone value) was reasonable or not. Participants in the trade-in frame, by contrast, were adjusting the current phone value from \$0 (a natural anchor) and they wanted to increase the value as much as they could but still tried to keep the numbers within a reasonable range, effectively leading to higher net payment for the new phone. As the result is inconclusive, Study 2 would use a joint evaluation task to further test the robustness of preferences for an upgrade (vs. a trade-in) promotion.

Study 2

The purpose of Study 2 is to further dissect consumers' preferences for upgrade over trade-in promotions (H1a & b), using a more straightforward task – joint evaluation. Study 2 would show, that even when facing two financially equivalent options, consumers were not as rational as what classic economic theory would predict. Instead of being indifferent between the two options, consumers preferred the upgrade promotion to the trade-in one, and such a differential preference correlated with relative importance of price components.

Design and Procedure

Two hundred and thirty-five U.S. residents ($M_{\text{age}} = 34.6$, 49% male) participated in the one-level design study on Amazon Mechanical Turk (MTurk) for a nominal payment, but data from 26 participants, who failed the attention check, were excluded ($M_{\text{age}} = 34.7$, 42% male). After reading the instructions, all participants read a scenario where they currently owned a cell phone but were considering purchasing the latest model for better features. They were told that the lowest price for the latest model was \$745, and they were considering between two deals offered by Stores A and B, respectively. One store offered a trade-in deal to give you \$187 for your old phone if you purchased the new one for \$745. Another store offered an upgrade deal to sell you the new cell phone at \$558 if you gave in your old one at the time of purchase. The presentation order of the two deals was counterbalanced (a sample stimulus is illustrated in Appendix C). After reading the scenario, participants were asked to evaluate their preferences between the two deals: “In considering the two offers, which store’s offer

would you prefer? (-4 = Definitely Store A/B's Trade-in Offer; +4 = Definitely Store B/A's Upgrade Offer).” The presentation order of these two options was counterbalanced accordingly. Second, relative importance of price components was measured by the following question: “Considering the overall transaction, which is more important to you? (1 = Receiving as much as possible for your current phone; 9 = Paying as little as possible for the new phone)”.

Results

Since the presentation order of the two deals did not have any effect on either measure (p 's > .1), the data were analyzed across the two conditions.

Joint Evaluation

A one-sample t-test revealed a significant preference for the upgrade over the trade-in deal ($M = 1.30$, $SD = 2.03$; $t(208) = 9.26$, 95% CI [1.02, 1.58], $p < .001$). The histogram below (Fig. 3) showed that more than half of the participants (55%) preferred the upgrade deal, while only 36% of them were indifferent between the upgrade and trade-in deals. A one-sample Kolmogorov-Smirnov test confirmed that participants' preference was not normally distributed ($p < .001$).

Relative Importance of Price Components

Overall speaking, participants considered “paying as little as possible for the new product” is more important than “receiving as much as possible for the current product” ($M = 6.97$, $SD = 2.15$). A Pearson correlation test showed that the more someone thought

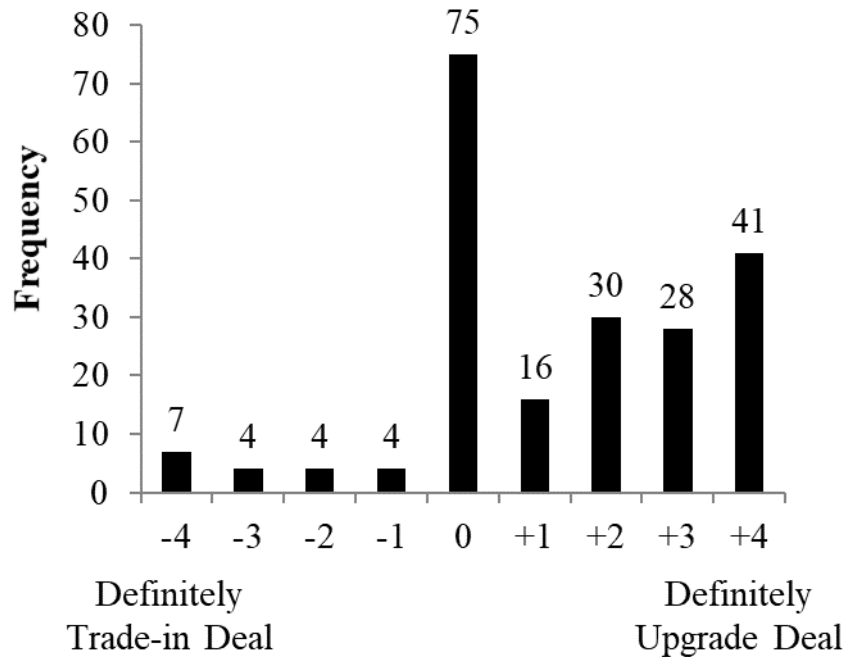


Figure 3. Histogram of joint evaluations in Study 2

that paying as little as possible for the new phone was more important, the more s/he preferred the upgrade deal ($r = .21, p < .01, N = 209$).

Discussion

Study 2 demonstrated that preferences for the upgrade promotion over the trade-in one was robust in a joint evaluation task (H1b). Study 2 also provided more insights into participants' judgment and decision making processes. Preferences for upgrade significantly correlated with the higher relative importance of the new product's price, indicating that participants had different cognitive foci. The next study will manipulate participants' cognitive focus and explore the mediating effect of affect.

Study 3

Study 3 aims to explore the underlying mechanisms. First, it would test whether preferences for an upgrade (vs. a trade-in) price promotion are stronger when it is presented after a trade-in one (H2). Second, it would test whether such an order effect is mediated by improved affect (H3). Last, it would test whether shifting decision makers' focus on the traded product can diminish the improved affect, attenuating the order effect (H4).

Design and Stimuli

This study consists of a 2 (presentation order: upgrade-trade, trade-upgrade) \times 2 (cognitive focus: new product, current possession) between-subjects design. In the current possession focus condition, participants wrote down three brief reasons why they might want to keep their current camera and elaborated on one; while in the new product focus condition, participants wrote down three brief reasons why they might want to get the new camera and elaborated on one. The trade-in offer was phrased as “Store T’s TRADE-IN OFFER! We will give you an instant cash back of \$239 for your old camera, if you give it to us at the time of purchasing the new camera for \$749.”; while the upgrade offer was phrase as “Store U’s UPGRADE OFFER! We will give you an instant cash discount and sell you the new camera for \$510, if you give your old camera to us at the time of the purchase.” A sample stimulus is illustrated in Appendix D.

Procedure

Three hundred and thirty-two U.S. residents ($M_{\text{age}} = 35.6$, 50% male) participated in the study on Amazon Mechanical Turk (MTurk) for a nominal payment, but data from 33 participants, who failed the attention check, were excluded ($M_{\text{age}} = 33.2$, 42% male). After reading the instructions, all participants read a scenario where they currently owned a digital camera but were considering purchasing a new digital single-lens reflex (DSLR) camera for better features, and they were also presented a table of comparison between their current camera and the new DSLR camera. Then participants were randomly assigned to either cognitive focus condition (current possession vs. new product) and would complete the writing task accordingly. In the following webpage, participants were told that the lowest price for the new DSLR camera was \$749 and were presented two price promotions side by side. Then participants were asked to indicate their preferences followed by a few measures. First, they were asked to evaluate their preference between the two deals: “In considering the two offers, which store’s offer would you prefer? (-4 = Definitely Store T’s Trade-in Offer; +4 = Definitely Store U’s Upgrade Offer; midpoint unavailable).” Second, positive affect was measured by an adapted PANAS scale: “To what extent did the offers make you feel: Active, Determined, Attentive, Inspired, Alert? (1 = Only Store T’s Offer; 9 = Only Store U’s Offer).” Third, perceived gain was measured by one question: “Which offer made you feel that the overall transaction was more like a gain? (1 = Only Store T’s offer; 9 = Only Store U’s offer).” Both positive affect and perceived gain were measures for affective state. At last, manipulation checks were administered by the following questions: “Please tell us how you feel at this point: 1. I am happy with my current camera; 2. I want to keep my current camera; 3. I need to

purchase a new camera; 4. I want to give up my current camera (1 = Strongly disagree; 9 = Strongly agree)”. The presentation order of all anchors in the bipolar questions were counterbalanced accordingly.

Results

Manipulation Check

The scores of the first two manipulation check questions were averaged ($r = .89$) to measure the current possession focus manipulation and the last two manipulation check questions were averaged ($r = .77$) to measure the new product focus manipulation. Two independent-samples t-tests confirmed that the manipulations were successful. Specifically, participants in the current possession focus condition wanted to keep the current camera more ($M_{\text{current}} = 6.87$ vs. $M_{\text{new}} = 4.53$; $t(297) = 9.44$, $p < .001$), in contrast, participants in the new product focus condition wanted to get the new camera more ($M_{\text{new}} = 6.64$ vs. $M_{\text{current}} = 4.69$; $t(297) = 7.56$, $p < .001$).

Joint Evaluation

A one-sample t-test revealed a significant preference for the upgrade promotion over the trade-in one ($M = 1.01$, $SD = 2.55$; $t(298) = 6.83$, 95% CI [.72, 1.30], $p < .001$). The histogram below (Fig. 4) showed that about two-thirds of the participants preferred the upgrade deal, while only one-third of them preferred the trade-in deal. A one-sample Kolmogorov-Smirnov test confirmed that participants’ preference was not normally distributed ($p < .001$).

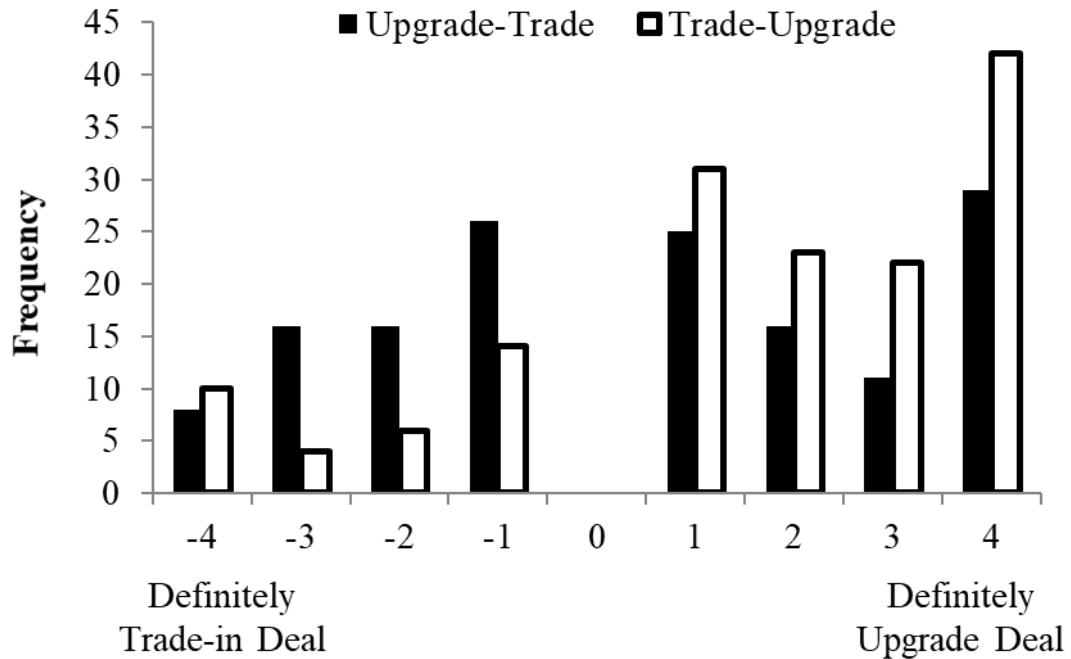


Figure 4. Histogram of joint evaluations in Study 3

A two-way Analysis of Variance (ANOVA) was performed to examine whether preference for upgrade was affected by cognitive focus and presentation order. While cognitive focus did not have a main effect ($M_{\text{current}} = .94$ vs. $M_{\text{new}} = 1.05$; $F < 1$), nor did it interact with the presentation order ($F < 1$), presentation order had a main effect on preferences for upgrade ($M_{\text{up-trade}} = .46$ vs. $M_{\text{trade-up}} = 1.53$; $F(1, 295) = 13.49$, $p < .001$). Specifically, while upgrade was preferred overall, participants' preference for upgrade was even greater when the upgrade deal was presented after the trade-in one, and this stayed true regardless of the cognitive focus manipulations they received ($M_{\text{current/up-trade}} = .42$ vs. $M_{\text{current/trade-up}} = 1.46$; $F(1, 295) = 5.95$, $p < .05$; $M_{\text{new/up-trade}} = .50$ vs. $M_{\text{new/trade-up}} = 1.60$; $F(1, 295) = 7.67$, $p < .01$; Fig. 5).

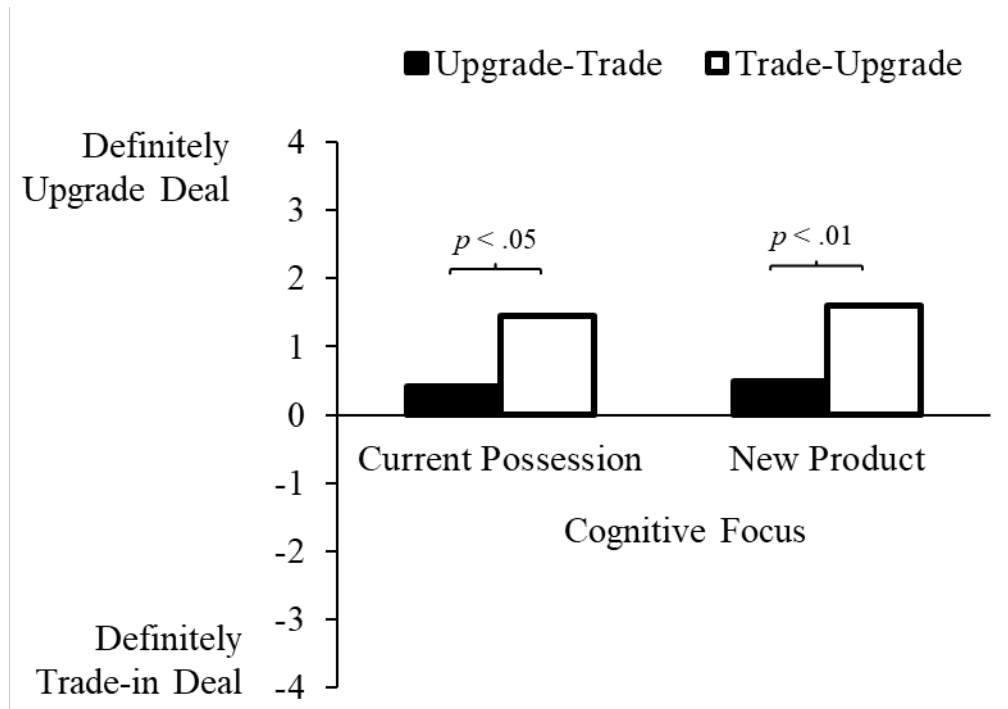


Figure 5. Joint evaluation in Study 3

Positive Affect

The scores of five items from the PANAS scale were averaged to measure positive affect ($\alpha = .95$). A two-way ANOVA was performed to examine whether positive affect was affected by cognitive focus and presentation order. Once again, cognitive focus did not have a main effect ($M_{\text{current}} = 5.57$ vs. $M_{\text{new}} = 5.43$; $F < 1$), and it did not interact with presentation order ($F < 1$), but presentation order had a main effect ($M_{\text{up-trade}} = 4.92$ vs. $M_{\text{trade-up}} = 6.08$; $F(1, 295) = 30.48$, $p < .001$). Specifically, when the upgrade promotion was presented before the trade-in one, both deals induced positive affect equally; however, when the presentation order was reversed, the upgrade (vs. trade-in) deal made participants feel more positive. This trend was also observed in both cognitive focus conditions ($M_{\text{current/up-trade}} = 4.97$ vs. $M_{\text{current/trade-up}} = 6.17$; $F(1, 295) =$

15.61, $p < .001$; $M_{\text{new/up-trade}} = 4.88$ vs. $M_{\text{new/trade-up}} = 5.98$; $F(1, 295) = 14.89$, $p < .001$;
 Fig. 6).

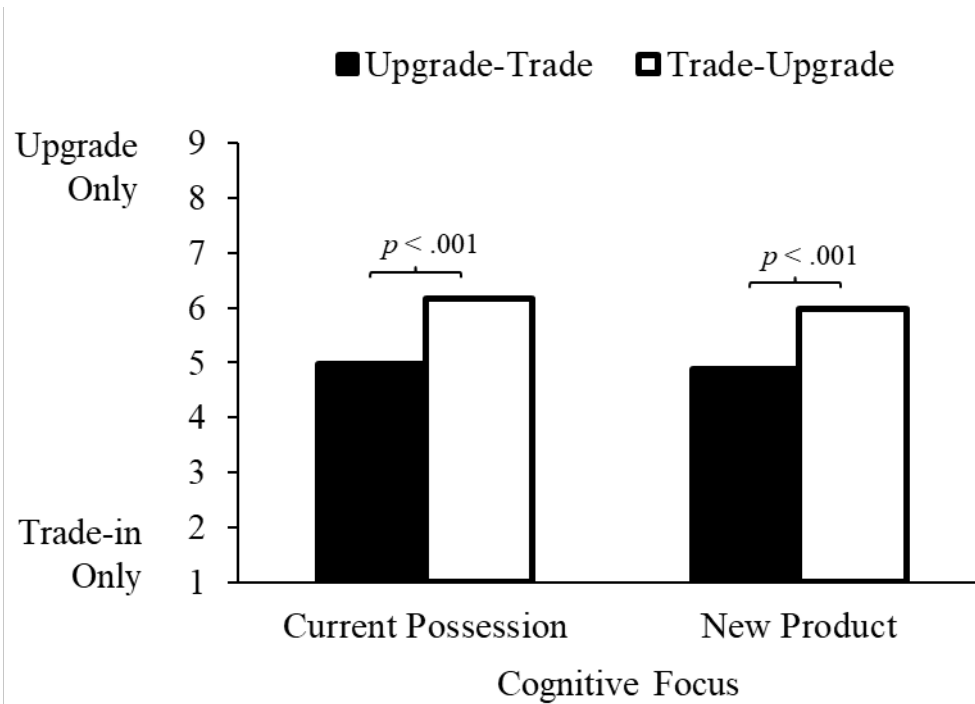


Figure 6. Positive affect in Study 3

A mediation analysis with SPSS PROCESS model 4 (Hayes 2013) showed that the effect of presentation order on stronger preferences for upgrade was mediated by positive affect. When the upgrade promotion was presented after (vs. before) the trade-in one, positive affect was improved ($b = 1.15$, 95% CI [.74, 1.56], $p < .001$). The improved positive affect led to stronger preferences for the upgrade promotion ($b = .90$, 95% CI [.78, 1.02], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant anymore ($c' = .03$, 95% CI [-.42, .49], $p = .88$).

A moderated mediation analysis with SPSS PROCESS model 7 (Hayes 2013) failed to show an interactive effect between the presentation order and cognitive focus on positive affect ($b = .11$, 95% CI [-.72, .93], $p = .80$), although positive affect still led to stronger preferences for upgrade ($b = .90$, 95% CI [.78, 1.02], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant ($c' = .03$, 95% CI [-.42, .49], $p = .88$).

Perceived Gain

A two-way ANOVA was performed to examine whether perceived gain was affected by cognitive focus and presentation order. Similar to the result of positive affect, cognitive focus did not have a main effect ($M_{\text{current}} = 5.65$ vs. $M_{\text{new}} = 5.58$; $F < 1$), and it did not interact with the presentation order ($F < 1$), but presentation order had a main effect ($M_{\text{up-trade}} = 5.15$ vs. $M_{\text{trade-up}} = 6.08$; $F(1, 295) = 11.82$, $p = .001$). Specifically, when the upgrade promotion was presented before the trade-in one, the upgrade (vs. trade-in) deal was perceived slightly more like a gain; however, when the presentation order was reversed, the upgrade (vs. trade-in) deal was perceived much more like a gain. This trend was still statistically significant among participants who focused on the current possession, yet, it became marginal among those who focused on the new product ($M_{\text{current/up-trade}} = 5.07$ vs. $M_{\text{current/trade-up}} = 6.23$; $F(1, 295) = 8.38$, $p < .01$; $M_{\text{new/up-trade}} = 5.22$ vs. $M_{\text{new/trade-up}} = 5.94$; $F(1, 295) = 3.75$, $p = .054$; Fig. 7).

A mediation analysis with SPSS PROCESS model 4 (Hayes 2013) showed that the effect of presentation order on stronger preferences for upgrade was mediated by perceived gain. When the upgrade promotion was presented after (vs. before) the trade-in

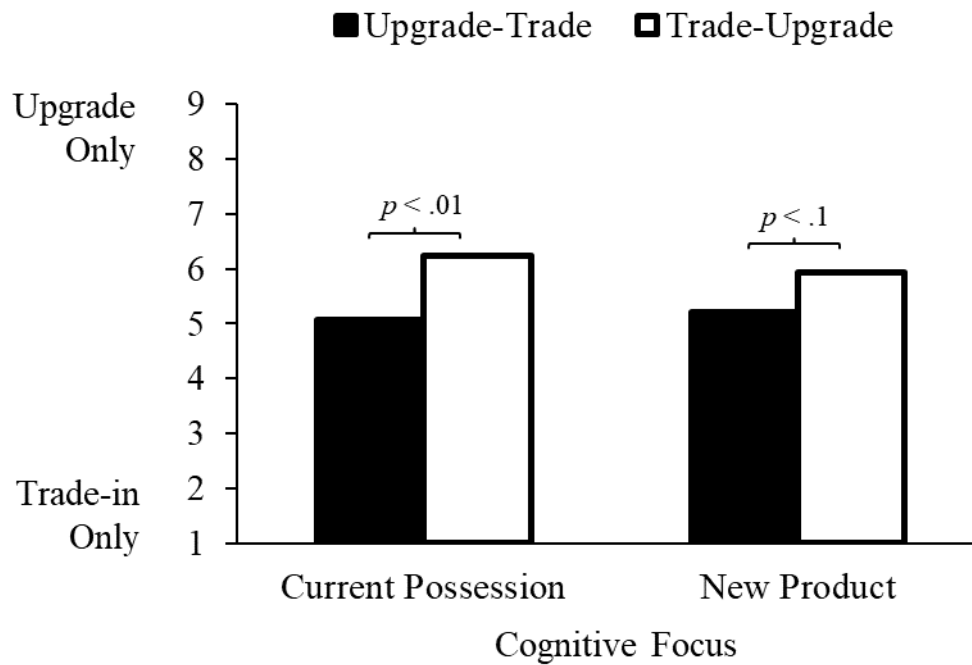


Figure 7. Perceived gain in Study 3

one, perceived gain was improved ($b = .92$, 95% CI [.39, 1.46], $p < .001$). The improved perceived gain led to stronger preferences for the upgrade promotion ($b = .83$, 95% CI [.76, .91], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant anymore ($c' = .30$, 95% CI [-.06, .66], $p = .10$).

A moderated mediation analysis with SPSS PROCESS model 7 (Hayes 2013) failed to show an interactive effect between the presentation order and cognitive focus on perceived gain ($b = .44$, 95% CI [-.64, 1.51], $p = .43$), although perceived gain still led to stronger preferences for upgrade ($b = .83$, 95% CI [.76, .91], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant ($c' = .30$, 95% CI [-.06, .66], $p = .10$).

Discussion

Although cognitive focus did not affect consumers' preferences as proposed in H4, the presentation order effect (H2) and the mediating effect of affect (measured by both positive affect and perceived gain; H3) were supported. As sequence research indicated, when promotions were presented side by side, participants automatically compared the offer on the right to the one on the left, even though they were not consciously aware of that. If the upgrade promotion made participants feel good in general, it would make them feel even better if it was presented after a less favorable offer (i.e., trade-in). Study 4 was conducted to further test the presentation order effect and to examine whether affect was a manifestation of the affect-laden labels (i.e., upgrade vs. trade-in).

Study 4

Study 4 aims to confirm the presentation order effect on stronger preferences for upgrade (vs. trade-in) promotions and to examine whether the absence (vs. presence) of promotional labels diminishes the improved affect, attenuating the stronger preferences for an upgrade price promotion when it is presented after a trade-in one (H5).

Design and Stimuli

This study consists of a 2 (presentation order: upgrade-trade, trade-upgrade) \times 2 (promotional labels: unlabeled, labeled) between-subjects design. In the labeled condition, the trade-in offer was phrased as “Store T’s TRADE-IN OFFER! We will give you \$187 for your old cell phone if you give us your old cell phone at the time of purchasing the new cell phone for \$745.”; while the upgrade offer was phrased as “Store U’s UPGRADE OFFER! We will give you an instant cash discount and sell you the new cell phone for \$558, if you give us your old cell phone at the time of the purchase.” In the unlabeled condition, the promotional messages would remain the same except that the words – “TRADE-IN” and “UPGRADE” – were omitted. A sample stimulus is illustrated in Appendix E.

Procedure

Three hundred and forty-six U.S. residents ($M_{\text{age}} = 36.0$, 61% male) participated in the study on Amazon Mechanical Turk (MTurk) for a nominal payment, but data from 25 participants, who failed the attention check, were excluded ($M_{\text{age}} = 33.6$, 76% male). After reading the instructions, all participants read a scenario where they currently owned

a cell phone but were considering purchasing the latest model for better features. They were told that the lowest price for the latest model was \$745, and they were considering between two deals offered by Stores T and U, respectively. Then participants were randomly assigned to one of the four conditions and were presented the stimuli accordingly. After reading the scenario, participants were asked to indicate their preferences followed by measures of affect (positive affect from PANAS scale and perceived gain), and all questions were identical to those in Study 3.

Results

Joint Evaluation

A one-sample t-test revealed a significant preference for the upgrade over the trade-in deal ($M = 1.08$, $SD = 2.07$; $t(320) = 9.32$, 95% CI [.85, 1.31], $p < .001$). The histogram below (Fig. 8) showed that about one-third of the participants were indifferent between the two deals, but about half of them preferred the upgrade deal to the trade-in one. A one-sample Kolmogorov-Smirnov test confirmed that participants' preference was not normally distributed ($p < .001$).

A two-way ANOVA was performed to examine whether preferences for the upgrade promotion was affected by promotional labels and presentation order. While promotional labels did not have a main effect ($M_{\text{unlabeled}} = 1.07$ vs. $M_{\text{labeled}} = 1.09$; $F < 1$), nor did they interact with the presentation order ($F(1, 317) = 1.18$, $p = .28$), presentation order had a main effect on preferences for upgrade ($M_{\text{up-trade}} = .82$ vs. $M_{\text{trade-up}} = 1.33$; $F(1, 317) = 5.03$, $p < .05$). Specifically, while upgrade was preferred overall, participants' preference for upgrade was even greater when the upgrade deal was presented after the

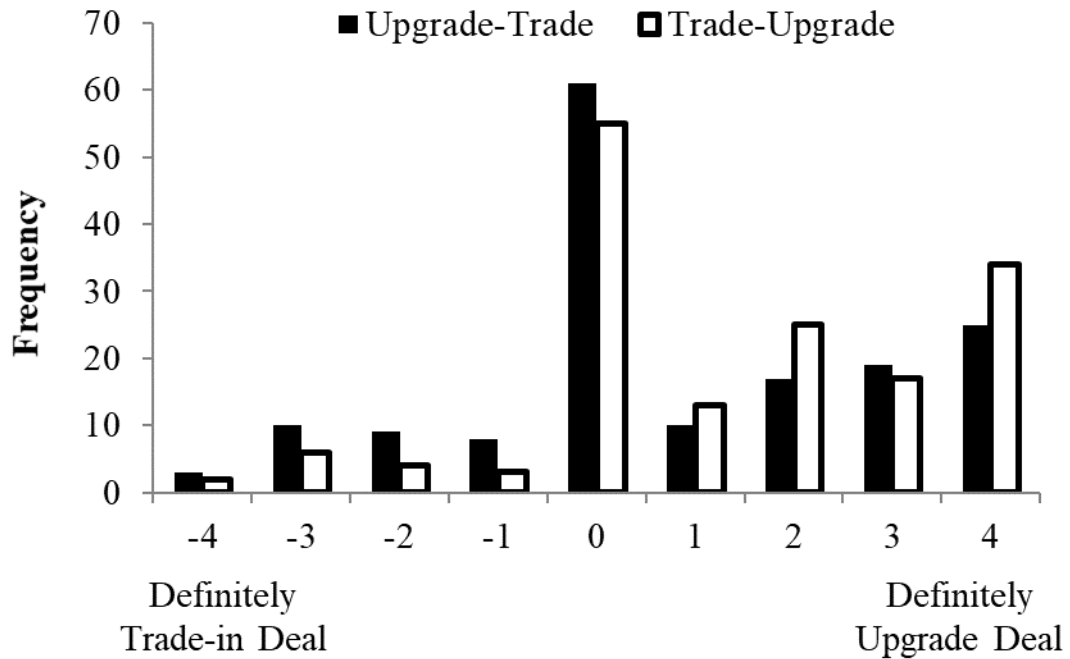


Figure 8. Histogram of joint evaluations in Study 4

trade-in one. However, such a differential preference for the upgrade promotion was only observed when the deals were labeled ($M_{\text{labeled/up-trade}} = .70$ vs. $M_{\text{labeled/trade-up}} = 1.47$; $F(1, 317) = 5.59, p < .05$), and it disappeared when the deals were unlabeled ($M_{\text{unlabeled/up-trade}} = .94$ vs. $M_{\text{unlabeled/trade-up}} = 1.21$; $F < 1$; Fig. 9).

Positive Affect

The scores of five items were averaged to measure positive affect ($\alpha = .93$). A two-way ANOVA was performed to examine whether positive affect was affected by promotional labels and presentation order. Once again, promotional labels did not have a main effect ($M_{\text{unlabeled}} = 5.52$ vs. $M_{\text{labeled}} = 5.38$; $F < 1$), and it did not interact with the presentation order ($F < 1$), but presentation order had a main effect ($M_{\text{up-trade}} = 5.19$ vs.

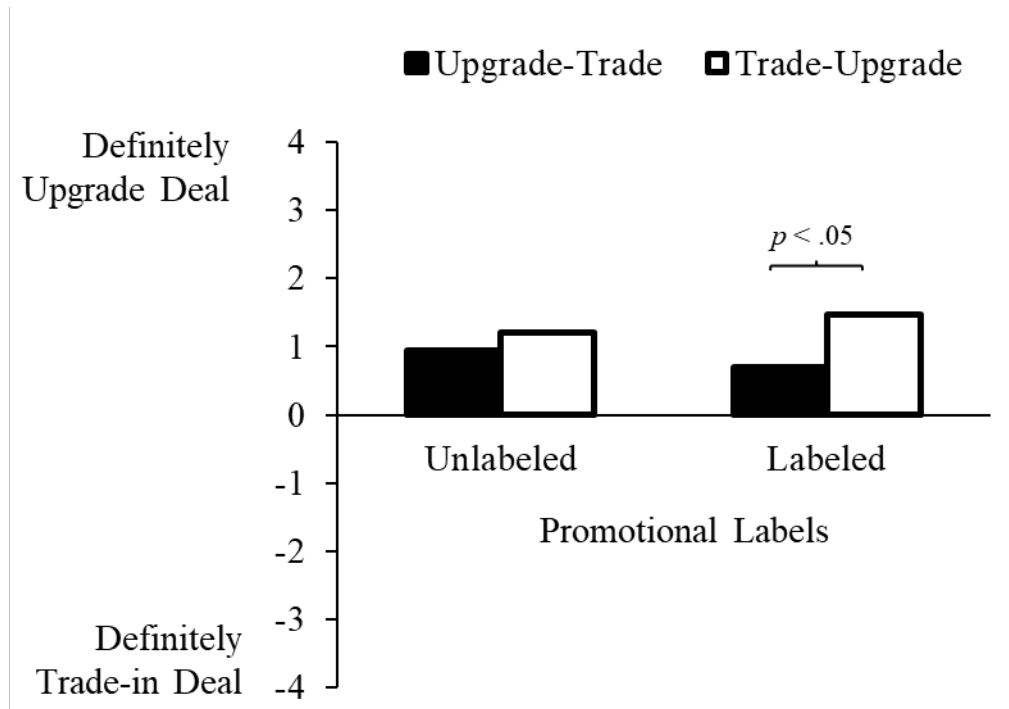


Figure 9. Joint evaluation in Study 4

$M_{\text{trade-up}} = 5.72$; $F(1, 317) = 11.02$, $p = .001$). Specifically, when the upgrade promotion was presented before the trade-in one, the upgrade (vs. trade-in) promotion induced slightly more positive affect; however, when the presentation order was reversed, the upgrade (vs. trade-in) promotion made participants feel more positive. Such a difference in positive affect was much more statistically significant when the promotions were labeled (vs. unlabeled; $M_{\text{labeled/up-trade}} = 5.08$ vs. $M_{\text{labeled/trade-up}} = 5.69$; $F(1, 317) = 7.44$, $p < .01$; $M_{\text{unlabeled/up-trade}} = 5.30$ vs. $M_{\text{unlabeled/trade-up}} = 5.74$; $F(1, 317) = 3.88$, $p = .05$; Fig. 10).

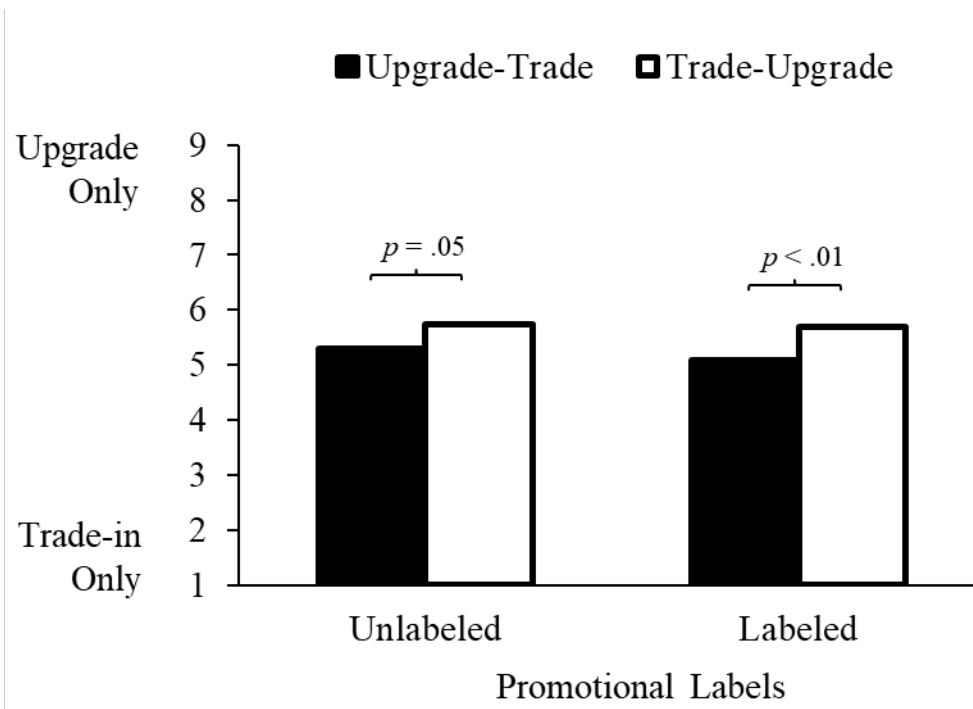


Figure 10. Positive affect in Study 4

A moderated mediation analysis with SPSS PROCESS model 7 (Hayes 2013) failed to show an interactive effect between the presentation order and promotional labels on positive affect ($b = .17$, 95% CI [-.46, .79], $p = .60$), although positive affect still led to stronger preferences for upgrade ($b = .96$, 95% CI [.85, 1.08], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant ($c' = .01$, 95% CI [-.33, .35], $p = .95$).

Subsequently, a mediation analysis with SPSS PROCESS model 4 (Hayes 2013) confirmed that the effect of presentation order on stronger preferences for upgrade was mediated by positive affect. When the upgrade promotion was presented after (vs. before) the trade-in one, positive affect was improved ($b = .53$, 95% CI [.21, .84], $p = .001$). The improved positive affect led to stronger preferences for upgrade ($b = .96$, 95% CI [.85,

1.08], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant anymore ($c' = .01$, 95% CI [-.33, .35], $p = .95$).

Perceived Gain

A two-way ANOVA was performed to examine whether perceived gain was affected by promotional labels and presentation order. Similar to the result of positive affect, promotional labels did not have a main effect ($M_{\text{unlabeled}} = 5.93$ vs. $M_{\text{labeled}} = 5.83$; $F < 1$), and it did not interact with the presentation order ($F < 1$), but presentation order had a main effect ($M_{\text{up-trade}} = 5.54$ vs. $M_{\text{trade-up}} = 6.21$; $F(1, 317) = 8.92$, $p < .01$).

Specifically, when the upgrade promotion was presented before the trade-in one, the upgrade (vs. trade-in) deal was perceived slightly more like a gain; however, when the presentation order was reversed, the upgrade (vs. trade-in) deal was perceived much more like a gain. As predicted, this trend remained statistically significant when promotional labels were present, yet, it became marginal when they were absent ($M_{\text{labeled/up-trade}} = 5.44$ vs. $M_{\text{labeled/trade-up}} = 6.21$; $F(1, 317) = 5.86$, $p < .05$; $M_{\text{unlabeled/up-trade}} = 5.64$ vs. $M_{\text{unlabeled/trade-up}} = 6.21$; $F(1, 317) = 3.26$, $p = .07$; Fig. 11).

A moderated mediation analysis with SPSS PROCESS model 7 (Hayes 2013) failed to show an interactive effect between the presentation order and promotional labels on perceived gain ($b = .19$, 95% CI [-.69, 1.07], $p = .67$), although perceived gain still led to stronger preferences for upgrade ($b = .69$, 95% CI [.60, .77], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant ($c' = .06$, 95% CI [-.28, .40], $p = .73$).

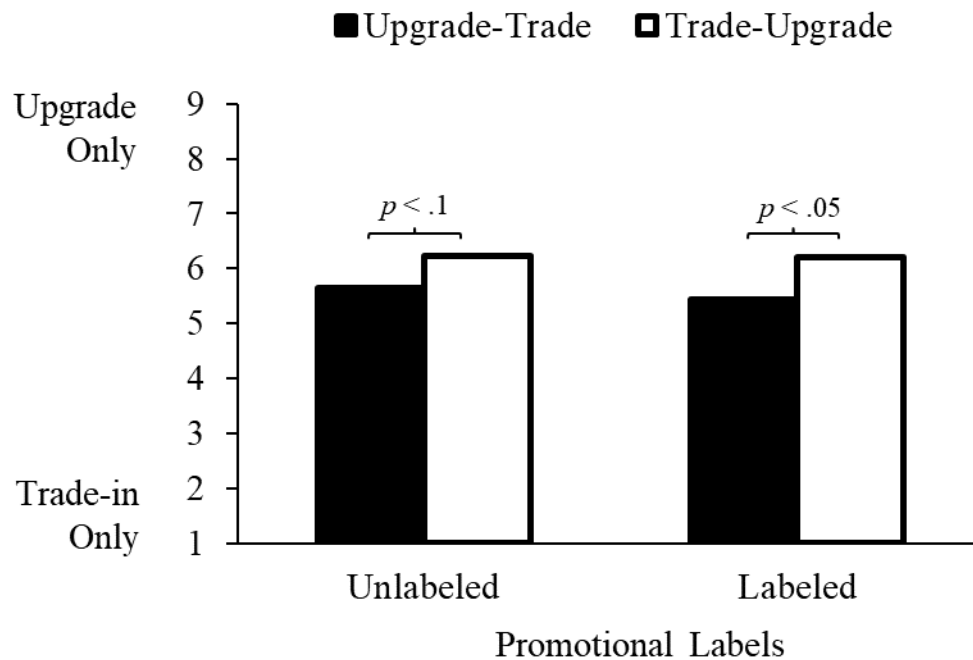


Figure 11. Perceived gain in Study 4

Subsequently, a mediation analysis with SPSS PROCESS model 4 (Hayes 2013) confirmed that the effect of presentation order on stronger preferences for upgrade was mediated by perceived gain. When the upgrade promotion was presented after (vs. before) the trade-in one, perceived gain was improved ($b = .67$, 95% CI [.23, 1.11], $p < .01$). The improved perceived gain led to stronger preferences for upgrade ($b = .69$, 95% CI [.60, .77], $p < .001$) and the direct effect of presentation order on stronger preferences for upgrade was not statistically significant anymore ($c' = .06$, 95% CI [-.28, .40], $p = .73$).

Discussion

Study 4 showed that promotional labels, such as “upgrade” and “trade-in”, were indeed affect-laden. Study 4 did not fully support H5, yet, the labels provided an affective cue for participants, hence they may make judgments readily using affect heuristic. However, the absence of labels may have introduced an unintended motivation, in addition to eliminating an affective cue. When the promotions were unlabeled, participants had no choice but read the descriptions in detail, already making them more likely to engage in systematic processing. This alternative explanation will be tested in Study 5 with a calculation task.

Study 5

This study aims to examine whether the stronger preferences for the upgrade (vs. trade-in) promotion when it is presented after the trade-in one can be attenuated by systematic processing (H6). All promotions were labeled in Study 5, hence affective cues were provided to all participants. However, systematic processing was more likely to be activated in participants who had to finish a calculation task, interfering with their heuristic processing. Consequently, the presentation order effect may be diminished because affect heuristic abated.

Design and Stimuli

This study consists of a 2 (presentation order: upgrade-trade, trade-upgrade) \times 2 (calculation: no, yes) between-subjects design. The trade-in offer was phrased as “Store T’s TRADE-IN OFFER! We will give you an instant cash back of \$187 for your old cell phone if you give us your old cell phone at the time of purchasing the new cell phone for \$745.”; while the upgrade offer was phrased as “Store U’s UPGRADE OFFER! We will give you an instant cash discount and sell you the new cell phone for \$558, if you give us your old cell phone at the time of the purchase.” In the calculation condition, participants were instructed to calculate the net payments for both upgrade and trade-in deals and they were asked whether the two deals were financially equivalent as a manipulation check, before they indicated their preferences. In the no calculation condition, participants would proceed directly to the joint evaluation question without the calculation prompt. A sample stimulus is illustrated in Appendix F.

Procedure

Three hundred and thirty-seven U.S. residents ($M_{\text{age}} = 36.7$, 46% male) participated in the study on Amazon Mechanical Turk (MTurk) for a nominal payment, but data from 34 participants, who failed the attention check, were excluded ($M_{\text{age}} = 38.2$, 56% male). After reading the instructions, all participants read a scenario where they currently owned a cell phone but were considering purchasing the latest model for better features. They were told that the lowest price for the latest model was \$745, and they were considering between two deals offered by Stores T and U, respectively. Then participants were randomly assigned to one of the four conditions and were presented the stimuli accordingly. After reading the scenario, participants were asked to indicate their preferences followed by measures of affect (positive affect from PANAS scale and perceived gain), and all questions were identical to those in Study 3. In the end, all participants were asked to recall the estimated net payments for both the trade-in and the upgrade offers: “Please recall the offers and tell us 1. How much would you end up paying at Store T, after the instant cash back, if you took their trade-in offer? 2. How much would you end up paying at Store U, after the instant cash discount, if you took their upgrade offer?”

Results

Manipulation Check

A one-sample binomial test showed that the calculation manipulation was successful. Almost all participants who finished the calculation task (155 out of 158)

considered the two promotions financially equivalent and the result is significantly different from a random event ($p < .001$).

Joint Evaluation

A one-sample t-test revealed a significant preference for the upgrade over the trade-in deal ($M = 1.13$, $SD = 2.30$; $t(302) = 8.56$, 95% CI [.87, 1.39], $p < .001$). The histogram below (Fig. 12) showed that about three-quarters of the participants preferred the upgrade promotion to the trade-in one. A one-sample Kolmogorov-Smirnov test confirmed that participants' preference was not normally distributed ($p < .001$).

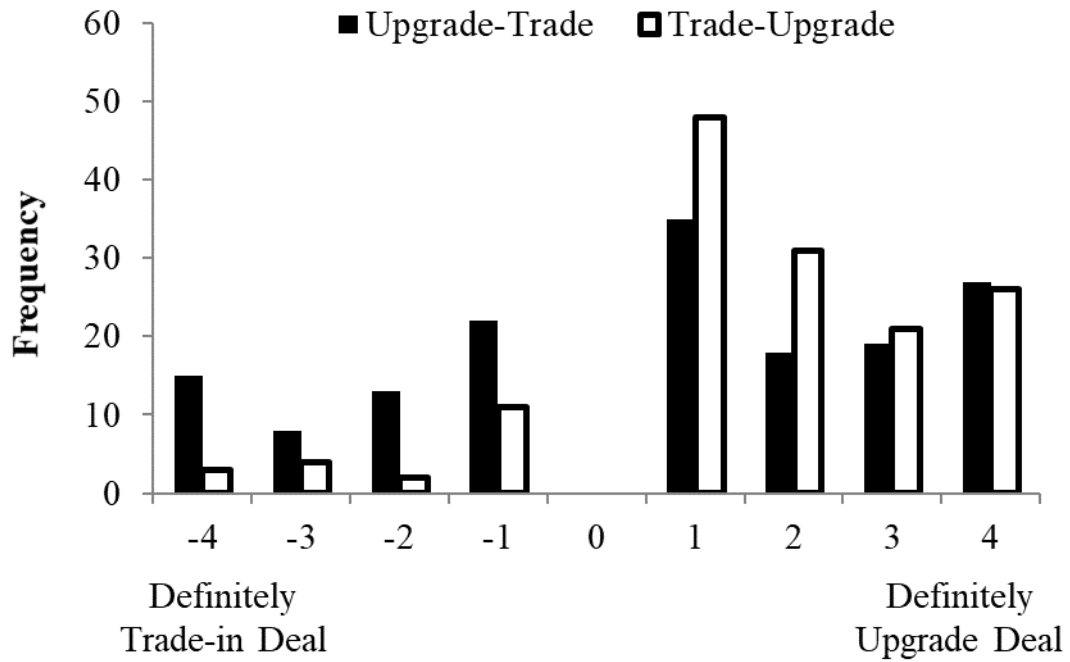


Figure 12. Histogram of joint evaluations in Study 5

A two-way ANOVA was performed to examine whether preference for upgrade was affected by calculation and presentation order. While calculation did not have a main effect ($M_{\text{no-cal}} = 1.26$ vs. $M_{\text{cal}} = 1.04$; $F < 1$), presentation order had a main effect on preferences for the upgrade promotion ($M_{\text{up-trade}} = .66$ vs. $M_{\text{trade-up}} = 1.64$; $F(1, 299) = 14.55$, $p < .001$) and it marginally interacted with calculation ($F(1, 299) = 3.02$, $p = .08$). Specifically, while upgrade was preferred overall, participants' preference for the upgrade promotion was even stronger when the upgrade promotion was presented after the trade-in one. As expected, such a differential preference for upgrade was only observed when the calculation task was not instructed ($M_{\text{no-cal/up-trade}} = .54$ vs. $M_{\text{no-cal/trade-up}} = 1.97$; $F(1, 299) = 14.79$, $p < .001$), and it disappeared when the calculation task was instructed ($M_{\text{cal/up-trade}} = .77$ vs. $M_{\text{cal/trade-up}} = 1.31$; $F(1, 299) = 2.25$, $p = .13$; Fig. 13).

Positive Affect

The scores of five items were averaged to measure positive affect ($\alpha = .93$). A two-way ANOVA was performed to examine whether positive affect was affected by calculation and presentation order. Calculation did not have a main effect ($M_{\text{no-cal}} = 5.35$ vs. $M_{\text{cal}} = 5.20$; $F < 1$), and it did not interact with the presentation order ($F < 1$), but presentation order had a main effect ($M_{\text{up-trade}} = 5.02$ vs. $M_{\text{trade-up}} = 5.53$; $F(1, 299) = 9.50$, $p < .01$). Specifically, when the upgrade promotion was presented before the trade-in one, the upgrade (vs. trade-in) promotion induced slightly more positive affect; however, when the presentation order was reversed, the upgrade (vs. trade-in) promotion made participants feel more positive. As predicted, such a difference in positive affect was

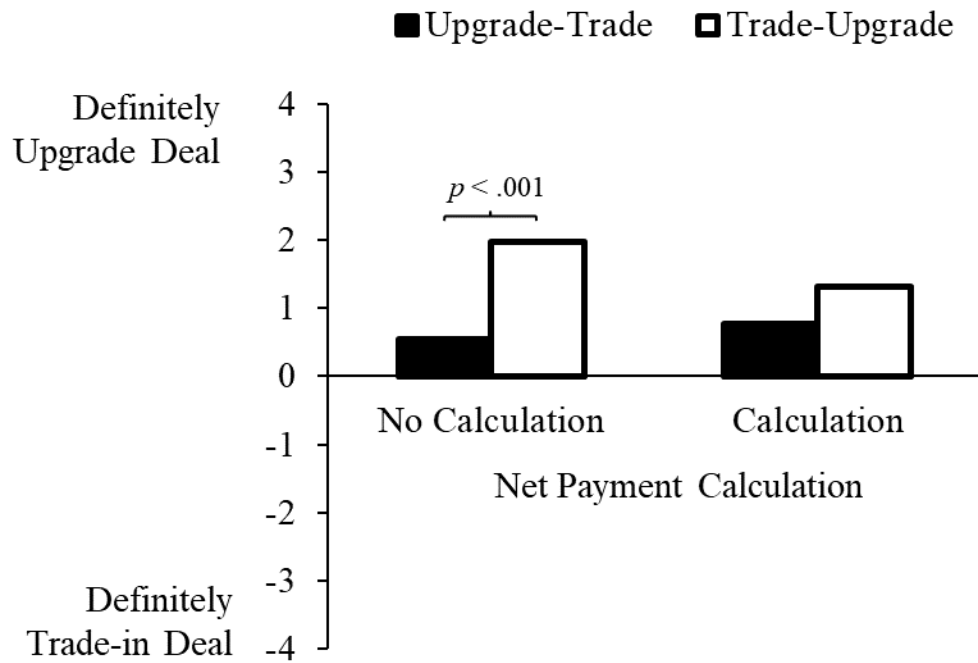


Figure 13. Joint evaluation in Study 5

statistically significant when no calculation task was instructed and became marginal when it was instructed ($M_{\text{no-cal/up-trade}} = 5.07$ vs. $M_{\text{no-cal/trade-up}} = 5.63$; $F(1, 299) = 5.79$, $p < .05$; $M_{\text{cal/up-trade}} = 4.98$ vs. $M_{\text{cal/trade-up}} = 5.42$; $F(1, 299) = 3.77$, $p = .053$; Fig. 14).

A moderated mediation analysis with SPSS PROCESS model 7 (Hayes 2013) failed to show an interactive effect between the presentation order and calculation on positive affect ($b = -.13$, 95% CI $[-.77, .52]$, $p = .64$), although positive affect still led to stronger preferences for upgrade ($b = .98$, 95% CI $[.84, 1.12]$, $p < .001$). However, the direct effect of presentation order on stronger preferences for upgrade was still statistically significant ($c' = .47$, 95% CI $[.07, .88]$, $p < .05$).

Subsequently, a mediation analysis with SPSS PROCESS model 4 (Hayes 2013) confirmed that the effect of presentation order on stronger preferences for upgrade was

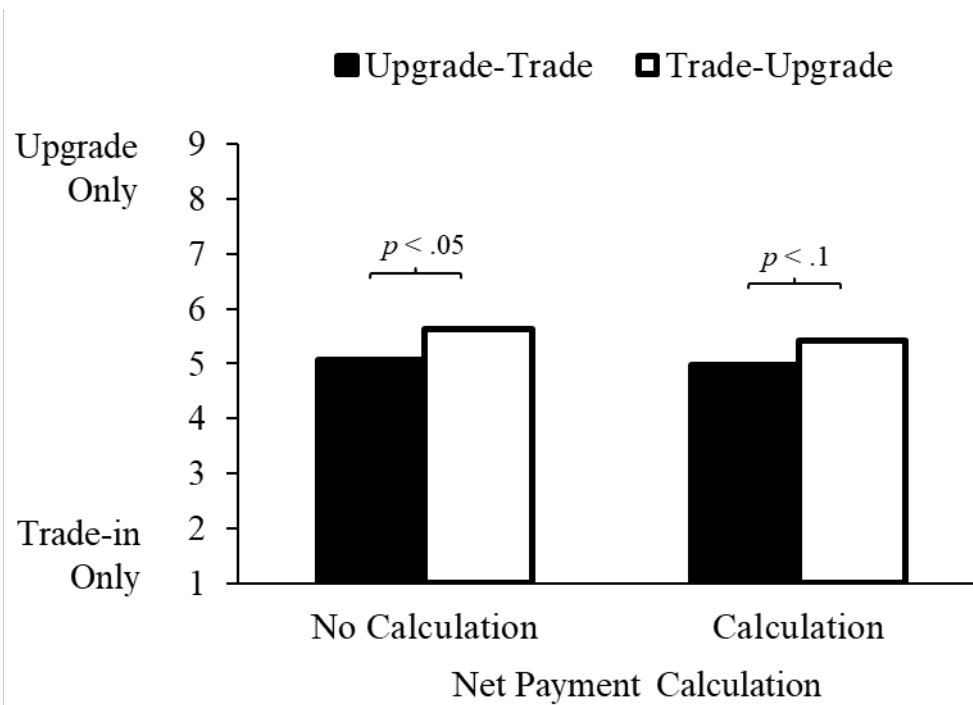


Figure 14. Positive affect in Study 5

mediated by positive affect. When the upgrade promotion was presented after (vs. before) the trade-in one, positive affect was improved ($b = .50$, 95% CI [.18, .83], $p < .01$). The improved positive affect led to stronger preferences for upgrade ($b = .98$, 95% CI [.84, 1.12], $p < .001$). However, the direct effect of presentation order on stronger preferences for upgrade was still statistically significant ($c' = .47$, 95% CI [.07, .88], $p < .05$).

Perceived Gain

A two-way ANOVA was performed to examine whether perceived gain was affected by calculation and presentation order. Similar to the results of positive affect, calculation did not have a main effect ($M_{\text{no-cal}} = 5.85$ vs. $M_{\text{cal}} = 5.46$; $F(1, 299) = 2.45$, $p = .12$), and it did not interact with the presentation order ($F < 1$), but presentation order

had a main effect ($M_{\text{up-trade}} = 5.27$ vs. $M_{\text{trade-up}} = 6.04$; $F(1, 299) = 9.81, p < .01$).

Specifically, when the upgrade promotion was presented before the trade-in one, the upgrade (vs. trade-in) deal was perceived slightly more like a gain; however, when the presentation order was reversed, the upgrade (vs. trade-in) deal was perceived much more like a gain. As predicted, such a difference in perceived gain was only statistically significant when no calculation task was instructed ($M_{\text{no-cal/up-trade}} = 5.35$ vs. $M_{\text{no-cal/trade-up}} = 6.34$; $F(1, 299) = 7.86, p < .01$; $M_{\text{cal/up-trade}} = 5.19$ vs. $M_{\text{cal/trade-up}} = 5.73$; $F(1, 299) = 2.56, p = .11$; Fig. 15).

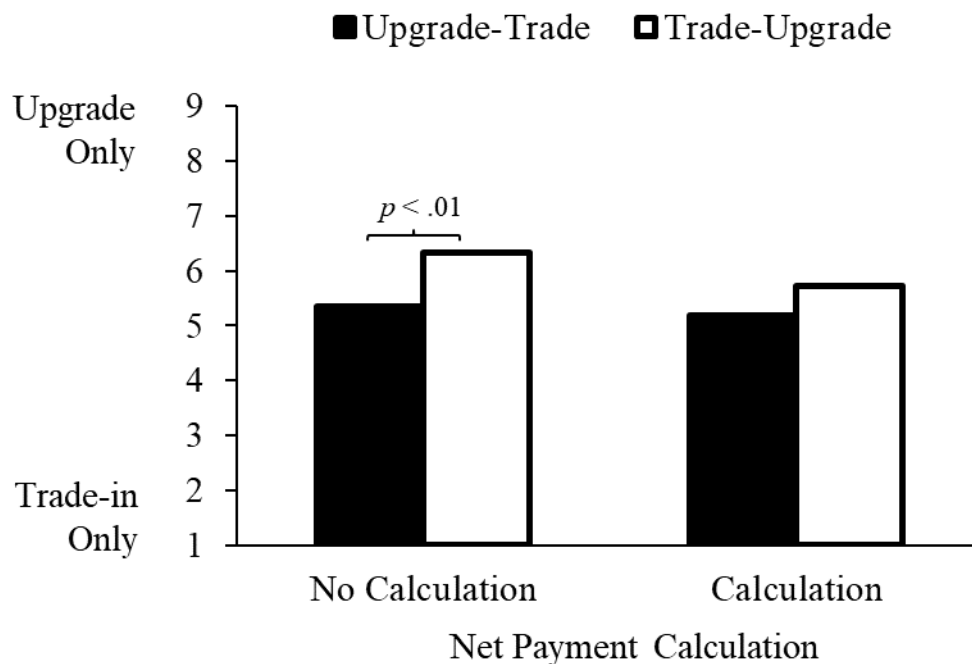


Figure 15. Perceived gain in Study 5

A moderated mediation analysis with SPSS PROCESS model 7 (Hayes 2013) failed to show an interactive effect between the presentation order and calculation on

perceived gain ($b = -.45$, 95% CI [-1.41, .51], $p = .36$), although perceived gain still led to stronger preferences for upgrade ($b = .73$, 95% CI [.65, .82], $p < .001$). However, the direct effect of presentation order on stronger preferences for upgrade was still statistically significant ($c' = .41$, 95% CI [.04, .78], $p < .05$).

Subsequently, a mediation analysis with SPSS PROCESS model 4 (Hayes 2013) confirmed that the effect of presentation order on stronger preferences for upgrade was mediated by perceived gain. When the upgrade promotion was presented after (vs. before) the trade-in one, perceived gain was improved ($b = .76$, 95% CI [.28, 1.24], $p < .01$). The improved perceived gain led to stronger preferences for upgrade ($b = .73$, 95% CI [.65, .82], $p < .001$). However, the direct effect of presentation order on stronger preferences for upgrade was still statistically significant ($c' = .41$, 95% CI [.04, .78], $p < .05$).

Recall of Net Payments

A mixed-design ANOVA was conducted to examine whether participants can accurately recall net payments for both the trade-in and upgrade deals. The within-subjects factor was the recall of net payments (trade-in, upgrade) and the between-subjects factors were presentation order (upgrade-trade, trade-upgrade) and calculation (no, yes). The overall recalled net payment was \$25 below the promotional value presented in the stimuli (Grand Mean = \$533). The tests of within-subjects effects showed that participants generally recalled higher net payments for the trade-in (vs. upgrade) deal ($M_{\text{trade}} = \$544$ vs. $M_{\text{upgrade}} = \$523$; $F(1, 299) = 7.76$, $p < .01$), but this within-subjects factor did not interact with the other two between-subjects factors (F 's <

1). The tests of between-subjects effects showed that neither presentation order ($M_{\text{up-trade}} = \$523$ vs. $M_{\text{trade-up}} = \$544$; $F(1, 299) = 1.82, p = .18$) nor calculation ($M_{\text{no-cal}} = \540 vs. $M_{\text{cal}} = \$527$; $F < 1$) had a main effect, yet their interaction was significant ($F(1, 299) = 5.57, p < .05$). As expected, when the calculation task was instructed, the recalls for both trade-in and upgrade promotions did not differ from the grand mean at the 95% significance level ($M_{\text{cal/up-trade/trade}} = \546 , 95% CI [$\$512, \580]; $M_{\text{cal/up-trade/upgrade}} = \523 , 95% CI [$\$493, \553]; $M_{\text{cal/trade-up/trade}} = \524 , 95% CI [$\$488, \560]; $M_{\text{cal/trade-up/upgrade}} = \514 , 95% CI [$\$482, \546]; Fig. 16). When the calculation task was not instructed, however, none but the trade-in net payment recall when trade-in was presented first differ from the grand mean at the 95% significance level ($M_{\text{no-cal/up-trade/trade}} = \520 , 95% CI [$\$484, \556]; $M_{\text{no-cal/up-trade/upgrade}} = \503 , 95% CI [$\$471, \535]; $M_{\text{no-cal/trade-up/trade}} = \585 , 95% CI [$\$548, \622]; $M_{\text{no-cal/trade-up/upgrade}} = \552 , 95% CI [$\$519, \585]; Fig. 16).

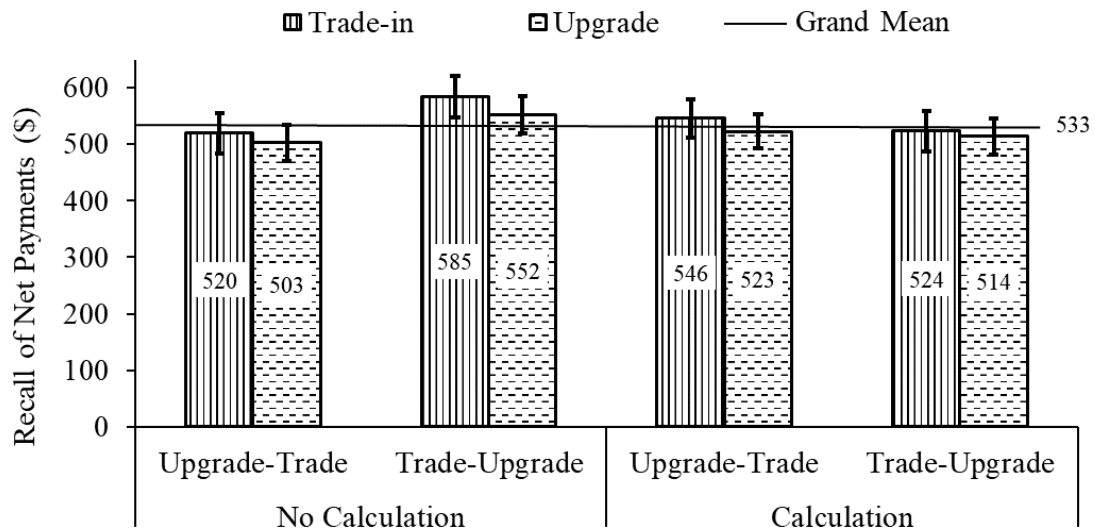


Figure 16. Recall of net payments in Study 5

Discussion

Study 5 showed that when consumers' systematic processing was motivated, they could make more rational decisions. Yet, heuristic processing remained very powerful and its effects were unlikely to be eliminated by systematic processing. Specifically, the improved affect induced by the upgrade promotion, especially when it was presented after the trade-in one, remained relatively high even after the calculation task. Study 5 did not fully support H6, but it provided evidence to support the proposed theoretical framework. It has shown that participants generally had a higher recall of net payments for the trade-in deal, especially when the trade-in promotion was presented before the upgrade one. In contrast, the recall of net payments for the trade-in deal was more comparable when the trade-in promotion was presented after the upgrade one, which likely provided a suitable reference point in the joint evaluation. Such a difference disappeared after participants finished a calculation task, suggesting that participants did not engage in rigorous calculations when there was no apparent motivation. As a result, they were more likely to use heuristic processing and produced a misconception that the trade-in deal was more expensive when it was presented before an upgrade one.

CHAPTER 4

GENERAL DISCUSSION

This dissertation is probably the first research to directly compare the effectiveness of two commonly seen price promotions “trade-in” and “upgrade”, and demonstrated that promotions framed as upgrade are preferred by consumers. With six studies, this research explores the underlying mechanism and has found the following. First, consumers predominantly use heuristic processing when evaluating price promotions, resulting in an “irrational” preference for the upgrade frame. Second, consumers probably use affect heuristic during the decision making process, substituting the task of choosing an option that is the more financially favorable with one of choosing an option that makes them feel better. Third, the presentation order of different price promotions is important in consumers’ evaluation process. This is likely due to the anchoring effect, where decision makers cannot sufficiently adjust from an anchor. When a trade-in promotion is presented first, consumers anchor on the payment for the new product, often without adequately incorporating the value received from the retailer to calculate the net payment. Moreover, consumers also anchor on the affective response induced by the trade-in promotion, placing them in a less positive affective state. As a result, when an upgrade promotion is presented after a trade-in one, consumers feel like they have gained much from paying less for the new product, leading to a more positive affective state and a favorable attitude towards the upgrade promotion. When an upgrade promotion is presented first, however, consumers anchor on a more suitable reference point, which motivates them to calculate the net payment for the following trade-in

promotion. They are more likely to adequately incorporate the value received from a retailer to calculate the net payment, resulting in a slightly more balanced appraisal between the two promotions.

Retailers who use upgrade or trade-in price promotions can benefit from the research findings. First, whenever possible, retailers should try to frame a price promotion as upgrade rather than trade-in. In doing so, they could probably offer an upgrade promotion that is slightly financially suboptimal, but still gain more favorable attitudes from consumers. As a result, this could not only increase the retailers' margins but also enhance customer attitude. Second, as information gathering becomes easier with the use of internet, consumers are more likely to browse around and compare different promotions before making a purchase decision. Because a trade-in promotion is likely to produce a misconception of a higher net payment, it would be more beneficial to frame a price promotion as upgrade instead. Third, if retailers offer promotions where consumers name their own price, it is better to frame it as trade-in rather than upgrade. Consumers are more likely to indicate a lower trade-in value in the trade-in frame, resulting in a higher net payment overall.

There are some limitations to this dissertation research. First, the studies used mostly electronics as stimuli, hence it is unclear whether the findings will stay robust when the product category is changed to utilitarian products or products in a much lower/higher price range. Second, the studies were conducted on Amazon Mechanical Turk, with no field study. It will be a good future step to collaborate with a retailer on a field study, to test the robustness of the findings and further confirm the underlying mechanism. Third, there are other factors that can influence consumers' preferences for

different price promotions, such as emotional attachment to the current possession (Shu and Peck 2011), the length of ownership (Miller, Wiles, and Park 2019), and prior knowledge (Zhao, Hoeffler, and Zauberan 2011). These factors were beyond the scope of this dissertation research and they should be randomized across different conditions.

With the limitations in mind, a few suggestions have been made for future studies. As framing effect and order effect are mediated by affect, factors that can influence affect could be investigated. Take product category for example. Consumers are less likely to be emotionally attached to utilitarian products (e.g., vacuums), hence the difference in affect induced by different frames and orders would be less significant. In addition, individual differences may also contribute to these effects. Consumers who are naturally more attached to their endowments may prefer a trade-in promotion because of its salient compensation. Furthermore, the evaluation tasks used in the studies may also be an explanatory factor. Joint evaluation is used in most studies in this dissertation; however, separate evaluations may abolish the framing effect due to its low evaluability. Lastly, a longitudinal study could be used to examine the effectiveness of different frames on consumers' memories, which consequentially impact their decisions. Product replacement decisions are complicated, yet this dissertation research is trying to delineate such behaviors and has shed some light on the underlying mechanism, through which the framing effect and order effect occur.

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APPENDIX A

STIMULI OF THE PILOT STUDY

Two individuals, Mr. X and Mr. Y, own the same digital camera model that is fully functional but lacks many of the features that the newer models have. As such, both Mr. X and Mr. Y are considering the purchase of a new digital single-lens reflex (DSLR) camera.

After considerable research and shopping, both Mr. X and Mr. Y **have decided that the Canon EOS Rebel T6 (picture shown below) would be perfect for each of their needs.**

After shopping around, they found out that the lowest price for the Canon EOS Rebel T6 is \$745.



Specifications	<u>Their Current Cameras</u>	<u>The Latest New Camera</u>
Megapixel Count	15.6 Megapixels	21.1 Megapixels
Optical Zoom	20X	50X
Full HD Recording	No	Yes

After considerable shopping, Mr. X and Mr. Y, are considering the following offers.

Mr. X is considering an offer from a retailer who is offering an upgrade program. The retailer will sell the new Canon EOS Rebel T6 for \$558 if he gives his old digital camera to the retailer at the time of the new purchase.

Mr. Y is considering an offer from a retailer who is offering a trade-in program. The retailer will give Mr. Y \$187 for his old digital camera if he gives his old digital camera to the retailer at the time of purchasing the new Canon EOS Rebel T6 for \$745.

APPENDIX B

STIMULI OF STUDY 1

Imagine that you currently own a cell phone that you bought about two years back. Your cell phone looks like new because you have always used a screen protector and phone case, and it is fully functional. Your current phone, however, does not have many of the latest features that you like.

As such, you are considering purchasing the latest new cell phone. After some research, you are considering the purchase of a cell phone which has just come out on the market and has all the latest features that a cell phone can have.

Specs	<u>Your Current Phone</u>	<u>The Latest New Phone</u>
Processor	2.10 GHz Quad	2.35 GHz Quad
Memory	2GB RAM	4GB RAM
Battery	2550mAh	3500mAh
Screen Size	5.1”	6.2”
Camera	12 MP	14 MP

After a considerable search, you find that the lowest price for the new cell phone is at Store A.

Store A sells the new cell phone for \$738.

Store A also offers a **“trade-in”** program where Store A will pay you cash for your current cell phone if you give it to Store A at the time of purchasing the new cell phone for \$738.

[Store A also offers an **“upgrade”** program where Store A will give you a discount on the price of \$738 for the new cell phone if you give your current cell phone to Store A at the time of the purchase.]

How much would you be willing to accept as trade-in value for your current cell phone and purchase the new cell phone for \$738, instead of only purchasing the new cell phone for \$738?

[How much would you be willing to pay for the upgrade to the new cell phone and give in your current cell phone, instead of just purchasing the new cell phone for the price of \$738?]

\$ _____

APPENDIX C

STIMULI OF STUDY 2

You currently own a cell phone that is fully functional but lacks many of the features that the newer models have. As such, you are considering the purchase of the latest model on the market.

After considerable research, you have decided on a cell phone that would be perfect for your needs.

After shopping around, you find that the lowest price for the cell phone you want is \$745.

Specifications	<u>Your Current Phone</u>	<u>The Latest New Phone</u>
Processor	1.90 GHz Quad	2.35 GHz Quad
Memory	2GB RAM	4GB RAM
Storage Capacity	16GB	32GB

You have shopped around and are now considering the following offers from Stores A and B.

**Store A's
TRADE-IN OFFER!**

We will give you **\$187** for your old cell phone if you give us your old cell phone at the time of purchasing the new cell phone for **\$745**.

**Store B's
UPGRADE OFFER!**

We will give you an instant cash discount and sell you the new cell phone for **\$558**, if you give us your old cell phone at the time of the purchase.

APPENDIX D

STIMULI OF STUDY 3

You currently own a digital camera that is functional but lacks many of the features that the newer models have. As such, you are considering the purchasing of a new digital single-lens reflex (DSLR) camera. After considerable research, you have found some information about your current camera and the new model from the Consumer Reports.

Consumer Reports on Camera Comparison

Specifications	<u>Your Current Camera</u>	<u>The Latest New Camera</u>
Model Year	2012	2019
Megapixel Count	14.8 MP	28.2 MP
Optical Zoom	50 X	100X
Overall Rating	5.5	9.5

After comparing your current camera with the latest model, please give three brief reasons **why you may want to [keep your current / get the new] camera.**

Please pick one of the reasons above that you think is **the most important to your usage of [your current / the new] camera** and elaborate on it.

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After some more research, you find that the lowest price for the latest new DSLR camera is \$749, and you also find the following offers from Stores T and U [U and T].

Store T's
TRADE-IN OFFER!

We will give you an instant cash back of \$239 for your old camera, if you give it to us at the time of purchasing the new camera for \$749.

Store U's
UPGRADE OFFER!

We will give you an instant cash discount and sell you the new camera for \$510, if you give your old camera to us at the time of the purchase.

APPENDIX E

STIMULI OF STUDY 4

You currently own a cell phone that is fully functional but lacks many of the features that the newer models have. As such, you are considering the purchase of the latest model on the market.

After considerable research, you have decided on a cell phone that would be perfect for your needs.

After shopping around, you find that the lowest price for the cell phone you want is \$745.

Specifications	<u>Your Current Phone</u>	<u>The Latest New Phone</u>
Processor	1.90 GHz Quad	2.35 GHz Quad
Memory	2GB RAM	4GB RAM
Storage Capacity	16GB	32GB

You have shopped around and are now considering the following offers from Stores T and U (the real store names cannot be displayed).

**Store T's
OFFER!**

We will give you **\$187** for your old cell phone if you give us your old cell phone at the time of purchasing the new cell phone for **\$745**.

**Store U's
OFFER!**

We will give you an instant cash discount and sell you the new cell phone for **\$558**, if you give us your old cell phone at the time of the purchase.

APPENDIX F

STIMULI OF STUDY 5

You currently own a cell phone that is fully functional but lacks many of the features that the newer models have. As such, you are considering the purchase of the latest model on the market.

After considerable research, you have decided on a cell phone that would be perfect for your needs.

After shopping around, you find that the lowest price for the cell phone you want is \$745.

Specifications	Your Current Phone	The Latest New Phone
Processor	1.90 GHz Quad	2.35 GHz Quad
Memory	2GB RAM	4GB RAM
Storage Capacity	16GB	32GB

You have shopped around and are now considering the following offers from Stores T and U (the real store names cannot be displayed).

**Store T's
TRADE-IN OFFER!**

We will give you an instant cash back of **\$187** for your old cell phone if you give us your old cell phone at the time of purchasing the new cell phone for **\$745**.

**Store U's
UPGRADE OFFER!**

We will give you an instant cash discount and sell you the new cell phone for **\$558**, if you give us your old cell phone at the time of the purchase.

[In the calculation condition:

How much will you end up paying at Store T, after the instant cash back, if you take their trade-in offer? \$_____

How much will you end up paying at Store U, after the instant cash discount, if you take their upgrade offer? \$_____

According to your calculation, would you say that these offers are financially equivalent?
Yes
No
]