LAST DAY INDULGENCE:

THE IMPACT OF TEMPORAL LANDMARKS ON PRODUCT PREFERENCE

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Last Day Indulgence:

The Impact of Temporal Landmarks on Product Preference

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CERTIFICATE OF ORIGINALITY

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ABSTRACT

This research investigates how (start vs. end) temporal landmarks affect consumers' preference for (utilitarian vs. hedonic) products. Nine studies reveal that start (vs. end) temporal landmarks trigger a process-focused (vs. outcome-focused) mindset which in turn increases consumers' preference for utilitarian (vs. hedonic) products. Consistent with the proposed process/outcome orientation mechanism, this effect diminishes when the products are pre-ordered. This research reveals a novel downstream consequence of temporal landmark on product preference and provides important practical implications concerning marketing strategies of when and what to promote to the customers.

Keywords: temporal landmark, hedonic versus utilitarian consumption, process versus outcome focus

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CHAPTER 1. INTRODUCTION

Shopping is an important part of consumers' daily lives. In the old days, consumers mainly went shopping after work or on weekends. However, nowadays, the emergence and prevalence of online shopping platforms and mobile shopping apps make shopping possible anywhere and anytime. Before the presence of online shopping, consumers could only purchase in-season products. For example, people usually buy down jackets and sweaters during the winter. However, e-commerce makes it possible for consumers to make off-season purchases at any time they want. Now a variety of down jackets and sweaters can be selected and purchased during the summer. Furthermore, people usually deal with serious issues during the first few days of the week, for example, paying utility bills, making medical appointments, making decisions for investments in stock, and signing up for an online course; after taking care of those essentials, people shift to more relaxing activities during weekends, for example, going to the cinema, having fun in a bar, going to an amusement park, and going shopping (Bussière, 2011). However, e-commerce makes it flexible for retailers to hold different marketing events at different times; consumers thus can make purchases whenever there is a deal.

The more flexible combinations of shopping time and product purchase inevitably lead to an interesting research question: will the time of the purchase influence the type of products purchased? A stream of past research has started to answer this question (e.g., Gullo et al., 2019; Liu-Thampkins & Tam, 2013; Zhong et al., 2021). For example, researchers found that consumers have the persistent habit of going shopping at a certain time of the day for both physical shopping (Liu-Thampkins & Tam, 2013; Shah et al., 2014) and online shopping (Zhong et al., 2021). Shopping at the time following their habit can increase consumers' satisfaction and revisit behavior (Zhong et al., 2021). Other researchers

discovered that consumers' tendency for variety-seeking is the lowest in the morning compared to other times of the day (Gullo et al., 2019). Adding to this stream of literature, in the current research, we investigate the impact of a novel and relatively understudied temporal factor on product preference: namely, (start vs. end) temporal landmarks.

Temporal landmark refers to moments that stand out from the continuous stream of everyday life, which helps to structure memories in terms of encoding, consolidation, and retrieval (Robinson, 1986; Shum, 1998); the start and end of a period of time are two salient temporal landmarks that are often studied in this stream of literature (e.g., Bi et al., 2021; Chen et al., 2023; Dai et al., 2014, 2015; Li & Shah, 2020). Based on past literature on temporal landmarks (e.g., Dai et al., 2014, 2015; Hennecke & Converse, 2017), hedonic versus utilitarian consumption (e.g., Dhar & Wertenbroch, 2000; Pham & Taylor, 1999; Strahilevitz & Myers, 1998; Taylor et al., 1998), and process/outcome focus (e.g., Cian et al., 2020; Escalas & Luce, 2003, 2004; Pham & Taylor, 1999), in the current paper we propose and find that start (vs. end) temporal landmarks triggers a process-focused (vs. outcome-focused) mindset which in turn increases consumers' preference for utilitarian (vs. hedonic) products. In addition, consistent with the proposed process/outcome orientation mechanism, we further find that this effect attenuated when the products are pre-ordered.

The current research makes important theoretical and practical contributions. Our research adds to the literature of temporal landmark (e.g., Dai et al., 2014, 2015; Peetz & Wilson, 2013, 2014; Shum, 1998) by investigating how (start vs. end) temporal landmarks influence consumers' preferences and choices in the marketing context. We also extend the research on utilitarian versus hedonic products (e.g., Chen et al., 2017; Dhar & Wertenbroch, 2000; Lu et al., 2016; Sela et al., 2009) by revealing a novel temporal antecedent of consumers' preferences between these two types of products. Moreover, our work adds to the emerging research on process versus outcome focus (e.g., Munichor & LeBoeuf, 2018; Jain

et al., 2009; Tu et al., 2022) by being the first to connect (start vs. end) temporal landmarks with process/outcome focus, which could lead to various other downstream consequences. From a practical perspective, our research provides important knowledge for marketing practitioners on the motivations of consumers' purchase decisions for different types of products at different times and offers useful implications for marketers and retailers on how to utilize different temporal landmarks to promote different types of products.

CHAPTER 2. THEORETICAL FRAMEWORK

2.1. TEMPORAL LANDMARKS

Temporal landmarks can be formed within different contexts: vivid public events (e.g., a National Day, the US Open), personal events (e.g., birthday, wedding day), or reference points of a calendar (e.g., the first day of a new year, the Sunday of a week; Shum, 1998). The start and end of a period of time are two salient temporal landmarks that are often studied in this stream of literature (e.g., Beshears et al., 2017, 2021; Bi et al., 2021; Chen et al., 2023; Dai et al., 2014, 2015; Li & Shah, 2020; Price et al., 2018; Strizhakova et al., 2021). Start temporal landmarks signal the start of a time period, whereas end temporal landmarks signal the end of a time period. For example, start temporal landmarks include the first day of a week or month, the first day of a season, and the first day of an event (e.g., a break, a semester; Bi et al., 2021), and end temporal landmarks include the last day of a week or month, the last day of a season, and the last day of an event (e.g., a break, a semester; Bi et al., 2021).

The extant research on temporal landmarks has provided a rich understanding of its influences on individuals' behavior in terms of three aspects: memory (e.g., Koriate &

Fischhoff, 1974; Kurbat et al., 1998; Shum, 1998), perception (e.g., Bi et al., 2021; Peetz & Epstude, 2016; Peetz & Wilson, 2013, 2014; Strizhakova et al., 2021; Zauberman et al., 2010), and goal-related behaviors (e.g., Dai et al., 2014, 2015; Dai & Li, 2019; Davydenko & Peetz, 2019; Hennecke & Converse, 2017; Koo et al., 2020; Tu & Soman, 2014). For example, past research has revealed that temporal landmarks serve as cues for memory encoding, organization, and retrieval, such that people have better memories of events associated with salient temporal landmarks (Koriate & Fischhoff, 1974; Kurbat et al., 1998; Shum, 1998). Temporal landmarks also change people's perception of their temporal selves by serving as a partition so that people perceive they are disconnected from the negative past and thus more motivated toward the future self (Peetz & Wilson, 2013, 2014). Moreover, people's goal-related behaviors are also affected by the perception of temporal landmarks. Start temporal landmarks that signal a fresh new start encourage aspirational behaviors such as visiting gyms, making commitments, and setting up goals because people believe that they are separate from the past imperfect self (Dai et al., 2014, 2015). Similarly, Hennecke and Converse (2017) discovered that people were more likely to initiate their goals right after a temporal boundary because the boundary made people ignore the current constraints.

Although prior literature shows that temporal landmarks have ubiquitous impacts on individuals' behavior, our understanding of how it influences consumers' behavior in the marketing context is limited. Few research in this area found that consumers were more likely to invest in transformative actions such as purchasing a new pair of sunglasses at temporal landmarks that signal a fresh new start (Price et al., 2018). Start (vs. end) temporal landmarks also direct consumers' attention to information on the left (vs. right), and consequently, consumers were more likely to choose products on the left (vs. right) side under the framing of start (vs. end) temporal landmarks (Bi et al., 2021). A recent work discovered that consumers prefer a simple over complex design when being primed with a start (vs. end)

temporal landmark (Chen et al., 2023). Adding to this stream of literature, in the current research, we demonstrate a novel effect of temporal landmarks in the marketing domain: how start versus end temporal landmarks influence consumers' (utilitarian vs. hedonic) product preferences through activating process versus outcome-focused mindsets.

2.2. TEMPORAL LANDMARKS AND PROCESS- VERSUS OUTCOME-FOCUSED MINDSETS

Process and outcome orientations have been studied extensively in the previous literature (e.g., Cian et al., 2020; Escalas & Luce, 2003, 2004; Freund & Hennecke, 2015; Freund et al., 2010; Hong et al., 1997; Levy et al., 1998; Mathur et al., 2013; Mathur et al., 2016; Mehta et al., 2011; Munichor & LeBoeuf, 2018; Mustafić & Freund, 2012; Jain et al., 2009; Pham & Taylor, 1999; Shen et al., 2015; Taylor et al., 1998; Thompson et al., 2009; Toure-Tillery & Fishbach, 2011, 2014, 2018; Tu et al., 2022; Vallacher et al., 1989; Yang et al., 2012; Zhao et al., 2007, 2011; Zimmerman & Kitsantas, 1997, 1999). Process focus emphasizes each step one needs to go to achieve the goal, whereas outcome focus emphasizes on the results or the benefits of the activity (Escalas & Luce, 2003; Taylor et al., 1998; Toure-Tillery & Fishbach, 2014; Pham & Taylor, 1999). Past research shows that process versus outcome orientations create different consequences on goal pursuit. For example, outcome focus is more helpful when setting a goal (Ferguson & Sheldon, 2010; Houser-Marko & Sheldon, 2008) and initiating relevant but unpleasant actions toward the goal (e.g., starting exercise; Fishbach & Choi, 2012; Krause & Freund, 2014). Process focus, on the other hand, can enhance persistence and self-regulation (Freund et al., 2010; Freund & Hennecke, 2015; Taylor et al., 1998), and thus is more effective at achieving a goal (Freund & Hennecke, 2015; Pham & Taylor, 1999). When making decisions, process-focused thinking would

increase decision difficulty, leading to more delayed choices and lower commitment to the choice (Thompson et al., 2009). However, when process-focused arguments are applied to advertisements, consumers will have higher behavioral intentions (Escalas & Luce, 2003) and consider the ads to be more credible and persuasive (Cian et al., 2020).

Previous literature also identifies several antecedents that may trigger different focuses on process versus outcome. For example, a large part of the extant work shows an association between people with a growth (vs. fixed) mindset with the focus on process (vs. outcome) -related information (Butler, 2000; Hong et al., 1997; Jain et al., 2009; Levy et al., 1998; Mathur et al., 2013). Freund, Hennecke, and Riediger (2010) discovered that age is related to people's process focus. Specifically, older adults are more likely to take a process focus compared to younger adults. Moreover, another work suggested that, compared to novices, experts are more likely to focus on the process when making decisions (Mehta et al., 2011). Adding to this stream of literature, in the current research, we argue that start versus end temporal landmarks will trigger process- versus outcome-focused mindsets, respectively.

Previous literature gives some clues of the association between start (vs. end) temporal landmarks and a process-focused (vs. outcome-focused) mindset. Past research has shown that people usually set goals and start a plan at the start of a period (Dai et al., 2014, 2015; Hennecke & Converse, 2017). At the end of a period, on the contrary, people are more likely to look back on the period (Bi & Pang, 2016) and summarize the outcomes or results achieved (Woolley, 2009). As a result, it is likely that start temporal landmarks are associated more with plans, obligations, and commitments (i.e., processes) in consumers' minds, whereas end temporal landmarks are associated more with outcomes and results. Both making plans and cues for commitments and obligations are closely related to a how-to-do (i.e., process-focused) mindset (Escalas & Luce, 2003, 2004; Munichor & Leboeuf, 2018). However, thinking in a retrospective way and emphasizing the end benefits or results of

action and the completion of goals are more associated with an outcome-focused mindset (Escalas & Luce, 2003, 2004). Taking the above evidence together, we argue that compared to end temporal landmarks, consumers will be more process-focused (vs. outcome-focused) when start temporal landmarks are made salient.

To validate this assumption, we conducted a pilot study. In this study, we operationalized the start versus end temporal landmarks as Mondays (i.e., the first working day of a week) versus Fridays (i.e., the last working day of a week). A total of 280 Chinese consumers (M_{age} = 29.54; 61.1% females) were recruited from Credamo (a Chinese survey platform similar to MTurk and Prolific) to participate in this study on either January 16th, 2023 (i.e., a Monday - the first working day of a week) or January 20th (i.e., a Friday - the last working day of a week) for a small payment. In the study, participants were asked to imagine that they were going to take their family to an amusement park and write down any thoughts they had at that moment. Two research assistants, who were blind to the research hypotheses, coded the numbers of process-focused (e.g., "where and when to go," "what to pack in the bag," and "making a detailed plan in advance"), outcome-focused (e.g., "very happy to go to the amusement park," "it must be very relaxing," and "going to the amusement park can be a great opportunity for family reunion"), and irrelevant thoughts (e.g., "I seldom have time to spend with my family") for each response (Freund et al., 2010; Mathur et al., 2013; Thompson et al., 2009; Zhao et al., 2007). On average, participants generated 1.63 thoughts, 52.08% were process-related thoughts, and 38.48% were outcome-related thoughts. A one-way ANOVA on the process-focused thoughts revealed a significant effect of temporal landmark ($F(1, 278) = 67.09$, $p < .001$; $\eta_p^2 = .19$). Consistent with our prediction, participants generated more process-focused thoughts on start temporal landmark (M = 1.51, SD = 1.42) than end temporal landmark (M = 0.46, SD = 0.53). A similar analysis on the outcome-focused thoughts also revealed a significant effect of temporal landmark ($F(1, 278) = 15.02$, p

< .001; η_p^2 = .05). Consistent with our prediction, participants generated more outcome-focused thoughts on end temporal landmark (M = 0.65, SD = 0.62) than start temporal landmark (M = 0.37, SD = 0.58). There was no significant difference in irrelevant thoughts between the start and end temporal landmark conditions (M_{start}= 0.15, SD = 0.41 vs. M_{end} = 0.11, SD = 0.34; F(1, 278) = .62, p = .432). Furthermore, 66.06% of all thoughts generated in the start temporal landmark condition were process-related, while 55.54% of all thoughts generated in the end temporal landmark condition were outcome-related. Following Mathur et al. (2013)'s research, we also created a process-outcome focus index derived by subtracting the number of outcome-focused thoughts from the number of process-focused thoughts. The results of a one-way ANOVA confirmed our previous findings that there was a significant effect of temporal landmark on consumers' process- versus outcome-focused thoughts (F(1, 278) = 60.65, p < .001; η_p^2 = .18). Specifically, participants generated more processed-focused thoughts on the first day of a week (M = 1.14, SD = 1.75) than they did on the last day of a week (M = -0.19, SD = 1.01).

2.3. PROCESS- VERSUS OUTCOME-FOCUSED MINDSETS AND CONSUMER PREFERENCES FOR UTILITARIAN VERSUS HEDONIC PRODUCTS

We have argued and showed in our pilot study that start (vs. end) temporal landmarks trigger a process-focused (vs. outcome-focused) mindset. So how will these two different mindsets influence consumers' product preferences? Based on past literature on process and outcome focus (e.g., Escalas & Luce, 2003, 2004; Munichor & Leboeuf, 2018) and utilitarian/ hedonic products (e.g., Dhar & Wertenbroch, 2000; Pham & Taylor, 1999; Strahilevitz & Myers, 1998), we further predict that process versus outcome focus will influence consumers' preferences for utilitarian versus hedonic products.

The different products or services consumed can be classified into two broad categories: utilitarian and hedonic (e.g., Alba & Williams, 2013; Baltas et al., 2017; Batra & Ahtola, 1991; Chen et al., 2017; Cramer & Antonides, 2011; Das et al., 2018; Dhar & Wertenbroch, 2000; Drolet et al., 2007; Huettl & Gierl, 2012; Kivetz & Zheng, 2017; Klein & Melnyk, 2016; Kronrod & Danziger, 2013; Li et al. 2020; Lim & Ang, 2008; Lu et al., 2016; Okada, 2005; Roy & Ng, 2012; Sela et al. 2009; Siddiqui et al., 2018). Utilitarian products are consumed primarily for instrumental purposes to achieve specific outcomes (Batra & Ahtola, 1991; Khan et al., 2005; Strahilevitz & Myers, 1998). In contrast, hedonic products are consumed primarily for sensory experience and enjoyment (Dhar & Wertenbroch, 2000; Holbrook & Hirschman, 1982; Whirley et al., 2018). Together, utilitarian products mainly provide functional and instrumental needs, whereas hedonic products mainly provide fun, enjoyment, and experiences.

Previous research has identified several factors that influence consumers' preferences between utilitarian and hedonic options. For example, as utilitarian products are easier to justify (Bazerman et al., 1998; Kivetz, 1999; Kivetz & Keinan, 2006; Kivetz & Simonson, 2002a), consumers prefer utilitarian products to hedonic products when there is a need for justification (Okada, 2005). But when choosing for others, as the guilty of hedonic consumption is not associated with the self (Kiveta & Simonson, 2002b; Zemack-Rugar et al., 2016), consumers are more likely to choose hedonic products (Lu et al., 2016). Furthermore, consumers are more likely to purchase utilitarian products when they need to restore a sense of control because utilitarian products are considered as problem-solving (Chen et al., 2017).

More relevant to the current research, past literature has suggested that consumers' preferences for utilitarian versus hedonic consumption can also be influenced by their (process- vs. outcome-focused) mindsets (e.g., Dhar & Wertenbroch, 2000; Pham & Taylor,

1999; Strahilevitz & Myers, 1998). People tend to emphasize the steps of doing something when they are under a process-focused mindset, whereas they will focus on the feelings of joy and achievement when under an outcome-focused mindset (Pham & Taylor, 1999; Taylor et al., 1998). As utilitarian products mainly provide support to the process by solving problems and getting things done (Dhar & Wertenbroch, 2000; Strahilevitz & Myers, 1998), consumers would be more motivated to choose utilitarian products when they are under a process-focused mindset. However, as hedonic products target at the outcome by providing enjoyment and fun experiences (Dhar & Wertenbroch, 2000; Strahilevitz & Myers, 1998), consumers would be more motivated to choose hedonic products when they are under an outcome-focused mindset.

CHAPTER 3. THE CURRENT RESEARCH

We have theorized above that start (vs. end) temporal landmarks trigger a process-focused (vs. outcome-focused) mindset, and past literature has suggested that process-focused (vs. outcome-focused) mindsets increase consumers' preference for utilitarian (vs. hedonic) products. Putting them together, we propose that start (vs. end) temporal landmarks will trigger a process-focused (vs. outcome-focused) mindset, which in turn leads to higher preferences for utilitarian (vs. hedonic) products. Stating the hypotheses formally (see a theoretical framework in Appendix A):

> ***H1:*** *Start (vs. end) temporal landmarks will increase consumers' preferences for utilitarian (vs. hedonic) products.*

H2: *The effect of temporal landmark on consumer preference for different types of products will be mediated by the process- versus outcome-focused mindset of consumers.*

We further test our underlying mechanism by investigating a key moderator of the effect – purchasing time (pre-order vs. purchase immediately). Pre-order is a popular marketing strategy that is commonly used for new products (e.g., Mukherjee et al., 2021; Su & Rao, 2010; Thorbjørnsen et al., 2015). Consumers often order first before the launch day and receive the product at a later date when the product is available (e.g., Jha et al., 2019; Loginova, 2016; Mukherjee et al., 2016; Mukherjee et al., 2021). Previous research shows that pre-orders not only benefit zealous consumers by guaranteeing product delivery immediately after release (Li & Zhang, 2013), but also, more importantly, benefit the retailers by forecasting the demand (McCardle et al., 2004; Li & Zhang, 2013; Peng & Tian, 2022; Prasad et al., 2011; Su & Rao, 2010), creating a positive buzz to attract consumers (Su & Rao, 2010; Zhang & Choi, 2018), setting price strategies (McCardle et al., 2004; Li & Zhang, 2013; Tang et al., 2004), and making inventory decisions (Prasad et al., 2011; Tang & Girotra, 2017; Zhao & Stecke, 2010), which all, in turn, may increase their profits (Sorescu et al., 2007; Tang & Girotra, 2017; Tang et al., 2004; Zhao & Stecke, 2010).

Given the characteristics of pre-ordering, the temporal delay between ordering time and receiving time will drive consumers' focus to the distant (vs. present) future (e.g., Trope & Liberman, 2003; Zhao et al., 2011). As previous research has shown that people will naturally have outcome-focused (vs. process-focused) thoughts when considering distant (vs. near) future events (Zhao et al., 2011), it is likely that consumers will be more likely to focus on the outcome (vs. process) under a pre-ordering situation. We had argued that consumers show a high preference for utilitarian (vs. hedonic) products when a start (vs. end) temporal

landmark was salient because start (vs. end) temporal landmarks trigger more process (vs. outcome) focus. If consumers' process/outcome focus is shifted by product pre-ordering, our proposed effect should be attenuated, dismissed, or even reversed. Stating this formally (see a theoretical framework in Appendix A):

> ***H3:*** *The effect of temporal landmark on consumer preference for different types of products will be attenuated or dismissed when consumers pre-order the product (vs. purchase it immediately).*

CHAPTER 4. EMPIRICAL INVESTIGATIONS

We test these hypotheses in a set of ten studies (eight of which are pre-registered; see a brief summary of studies in Appendix B). Studies 1A and 1B provide field evidence for our proposed effect of (start vs. end) temporal landmarks on consumers' preference for different (utilitarian vs. hedonic) types of products. Specifically, Study 1A shows that consumers download more utilitarian (vs. hedonic) smartphone apps on the first (vs. last) week of a month; Study 1B shows that consumers purchase more utilitarian (vs. hedonic) products on Mondays (i.e., the first working day of a week) than Fridays (i.e., the last working day of a week). Studies 2 and 3 replicate the effect in controlled experiments with various temporal landmark manipulations (e.g., first versus last working day of a week; first versus last day of a month; first versus last day of a trip), on both hypothetical and incentive-compatible dependent variables. Study 4 provides mediational evidence that the effect we observed is driven by consumers' process (vs. outcome) focus at the start (vs. end) of a temporal period. Through a moderation-of-process approach, Study 5 provides further support to our proposed mechanism. Specifically, we find that the observed effect of temporal landmarks on

consumer preference for utilitarian versus hedonic products diminished among consumers under an externally induced process-focused or outcome-focused mindset. Finally, Study 6 shows that the effect of temporal landmarks on consumers' preference for utilitarian vs. hedonic products is attenuated when purchase decisions are temporally detached from consumption (i.e., when products are pre-ordered).

To demonstrate the generalizability of our findings, across studies we utilized various types of landmarks (e.g., first/last day of a month; first/last working day of a week; first/last day of a trip) and different product categories (e.g., juice; body spray; headsets; apartments). For studies in which full randomization is not utilized (e.g., when data of each experimental condition was collected on a different calendar day), post-hoc tests were conducted to make sure that the sample do not vary systematically across conditions (see Web Appendix C). The target sample size in these studies was selected based on previous research on hedonic versus utilitarian consumption (e.g., Whitley et al., 2018) and power analyses through G*Power (Faul et al., 2009). We reported all manipulations and all data in the analyses. Basic demographic measurements (such as gender and age) were collected at the end of each experiment, but since they did not have a systematic impact on our results, we do not discuss them further. Details about manipulations, measures, and additional analyses can be found in the web appendix.

4.1. STUDY 1

Study 1 provides initial field evidence for our proposed effect that consumers make more utilitarian (vs. hedonic) purchases at the start (vs. end) of a temporal period. Specifically, Study 1A reveals that consumers download more utilitarian (vs. hedonic) smartphone apps during earlier days than later days of a month. Study 1B shows that

consumers purchase more utilitarian (vs. hedonic) products on Mondays (i.e., the first working day of a week) than Fridays (i.e., the last working day of a week).

4.1.1. Study 1A

In Study 1A, we test whether consumers download more utilitarian (vs. hedonic) smartphone apps during earlier days than later days of a month. We utilized the app downloading data from QIMAI (www.qimai.cn), a website that provides live and historical download statistics of smartphone apps in Apple's App Store for China. We selected the Top 10 ranked apps from the learning and gaming category as the proxy for utilitarian and hedonic products, respectively (see Web Appendix D1 and D2 for the list of apps included). A pretest confirms that apps in the learning (vs. gaming) category indeed are perceived as more utilitarian (see Web Appendix D3 for details). We predict that the download volume for hedonic apps compared to utilitarian apps would increase from the start to end of a temporal period.

We obtained the daily download volume for each app from May 1st of 2021 to April 30th of 2022. To have an overview of the general data pattern, we first plotted the logged download volume of hedonic and utilitarian apps separately by the date of month (see Figure 1). From Figure 1, we could observe that the download volume of hedonic apps increases from the start to the end of a monthly period compared to that of utilitarian apps, which is consistent with our prediction. As a consideration of the difference in the absolute value of download volume between hedonic and utilitarian apps, we performed a normalization by taking the proportion of daily download volume for each app among all other apps (i.e., AppRatio) in the following analyses. Specifically, we calculated this AppRatio by using the

download volume for a specific app divided by the total download volume of all apps on that day. The regression model is developed as follows:

$$R_{it} = \delta \times DateOfMonth_t \times Hedonic_i + \beta_1 \times DateOfMonth_t + \beta_2 \times App_i + \beta_3 \times Month_t + \varepsilon_{it},$$

where R_{it} denotes the AppRatio for app i on date t, $DateOfMonth_t$ specifies the date of the month for date t, and $Hedonic_i$ is a dummy variable for whether or not app i is in the hedonic category. App_i is the app fixed effect that controls for app-level observed and unobserved characteristics, including UH_i. We include the calendar month $Month_t$ in the model as the additional control variable. ε_{it} denotes the error term.

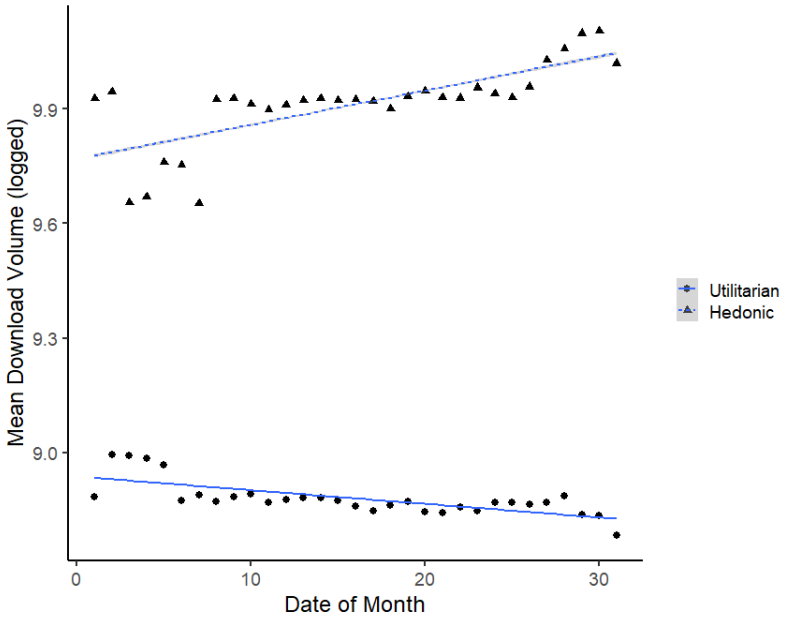
We focused on the estimates of δ, which stands for the difference in AppRatio between utilitarian versus hedonic apps as the date increases by one unit within month-level timeframe. Our main results showed that the key interaction coefficient (i.e., δ) was significantly positive (δ = .0002, $p < .001$), supporting our hypothesis that the consumption behavior for hedonic apps increases relative to utilitarian apps from the start to the end of a temporal period. Specifically, consumers downloaded more hedonic versus utilitarian apps at the later days of a month compared to the earlier days of that month.

To check the robustness of the effect, we also performed a similar analysis on a week-level timeframe. Compared with previous model, we substitute DayOfWeek_t for DateOfMonth_t and WeekIndex_t (i.e., which week the observation is in) for Month_t to control for the week-level factor in the above equation. The main results showed that the key interaction coefficient δ was marginally positive (δ = .0005, $p = .002$), providing extra support to our hypothesis. Furthermore, we also changed the dependent variable to see if our effects still hold. Specifically, we performed an analysis using the download volume as the

dependent variable. We take the log transformation for the dependent variable (i.e., $\log(Y_{it})$) while keeping other parts unchanged in the equation. Our main results showed that the key interaction coefficient (i.e., δ) was significantly positive (δ = .009, $p < .001$), supporting our hypothesis that the consumption behavior for hedonic apps increases relative to utilitarian apps from the start to end of a temporal period.

FIGURE 1

AVERAGE DOWNLOAD VOLUME OF UTILITARIAN VERSUS HEDONIC APPS OVER THE DATE OF MONTH – STUDY 1A



4.1.2. Study 1B

Study 1B sought to replicate the findings of Study 1A by surveying consumers' real product purchases. In this study, we operationalized the start versus end temporal landmarks as Mondays (i.e., the first working day of a week) versus Fridays (i.e., the last working day of

a week) and asked consumers to report what they bought on those days. We predicted that consumers would purchase a higher proportion of utilitarian (vs. hedonic) products on Mondays than Fridays.

A total of 400 Chinese consumers (M_{age} = 29.42; 60.5% females) were recruited from Credamo (a Chinese survey platform similar to MTurk and Prolific) to participate in this study for a small payment. The study was conducted on either September 11th, 2021 (i.e., a Saturday) or September 14th, 2021 (i.e., a Tuesday). On September 11th (14th), 2021, participants were first told that according to laws in China, Friday is considered the last working day of a week (Monday is considered the first working day of a week). Then, they were asked to write down all the things that they had purchased yesterday on Friday September 10th (Monday September 13th), 2021.

Each participant reported a list of items they purchased yesterday (ranging from one to 59 items), such as food and beverages, transportation, educational training, and consumer goods (see Web Appendix E for the list of product categories mentioned). Six participants didn't report any purchase, so they were excluded, left us with 394 participants for later data analyses. Two research assistants, who were blind to the research hypotheses, coded each product reported by participants as either hedonic or utilitarian. Within each participant, only unique items were coded. Then, a utilitarian versus hedonic (Uti-Hed) index was calculated by dividing the total number of utilitarian items one individual purchased by the total number of purchased items, representing consumers' preference for utilitarian purchases.

A one-way ANOVA on the Uti-Hed index revealed a significant effect of temporal landmark on consumers' preference for utilitarian purchases ($F(1, 392) = 21.00$, $p < .001$; $\eta_p^2 = .05$). Consistent with our prediction, consumers purchased a greater proportion of utilitarian products on Mondays (M = 75.00%, SD = 0.32) than on Fridays (M = 59.33%, SD = 0.36). To further validate our results, another two research assistants, who were also blind to the

research hypotheses, coded the numbers of utilitarian and hedonic products purchased with the repeated purchases of same items counted. The results confirmed our previous findings that there was a significant effect of temporal landmark on consumers' preference for utilitarian purchases ($F(1, 392) = 17.37$, $p < .001$; $\eta_p^2 = .04$). Specifically, consumers purchased a greater proportion of utilitarian products on Mondays ($M = 74.95\%$, SD = 0.32) than on Fridays ($M = 60.43\%$, SD = 0.37).

4.1.3. Discussion

Study 1 provided initial field evidence for our proposed effect that consumers have more utilitarian (vs. hedonic) purchases at the start (vs. end) of a temporal period. In Study 1A, we showed that consumers download more utilitarian (vs. hedonic) smartphone apps in the first week of the month than in the last week of the month. Study 1B demonstrated that consumers purchase more utilitarian (vs. hedonic) products on Mondays (i.e., the first working day of a week) than Fridays (i.e., the last working day of a week).

It should be noted that the findings of both studies are correlational. Thus, they cannot establish a causal relationship between temporal landmarks and consumers' product preferences. Moreover, the smartphone apps and products involved in these two studies do not only differ on the utilitarian/hedonic dimension but also on many other dimensions. Therefore, we may not be able to conclude absolutely that the effect we observed is driven by the utilitarian/hedonic difference between products. To address these issues, in Study 2, we test our hypothesis in controlled experimental settings across different contexts.

4.2. STUDY 2

Study 2 aims to replicate the effect we observed in Study 1 under a more controlled experimental setting with different temporal landmark manipulations. Specifically, participants indicated more positive product evaluation and showed higher purchase intention to utilitarian-framed products than hedonic-framed products on the first day (vs. the last day) of a calendar month (Study 2A).

In order to enhance the generalizability of the research, Study 2 utilizes three different methods to manipulate start versus end temporal landmarks to further explore the effect. In addition, we adopted products from three different product categories and framed them as either utilitarian or hedonic: pomegranate juice in Study 2A, body spray in Study 2B, and apartment room in Study 2C.

4.2.1. Study 2A

In Study 2A, we looked at the impact of natural temporal markers, specifically the first versus the last day of a calendar month. We predicted that consumers would evaluate utilitarian (vs. hedonic) products more positively and show a higher purchase intention toward utilitarian (vs. hedonic) products, on the first versus the last day of a calendar month.

A total of 403 participants (M_{age} = 39.53; 47.9% females) completed this preregistered study (https://osf.io/u9tv2) via Amazon Mechanical Turk (MTurk) for a nominal payment. This study used a 2 (temporal landmark: start vs. end) × 2 (product type: utilitarian vs. hedonic) between-subjects design.

The study was conducted on either January 31st, 2022 (i.e., the last day of a month) or February 1st, 2022 (i.e., the first day of a month). Participants first filled in the date of that

day and indicated whether that day was the first or the last day of the month. To make sure that our participants were aware of the date of their participation, following prior literature on temporal landmark (e.g., Bi et al., 2021), only participants who answered the questions correctly were allowed to complete the later data collection. The details of the manipulations can be found in Appendix F1.

Next, participants imagined that they were shopping today and encountered a product that they were interested in. To better control the differences in features other than the utilitarian versus hedonic attributes among products, in this study, we presented the same product and framed it as either a utilitarian or a hedonic product. Specifically, participants were presented with information about a pack of pomegranate juice (adapted from Botti & McGill, 2011; Chen et al., 2017; Pham, 1998). In the *hedonic* condition, the product was introduced as a pack of delicious pomegranate juice for relaxing and brightening up your days, whereas in the *utilitarian* condition, the product was introduced as a pack of nutritional pomegranate juice for boosting heart health and regulating blood pressure. The product image and other product information were the same across conditions. The details of the manipulations can be found in Appendix F2. A pretest confirmed that the hedonic/utilitarian manipulations were successful, and this manipulation did not influence participants' overall product evaluation (see Web Appendix F3 for details).

After reading the product information, participants reported their evaluation of the product on a three-item, nine-point scale (1 = bad/unpleasant/dislike, 9 = good/pleasant/like; α = .97), and their intention to purchase the product (1 = not at all, 9 = very much; see Web Appendix F4 for details).

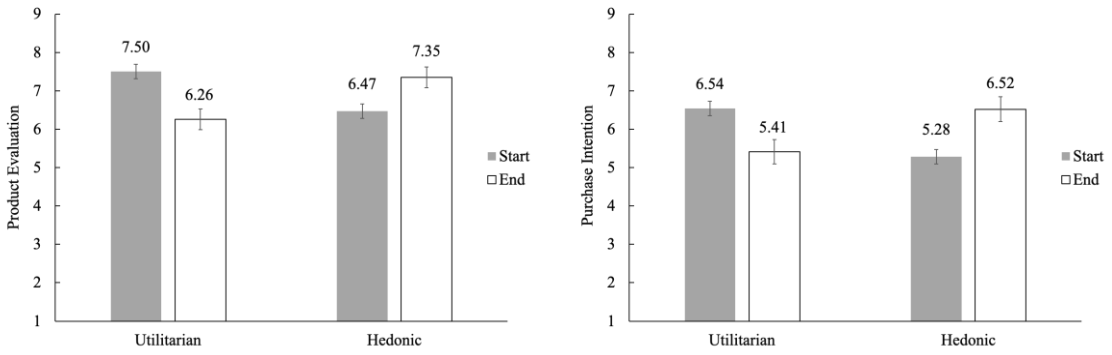
A two-way ANOVA on product evaluation revealed only a significant interaction effect ($F(1, 399) = 30.86$, $p < .001$; $\eta_p^2 = .07$; see Figure 2 Left). Consistent with our expectation, on the first day of the month, participants evaluated the utilitarian-framed

product more positively (M = 7.50, SD = 1.46) than the hedonic-framed product (M = 6.47, SD = 2.23; $F(1, 399) = 14.74$, $p < .001$; $\eta_p^2 = .04$). On the contrary, at the last day of the month, participants evaluated the hedonic-framed product more positively (M = 7.35, SD = 1.61) than the utilitarian-framed product (M = 6.26, SD = 2.26; $F(1, 399) = 16.13$, $p < .001$; $\eta_p^2 = .04$).

A two-way ANOVA on purchase intention showed a similar pattern. There was a significant interaction effect ($F(1, 399) = 28.14$, $p < .001$; $\eta_p^2 = .07$; see Figure 2 Right). On the first day of the month, participants indicated higher purchase intention for the utilitarian-framed product (M = 6.54, SD = 1.96) than the hedonic-framed product (M = 5.28, SD = 2.41; $F(1, 399) = 16.00$, $p < .001$; $\eta_p^2 = .04$). However, at the last day of the month, participants showed higher purchase intention for the hedonic-framed product (M = 6.52, SD = 2.08) than the utilitarian-framed product (M = 5.41, SD = 2.47; $F(1, 399) = 12.27$, $p = .001$; $\eta_p^2 = .03$).

FIGURE 2

EFFECT OF TEMPORAL LANDMARK ON PRODUCT EVALUATION (LEFT) AND PURCHASE INTENTION (RIGHT) FOR UTILITARIAN AND HEDONIC PRODUCTS – STUDY 2A



4.2.2. Study 2B

In Study 2B, we aimed to replicate the effect using another temporal marker (i.e., the first versus the last day of a week) and in a shopping scenario with a different product (i.e., body spray). We predicted that consumers would evaluate utilitarian (vs. hedonic) products more positively on the first versus the last day of a week.

A total of 401 participants (M_{age} = 40.65; 56.1% females) completed this preregistered study (https://osf.io/duw75) via MTurk for a nominal payment. This study followed a 2 (temporal landmark framing: start vs. end) × 2 (product type: utilitarian vs. hedonic) between-subjects design.

Similar to Study 1B, the start vs. end temporal landmarks were manipulated by utilizing the first vs. last working day of a week. The study was conducted on February 14th, 2022 (i.e., a Monday) or February 18th, 2022 (i.e., a Friday). Participants first filled in the date of that day and indicated whether that day was the first or the last day of the month. Only participants who answered the questions correctly could proceed to the next task. The details of the manipulations can be found in Appendix G1. As part of the exploration study, we also conducted a similar study on the middle working day of the week (i.e., a Wednesday). The details of the procedure and results can be found in Appendix G2.

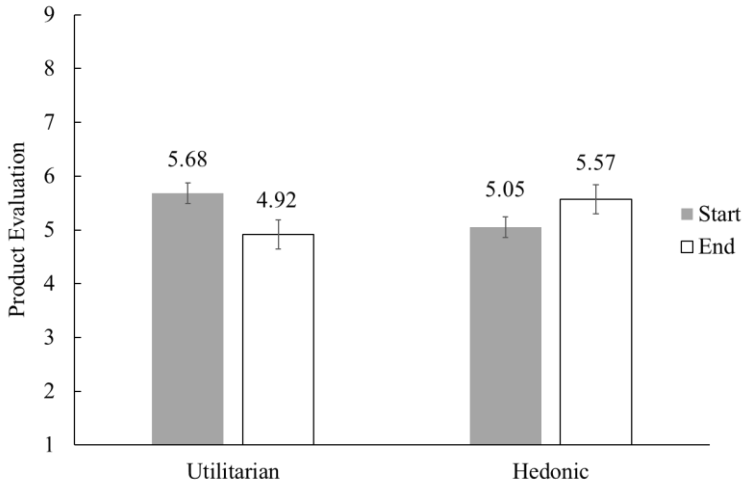
In the next task, we utilized a similar shopping scene as Study 2A but with a product from the personal care category presented to the participants. Specifically, participants were presented with information about a body spray (adapted from Botti & McGill, 2011; Chen et al., 2017; Pham, 1998). In the *hedonic* condition, the product was introduced as a bottle of fragrance body spray for showing your fashion taste and increasing attractiveness, whereas in the *utilitarian* condition, the product was introduced as a bottle of deodorant body spray for a simple and effective solution for body odor and sweat odor. The product image and other

product information were the same across conditions (see Web Appendix G3 for the stimuli used). A pretest confirmed that the hedonic/utilitarian manipulations were successful, and this manipulation did not influence participants' overall product evaluation (see Web Appendix G4 for details). Then, participants evaluated the body spray on the same three-item scale used in Study 2A (α = .98).

A two-way ANOVA on product evaluation revealed a significant interaction between temporal landmark and product type ($F(1, 397) = 8.87$, $p < .001$, $\eta_p^2 = .02$; see Figure 3). Consistent with our prediction, on the first day of the week, participants evaluated the utilitarian-framed product more positively (M = 5.68, SD = 2.11) than the hedonic-framed product (M = 5.05, SD = 2.09; $F(1, 397) = 4.28$, $p = .039$, $\eta_p^2 = .01$). On the contrary, at the last day of the week, as predicted participants evaluated the hedonic-framed product more positively (M = 5.57, SD = 2.21) than the utilitarian-framed product (M = 4.92, SD = 2.18; $F(1, 397) = 4.59$, $p = .033$, $\eta_p^2 = .01$).

FIGURE 3

EFFECT OF TEMPORAL LANDMARK ON PRODUCT EVALUATION FOR UTILITARIAN AND HEDONIC PRODUCTS – STUDY 2B



4.2.3. Study 2C

Instead of manipulating temporal landmarks based on the chronicle time, in Study 2C, we manipulated it via event-based time (i.e., a ten-day vacation trip). Specifically, we asked participants to imagine a situation where they have to make a purchasing decision on the first (vs. last) day of a vacation trip. We expect that participants would show a higher preference toward hedonic (vs. utilitarian) products on the first (vs. last) day of a vacation trip. The scenario of vacation trip was particularly chosen because people mainly want to reward themselves throughout the trip (Li and Yu, 2020), whereas other events may involve different levels of self-rewarding from the start to end (Fishbach and Dhar, 2005; Mick and Faure, 1998; Locke, 1996), which introduces confounding factors directly affecting the choice for hedonic (vs. utilitarian) products.

A total of 200 participants (M_{age} = 41.47, 61.5% females) completed this preregistered study (https://osf.io/euy5x) via MTurk for a nominal payment. They were randomly assigned to conditions of a 2-cell (temporal landmark: start vs. end) between-subjects design.

Participants first imagined that they were either on the first day (in the *start landmark* condition) or the last day (in the *end landmark* condition) of a ten-day vacation trip. Then, participants imagined that they were looking for a place to stay that day. There were two apartment options available (see Web Appendix H1). One was framed as a more hedonic option (i.e., "equipped with game & movie for relaxing," "beautiful views with lots of light," and "perfect for kicking back & having fun"), whereas the other was framed as a more utilitarian option (i.e., "equipped with a large deck & ergonomic chair," "easy walk to bus stops and grocery stores," and "convenient for living & business."). A pretest confirmed that this manipulation influences people's perception of how hedonic/utilitarian the options are but not their overall attractiveness (see Web Appendix H2 for details).

After reading the information about these two apartments, participants indicated their preference for them on a nine-point scale (1 = prefer Option A [i.e., the hedonic apartment], 9 = prefer Option B [i.e., the utilitarian apartment]).

Consistent with our prediction, we found that participants prefer the utilitarian (vs. hedonic) apartment more on the first day of their vacation trip (M = 4.45, SD = 3.17), than on the last day of their vacation trip (M = 3.07, SD = 2.50; $F(1, 199) = 11.81$, $p < .001$; $\eta_p^2 = .06$).

4.2.4. Discussion

The results of studies 2A, 2B, and 2C provided further support for our hypothesis that consumers have a more positive attitude toward and higher purchase intention for utilitarian

(vs. hedonic) products when a start (vs. end) temporal landmark was salient. To demonstrate the generalizability of our findings, we test them on both chronicle (Study 2A and Study 2B) and event-based (Study 2C) temporal landmarks. More importantly, different from studies 1A and 1B, in which we collected correlational data, studies 2A, 2B, and 2C were conducted in controlled experimental settings, providing support to the casual nature of our proposed effect.

4.3. STUDY 3

In Study 3, we tested our hypotheses using an incentive-compatible design with real behavioral outcomes. Specifically, Study 3A showed that participants were more likely to participate in a raffle for a utilitarian-framed (vs. hedonic-framed) product on the first (vs. last) day of a calendar month. In Study 3B, we found that participants were more likely to choose a utilitarian (vs. hedonic) product as a free gift on the first (vs. last) working day of a week.

4.3.1. Study 3A

A total of 200 participants (M_{age} = 39.70; 45.0% females) completed this preregistered study (https://osf.io/7mz9f) via MTurk for a nominal payment. This study followed a 2-cell (temporal landmark: start vs. end) between-subjects design.

The study was conducted on either August 31st, 2022 (i.e., the last day of a month) or September 1st, 2022 (i.e., the first day of a month). A test was further conducted to confirm that there is no significant difference between participants of these two groups in terms of

gender ($M_{Start\text{-}female}$ = 47.0%, $M_{End\text{-}female}$ = 43.0%; χ^2 (200) = .32, p = .670) and age (M_{Start} = 39.77, SD = 10.51, M_{End} = 39.63, SD = 11.52; F(1, 199) = .01, p = .929). In the study, participants first completed an unrelated reading task and then made an incentive-compatible choice adapted from Study 7b in the paper by Wilson and Bellezza (2022). Specifically, disguised as a reading comprehension task, participants first read a short article about the post office and answered several questions about the article (see Web Appendix I for details). Only participants who answered the comprehension questions correctly were allowed to complete the later data collection. To make sure that our participants were aware of the date of their participation, following prior literature on temporal landmark (e.g., Bi et al., 2021), we gently reminded participants by showing a sentence on the next page, "Today is Aug 31 (vs. Sep 1). It is the last (vs. first) day of this month." in the end (vs. start) temporal landmark condition. It is worth mentioning that the manipulation of start (vs. end) temporal landmark is much less demanding and more marketing applicable compared to the previous studies (i.e., Studies 2A and 2B).

At the end of the study, participants were shown two body sprays: one framed as a hedonic product (i.e., "infused with modernity and fashion," "the scent that makes you feel attractive," and "experiences all the pleasantness in the world"), whereas the other framed as a utilitarian product (i.e., "provides up to 48 hours of protection", "contains ¼ moisturizers for soft underarms," and "0% alcohol, skin-friendly"; see Web Appendix I2). A pretest confirmed that this manipulation influences people's perception of how hedonic/utilitarian the products are but not their overall attractiveness (see Web Appendix I3 for details).

After reading the information about these two products, participants were told that, as a token of thanks for their participation in this study, the experimenter was going to hold a raffle to select several participants to receive a free body spray as a gift. Participants were asked to put down their email addresses and indicate which body spray they would like to

receive if they won the raffle. Later, ten participants were randomly picked and contacted to deliver the selected body spray.

A chi-square test demonstrated a significant effect of temporal landmark (χ^2 (200) = 12.72, p = .001; OR = .35). As we expected, a higher proportion of participants chose the utilitarian product on the first day of the month (M = 56.0%) than on the last day of the month (M = 31.0%).

4.3.2. Study 3B

A total of 241 undergraduates (M_{age} = 22.65; 63.5% females) completed this preregistered study (https://osf.io/fmc3u) for a small monetary payment. This study followed a 2-cell (temporal landmark: start vs. end) between-subjects design.

The study was conducted on either Monday, April 11th, 2022 (i.e., the first working day of a week) or Friday, April 15th, 2022 (i.e., the last working day of a week). A test was further conducted to confirm that there is no significant difference between participants of these two groups in terms of gender ($M_{Start\text{-}female}$ = 59.2%, $M_{End\text{-}female}$ = 67.8%; χ^2 (241) = 1.92, p = .182) and age (M_{Start} = 22.68, SD = 2.95, M_{End} = 22.61, SD = 14.35; F(1, 240) = .003, p = .957). After completing an unrelated filler survey, as in Studies 1B and 2A, participants filled in the date of that day, and indicated whether that day was the first or the last day of the month. Only participants who answered the questions correctly were allowed to complete the later data collection (e.g., Bi et al., 2021).

At the end of the study, participants were told that, as a token of thanks for their participation in this study, they could take a free drink as a gift. Participants were asked to pick from two types of guava drinks: one framed as a hedonic product (i.e., “a delicious guava drink”), whereas the other framed as a utilitarian product (i.e., “a nutritional guava

drink"; see Web Appendix J1). A pretest confirmed that this manipulation influences people's perception of how hedonic/utilitarian the drinks are, but not their overall attractiveness (see Web Appendix J2 for details). Finally, participants received the drink that they picked.

A chi-square test revealed a significant effect of temporal landmark (χ^2 (241) = 10.79, p = .001; OR = 2.36). Consistent with our expectation, a higher proportion of participants chose the utilitarian drink on Monday (M = 59.2%) than on Friday (M = 38.0%).

4.3.3. Discussion

Taken together, across six studies, studies 1-3 provided convergent evidence to our prediction that consumers have a more favorable attitude toward utilitarian (vs. hedonic) products at the start (vs. end) of a temporal period. This effect was demonstrated with different types of temporal landmarks (e.g., first/last day of a month; first/last working day of a week; first/last day of a vacation trip), a gentle manipulation for temporal landmarks (i.e., reminding the date), on various products (e.g., pomegranate juice; body spray; guava juice; apartments), and with different types of measurements (product evaluation; product choice; purchase intention), suggesting the high robustness and generalizability of the observed effect.

In the next few studies, we further explore the mechanism of the observed effect via mediation and moderation methods.

4.4. STUDY 4

In Study 4, we examine the underlying mechanism of the observed effect by testing the mediational role of process-outcome focus.

4.4.1. Method

A total of 400 participants (M_{age} = 41.71; 54.0% females) completed this preregistered study (https://osf.io/rtqhk) via MTurk for a nominal payment. This study followed a 2 (temporal landmark: start vs. end) × 2 (product type: utilitarian vs. hedonic) between-subjects design.

The study was conducted on either July 31st, 2022 (i.e., the last day of a month) or August 1st, 2022 (i.e., the first day of a month). A test was further conducted to confirm that there is no significant difference between participants of these two groups in terms of gender ($M_{Start\text{-}female}$ = 56.0%, $M_{End\text{-}female}$ = 52.0%; χ^2 (400) = .64, p = .483) and age (M_{Start} = 41.60, SD = 12.27, M_{End} = 41.83, SD = 12.74; F(1, 399) = .03, p = .854). Participants were presented with information about a headset. In the *hedonic* condition, the headset was described as "an entertainment headset for enjoying the music and games better,"; whereas in the *utilitarian* condition, the headset was described as "a working headset for a better sound quality and noise-canceling function" (see Web Appendix K1). A pretest confirmed that this manipulation influences people's perception of how hedonic/utilitarian the headsets are but not their overall attractiveness (see Web Appendix K2 for details).

Then, participants evaluated the headset on the same three-item scale used in Study 2B (α = .97). We also measured participants' process versus outcome focus through a five-item scale (e.g., how much they thought about using the product on a daily basis; Escalas et

al., 2004; see Web Appendix K3 for details) and built a process-outcome focus index based on that (higher scores represent more process focus; Mathur et al., 2013).

4.4.2. Results

A two-way ANOVA on product evaluation revealed only a significant interaction effect ($F(1, 396) = 31.80$, $p < .001$; $\eta_p^2 = .07$; see Figure 4). Specifically, participants evaluated the utilitarian-framed product more positively ($M = 7.41$, SD = 1.30) than the hedonic-framed product ($M = 6.35$, SD = 2.09; $F(1, 396) = 18.64$, $p < .001$; $\eta_p^2 = .05$), at the first day of the month. However, on the last day of the month, participants evaluated the hedonic-framed product more positively ($M = 7.26$, SD = 1.33) than the utilitarian-framed product ($M = 6.36$, SD = 2.05; $F(1, 396) = 13.38$, $p < .001$; $\eta_p^2 = .03$).

A two-way ANOVA on the process-outcome focus index revealed only a significant main effect of temporal landmarks ($F(1, 396) = 22.04$, $p < .001$; $\eta_p^2 = .05$), such that participants focused more on the process on the first day of the month ($M = 0.12$, SD = 2.53), than they did at the last day of the month ($M = -0.94$, SD = 1.93). The mediation analyses (PROCESS model 15 with 5,000 bootstrap samples; Hayes, 2018) confirmed that the effect of temporal landmarks on product evaluation was moderated by product type and mediated by the process-outcome focus ($B = .53$; 95% CI: .2022 to .9605; see Figure 5). Consistent with our prediction, conditional indirect effects of process-outcome focus were significant both when the product was hedonic-framed ($B = .29$; 95% CI: .0636 to .5547) and utilitarian-framed ($B = -.24$; 95% CI: -.4600 to -.0775), but with different directions.

FIGURE 4

EFFECT OF TEMPORAL LANDMARK ON PRODUCT EVALUATION FOR UTILITARIAN AND HEDONIC PRODUCTS – STUDY 4

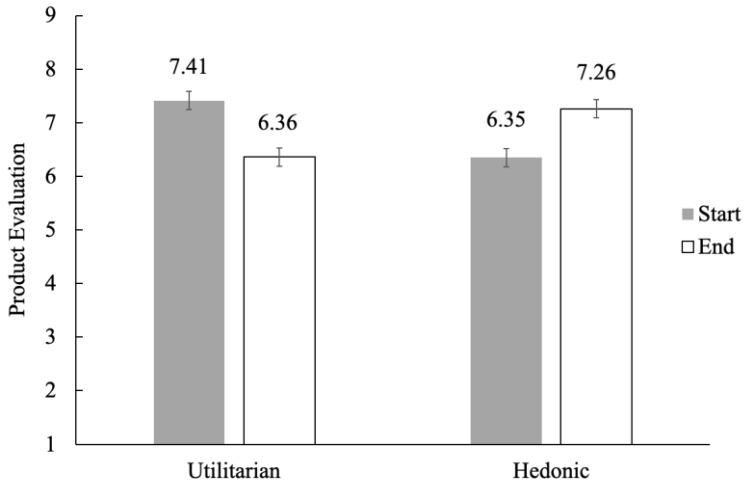
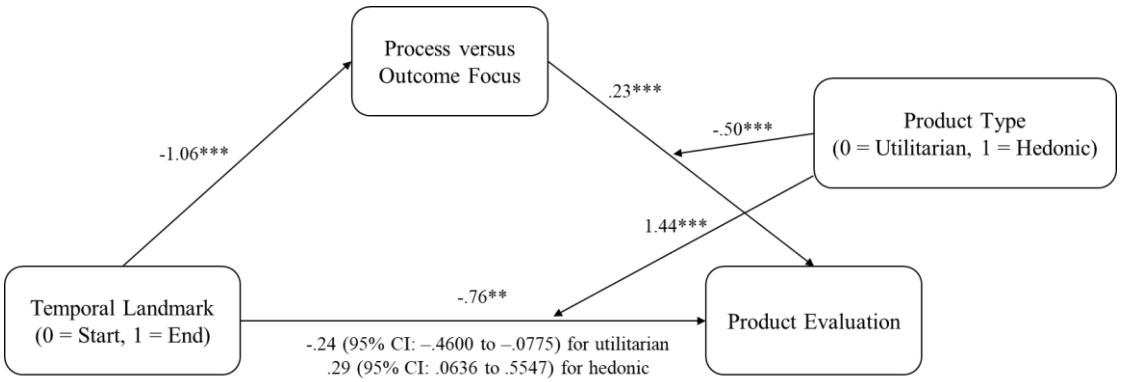


FIGURE 5

MEDIATION MODEL



4.4.3. Discussion

Study 4 tapped into the underlying mechanism of the observed effect by demonstrating the mediational role of process-outcome focus. Consistent with our hypothesis, we found that the effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products was mediated by their focus on the process versus outcome.

4.5. STUDY 5

Through a process-by-moderation approach (Spencer, Zanna, and Fong 2005), Study 5 aims to provide further evidence for our underlying process by directly manipulating consumers' process-outcome focus. We predicted that the effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products would be attenuated or dismissed when either a process-focused or an outcome-focused mindset was triggered externally.

4.5.1. Method

A total of 600 participants (M_{age} = 40.35, 51.7% females) completed this preregistered study (https://osf.io/q7ngu) via MTurk for a nominal payment; they were randomly assigned to conditions of a 2 (temporal landmark: start vs. end) × 3 (focus: process vs. outcome vs. control) between-subjects design.

Participants imagined that they were having a ten-day vacation trip. To manipulate process/outcome focus, participants first completed a writing task (adapted from Zhao et al., 2007; Chang & Hung, 2018). Specifically, in the *process focus* condition, participants were

instructed to write about how they would spend each day of this trip, whereas in the *outcome focus* condition, participants were instructed to write about the benefits they would get from this trip. This writing task is skipped in the *control* condition. A separate pretest confirmed that this manipulation triggered process versus outcome focus successfully (see Web Appendix L for details).

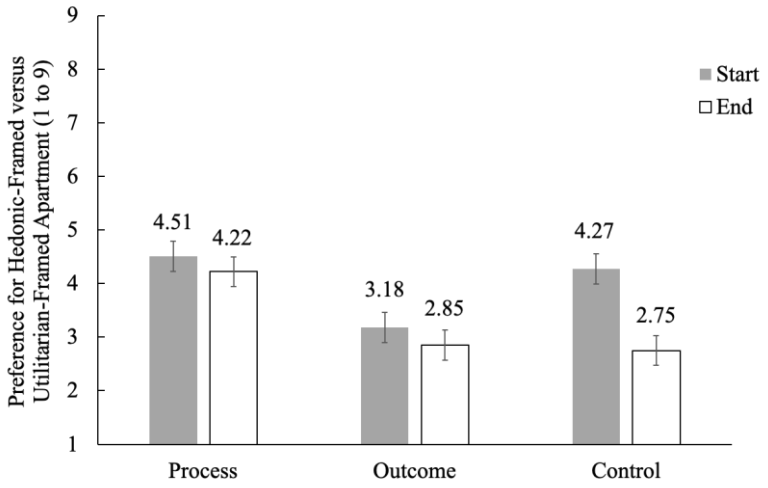
Then, similar to Study 2B, participants imagined that they were either on the first day (in the *start landmark* condition) or the last day (in the *end landmark* condition) of the trip, and they were looking for a place to stay that day. Participants indicated their preference between the two available apartment options we used in Study 2C (one hedonic-framed, the other utilitarian-framed; see Web Appendix H1) on a nine-point scale (1 = prefer Option A [i.e., the hedonic apartment], 9 = prefer Option B [i.e., the utilitarian apartment]).

4.5.2. Results

A two-way ANOVA on participants' preference of apartment options revealed both the main effect of temporal landmark ($F(1, 594) = 9.58$, $p = .002$; $\eta_p^2 = .02$) and the main effect of process-outcome focus ($F(1, 594) = 11.82$, $p < .001$; $\eta_p^2 = .04$), qualified by a significant interaction effect ($F(2, 594) = 3.09$, $p = .046$; $\eta_p^2 = .01$; see Figure 6). As expected, we replicated the observed effect in the control condition. That is, participants prefer the utilitarian (vs. hedonic) apartment more on the first day of their vacation trip ($M = 4.27$, SD = 3.11) than on the last day of their vacation trip ($M = 2.75$, SD = 2.32; $F(1, 594) = 14.55$, $p < .001$; $\eta_p^2 = .02$). This effect, however, disappeared in both the process focus condition ($M_{start} = 4.51$, SD = 3.01 vs. $M_{end} = 4.22$, SD = 3.23; $F(1, 594) = 0.51$, $p = .474$) and the outcome focus condition ($M_{start} = 3.18$, SD = 2.54 vs. $M_{end} = 2.85$, SD = 2.60; $F(1, 594) = 0.69$, $p = .407$).

FIGURE 6

EFFECT OF FOCUS AND TEMPORAL LANDMARK ON PREFERENCE FOR HEDONIC VERSUS UTILITARIAN PRODUCTS – STUDY 5



4.5.3. Discussion

As we expected, we found that the effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products was dismissed when either a process-focused mindset or an outcome-focused mindset was triggered externally. Through a process-by-moderation approach, the results of this study provided further support to the process-outcome focus mechanism we proposed.

4.6. STUDY 6

Past research suggested that consumers tended to focus more on outcomes (vs. process) for things in the distant future (vs. near future; Min et al., 2011). In a situation when

products are preordered, they are likely to think in a future framework and focus more on the outcomes because the product can only be received at a later date. Thus, we predict that the effect we observed previously is likely to be attenuated or dismissed when the products are preordered but not purchased at the moment. Study 6 tests this possibility.

4.6.1. Method

A total of 401 participants (M_{age} = 40.26; 49.6% females) completed this preregistered study (https://osf.io/6mbk2) via MTurk for a nominal payment. This study followed a 2 (temporal landmark: start vs. end) × 2 (order type: pre-ordering vs. immediate-purchase) between-subjects design.

The study was conducted on either Monday, April 18th, 2022 (i.e., the first working day of a week) or Friday, April 22nd, 2022 (i.e., the last working day of a week). A test was further conducted to confirm that there is no significant difference between participants of these two groups in terms of gender ($M_{Start\text{-}female}$ = 56.0%, $M_{End\text{-}female}$ = 52.0%; χ^2 (400) = .64, p = .483) and age (M_{Start} = 41.60, SD = 12.27, M_{End} = 41.83, SD = 12.74; F(1, 399) = .03, p = .854). Then participants were presented with information about two headsets similar to those in Study 4: one hedonic-framed, the other utilitarian-framed (see Web Appendix M1). A pretest confirmed that this manipulation influences people's perception of how hedonic/utilitarian the headsets are, but not their overall attractiveness (see Web Appendix M2 for details). In the *pre-ordering* condition, participants were also told that both headsets were not available now; they would receive the product one month later. In the *immediate-purchase* condition, however, participants were not provided any information about pre-ordering. After reading the information about the headsets, participants indicated their

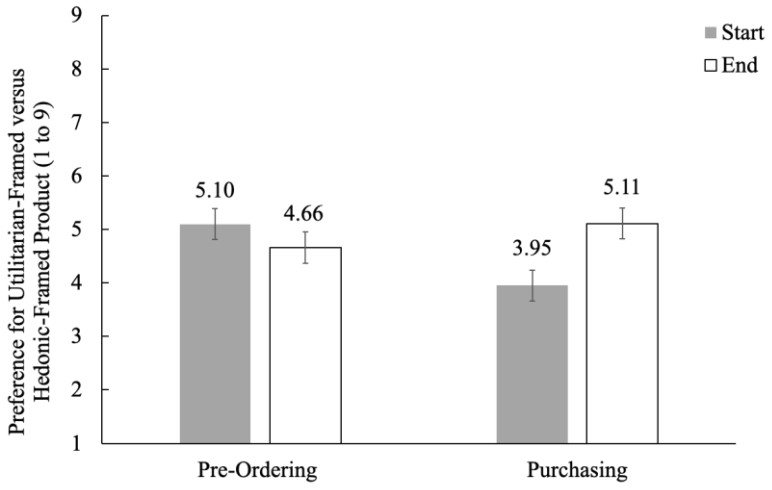
preference between the two headsets on a nine-point scale (1 = Product A [i.e., utilitarian-framed headsets], 9 = Product B [i.e., hedonic-framed headsets]).

4.6.2. Results

A two-way ANOVA on participants' preference for headsets revealed only a significant interaction effect ($F(1, 397) = 7.69$, $p = .006$; $\eta_p^2 = .02$; see Figure 7). Consistent with our expectation, in the immediate-purchase condition, we found that participants prefer the utilitarian (vs. hedonic) headsets more on the first day of the month ($M = 3.95$, SD = 2.77) than on the last day of the month ($M = 5.11$, SD = 2.90; $F(1, 397) = 8.12$, $p = .005$; $\eta_p^2 = .02$). This effect, however, disappeared in the pre-ordering condition ($M_{start} = 5.10$, SD = 2.93 vs. $M_{end} = 4.66$, SD = 2.95; $F(1, 397) = 1.16$, $p = .282$).

FIGURE 7

MODERATION EFFECT OF ORDER TYPE – STUDY 6



4.6.3. Discussion

Study 6 provided further support to our proposed mechanism by demonstrating the moderation of pre-ordering. We found that the effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products was dismissed when the product needed to be pre-ordered.

CHAPTER 5. GENERAL DISCUSSION

5.1. SUMMARY

Across ten studies and through secondary data analyses, lab experiments, and field studies, the present research revealed that start (vs. end) temporal landmarks trigger a process-focused (vs. outcome-focused) mindset, which in turn increases consumers' preference for utilitarian (vs. hedonic) products. Specifically, consumers downloaded more utilitarian (vs. hedonic) apps at the start (vs. end) of a temporal period (Study 1A) and purchased more utilitarian (vs. hedonic) products or services at the start (vs. end) of a month (Study 1B). When start (vs. end) temporal landmarks (i.e., first vs. last day of a month, first vs. last day of a week, and first vs. last day of a trip) were salient, participants evaluated utilitarian-framed (vs. hedonic-framed) products more favorably (Studies 2A, 2B, and 2C) and were more willing to purchase them (Study 2A). This effect was replicated with incentive-compatible behavioral data, both online and offline (Studies 3A and 3B). Moreover, the mediating role of process (vs. outcome) mindsets was validated via both mediation (Study 4) and moderation (Study 5). Finally, we showed that the effect of the temporal landmark on product preference was attenuated when products were pre-ordered (Study 6).

5.2. THEORETICAL CONTRIBUTIONS

The current research contributes to multiple streams of literature. We contribute to the literature on temporal landmark (e.g., Dai et al., 2014, 2015; Peetz & Wilson, 2014; Peetz & Wilson, 2013; Shum, 1998). Past efforts in this area have primarily focused on non-marketing domains, such as memory (e.g., Koriat & Fischhoff, 1974; Kurbat et al., 1998; Shum, 1998), perception (e.g., Peetz & Epstude, 2016; Peetz & Wilson, 2014; Peetz & Wilson, 2013), and goal-related behaviors (e.g., Dai et al., 2014, 2015; Hennecke & Converse, 2017). The extant work about temporal landmarks in the marketing domain has explored its impact on transformative actions (Price et al., 2018), temporal-spatial association (Bi et al., 2021), and simple versus complex visual design (Chen et al., 2023). Our study augments this growing body of literature by demonstrating a novel consequence of temporal landmarks on consumers' preference for utilitarian vs. hedonic products, an important categorization of products/services (e.g., Alba & Williams, 2013; Batra & Ahtola, 1991; Siddiqui et al., 2018).

Our research also contributes to the literature on utilitarian versus hedonic consumption (e.g., Bazerman et al., 1998; Chen et al., 2017; Lu et al., 2016) by introducing temporal landmark as a novel precedent of utilitarian versus hedonic consumption. Past literature on this topic shows that people may choose a particular type of product due to reasons related to the need or easiness of justification (e.g., Bazerman et al., 1998; Okada, 2005), the guilty involved (e.g., Kivetz& Simonson, 2002b; Lu et al., 2016), and sense of control gained (Chen et al., 2017). Adding to this stream of literature, we are the first to show that a temporal-related factor (i.e., start vs. end temporal landmarks) might also influence consumers' choices on utilitarian and hedonic products.

Our findings also extend the existing literature on process versus outcome orientations (Butler, 2000; Escalas & Luce, 2003, 2004; Munichor & Leboeuf, 2018; Taylor et al., 1998)

by identifying a temporal-related antecedent of these mindsets. Some of the work connects growth (vs. fixed) mindsets with the process (vs. outcome) focus, arguing that people with a growth mindset focus on the process and have more process-related thoughts (e.g., Butler, 2000; Chiu et al., 1997; Jain et al., 2009; Levy et al., 1998; Mathur et al., 2013). Other work shows that older people (Freund et al., 2010) and people with expertise (Mehta et al., 2011) will focus more on the process. The only work that connects a temporal factor with a process versus outcome mindset is the work of Munichor and Leboeuf (2018), who suggest that describing the goal using the timeframe of date (vs. duration) makes people adopt a process-focused (vs. outcome-focused) mindset, that is, thinking about the painful goal-pursuit steps rather than the end benefits. Adding to this stream of literature, the current paper proposes another temporal factor (i.e., start vs. end temporal landmark) that can trigger process-focused (vs. outcome-focused) mindsets.

5.3. FUTURE RESEARCH DIRECTIONS

The current research can hopefully suggest many future research directions. For example, in the current paper, we examined the impact of various types of (start vs. end) temporal landmarks, such as the first versus last day of a month (Studies 2A, 3A, and 4), first versus last day of a week (Studies 2B, 3B, and 6), and first versus last day of a trip (Studies 2C and 5). However, except for Study 2C, which provided evidence of our effect using the start versus the end of a personal event (i.e., the first vs. last day of a ten-day trip), we mainly focus on the temporal landmarks based on reference points of a calendar (Shum, 1998) in our studies. Future research can extend the scope of this research by examining whether and how other types of event-based temporal landmarks (e.g., public events, such as a public holiday

or traditional festivals, or some personal events, such as birthdays or graduation) also influence consumers' preference for hedonic versus utilitarian consumptions.

In the current research, we mainly focused on material purchases (e.g., juice, deodorant, headsets). Compared with material consumption, experiential consumption provides more retrospective values (Elster & Loewenstein, 1992), such as memories and storytelling capacity (Van Boven & Gilovich, 2003). Material consumption, on the other hand, provides a long-lasting consumption utility where consumers could save resources for future consumption (Tully et al., 2015). Therefore, it is possible that consumers at a start temporal landmark would make more material purchases as they are planning for the future rather than looking back on the past. Future research is needed to validate this prediction.

One may argue that people are more depleted (e.g., Kouchaki & Smith, 2014; Zor et al., 2022) at the end temporal landmark. Thus, compared to participants in the start temporal landmark condition, they might be more likely to indulge themselves in choosing hedonic over utilitarian products (e.g., Coelho do Vale et al., 2016; de Witt Huberts et al., 2012). However, we believe that physical depletion is less likely to explain our findings because 1) in our online studies, all data collection was conducted at the same time (i.e., 10 or 11 AM) on different days; thus, participants in different conditions should have similar levels of physical depletion, and 2) in Studies 2C and 6, we utilized an imagination task where participants imagined if they were at the first or last day of the trip, and this imagination task should not influence participants' physical depletion. Future research can further address this issue and investigate the relationship between temporal landmarks and depletion in different scenarios.

Future research may also explore the possibilities of other mechanisms or a multi-mechanism model for this effect. For example, start temporal landmarks may engender prospective thinking whereas end temporal landmarks may engender retrospective thinking.

As prospective thinking involves the processes of getting things done while retrospective thinking involves some counterfactuals about other possible outcomes (e.g., Kane, McGraw, and Van Boven, 2008; Kane, Van Boven, and McGraw, 2012), the prospective (vs. retrospective) thinking may serve as antecedents or substitutes for process-focused (vs. outcome-focused) mindsets. Another possible mechanism is that consumers may be learned to be more self-controlled at the start of a time period and gradually increase their preferences for a good or happy ending (Loewenstein and Prelec, 1993), which explains a preference for hedonic over utilitarian products from start to end temporal landmarks. Future research can devote more effect to refining the mechanisms for this effect.

Furthermore, the current research purposes the moderation of process-focused (vs. outcome-focused) mindsets and pre-order of the products. There may also be other moderators or boundary conditions of the effect. For instance, the level of relevance may moderate the effect of temporal landmarks on product preference. We assume in the current work that people have an agreement and acknowledge the categorization of months and weeks, and thus people recognize the signals of start and end temporal landmarks. Some temporal landmarks, however, may only be applicable to a certain group of people. For example, the end of summer vacation and the start of an academic semester are mainly meaningful to students or people working at school. In this circumstance, the effect of temporal landmarks on product preference will disappear for other groups of people. Future research may also explore other moderators or boundary conditions in terms of situational, individual, or cultural characteristics.

5.4. PRACTICAL IMPLICATIONS

The findings of the current research have important managerial implications. Consumers are now moving from offline shopping to online shopping with the rapid development of information technology, and the COVID-19 pandemic has exacerbated this trend. Companies can now easily arrange different promotional events at different time points throughout the year, and many of them happen at either the start or the end of a time period. For example, Black Friday and Cyber Monday are the two biggest sales events in the United States. The former happens at the end of working days in a week, whereas the latter happens at the start of working days in a week. Taobao, one of the biggest Chinese e-commerce platforms, holds the Double 11 shopping festival starting on the first day of November. Another Chinese e-commerce giant JD has its biggest annual promotion starting on the first day of June (i.e., the 618 shopping festival). We suggest that companies should match the time of their marketing promotion with the type of their products when designing marketing strategies. Specifically, our findings suggest that the company's product promotion would be more effective if utilitarian products or utilitarian-related product features could be emphasized at the time of start temporal landmarks, and hedonic products or hedonic-related product features could be emphasized at the time of end temporal landmarks.

Companies may frame a product as more hedonic or more utilitarian by using different product descriptions. As shown in our studies 3-6, a product (e.g., juice, apartments, headsets, body spray) can be framed as either a hedonic or a utilitarian product, depending on the information provided by the company. If a company intends to hold a promotion at a start temporal landmark (e.g., the start of the month or the start of the week), it could be beneficial to frame the consumption experience utilitarianly. In contrast, if a company is planning for a promotion at the end temporal landmark (e.g., end of the month or end of the week), it could

be helpful to frame the consumption experience hedonically. Interestingly, consistent with this suggestion, some companies are indeed taking similar strategies to promote their products. For instance, Chevrolet's year-end promotion slogan in Chinese reads, "it's a good time to treat yourself to a year-end reward" (Yiche, 2014). This slogan frames the purchase of their vehicles hedonically to nudge consumers' purchases at the end of the year. In contrast, the Japanese motor company ISUZU uses "Spring benefits: choose a better car to meet a better future" as the tagline in their beginning-of-the-year promotion (Motor, 2021), depicting the purchase of their vehicles in a utilitarian way to nudge consumers' purchase at the beginning of the year.

In addition to framing the product differently (as either a hedonic or a utilitarian product), marketers could also frame the time point of their promotional activities strategically. For example, the end of fall is also the start of winter. When marketers are going to promote utilitarian products such as a humidifier or space heaters, instead of calling it an end-of-fall sale, it is more effective to label it as the start-of-winter sale. On the contrary, when they want to promote products with more hedonic features, such as trendy clothes or entertainment-related products, at the same time, it would be more effective to call it the end-of-fall sale.

Finally, our research suggests that such a strategy may not work if the products are pre-ordered. Therefore, companies should be cautious about using this temporal-landmark-product-type matching strategy for pre-order products. However, our research also provides a solution for promoting such products; that is, framing them more hedonically. The results of Study 6 show that when items are pre-ordered, consumers prefer the hedonic-framed product to the utilitarian-framed one regardless of start or end temporal landmark cues. This finding is also consistent with previous work by Mukherjee, Smith, and Burton (2021), which finds that

affect-laden marketing strategies, for example, positioning the product more hedonically, increase purchase intention for pre-order products.

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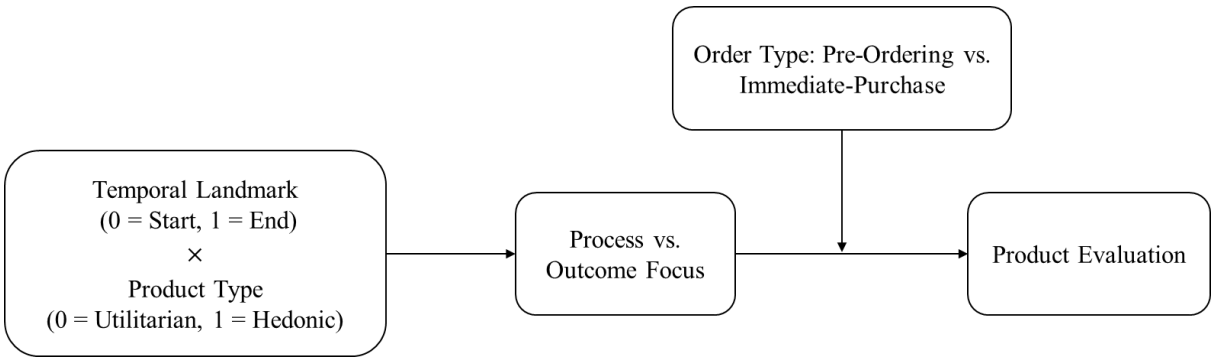
WEB APPENDICES

WEB APPENDIX A

THEORETICAL FRAMEWORK



WEB APPENDIX B

SUMMARY OF STUDIES

Study	Start vs. End Temporal Landmark	Main Purpose	Product Type	Main Finding	Statistics
1A	A continuous variable at both month and week levels	Showing the main effect using second-hand data	Apps	Consumers downloaded more utilitarian (vs. hedonic) smartphone apps in the first week of the month than in the last week of the month (H_1).	Key interaction coefficient $\delta = .0002$, $p < .001$
1B	First vs. last workday	Showing the main effect using a purchase history survey	All possible products and services	Consumers purchased more utilitarian (vs. hedonic) products on Mondays than Fridays (H_1).	$F(1, 392) = 21.00$, $p < .001$
2A	First vs. last day of a month	Demonstrating the main effect	Pomegranate juice	Participants indicated more positive product evaluation and showed higher purchase intention to utilitarian-framed products than hedonic-framed products on the first day (vs. the last day) of a calendar month (H_1).	Product evaluation: $F(1, 399) = 30.86$, $p < .001$; Purchase intention: $F(1, 399) = 28.14$, $p < .001$

2B	First vs. last workday	Demonstrating the main effect	Body spray	Replicating the effect using the first day (vs. the last day) of a week (H_1).	$F(1, 397) = 8.87$, $p < .001$
2C	First vs. last day of a trip	Demonstrating the main effect	Apartment room	Participants preferred the utilitarian (vs. hedonic) apartment more on the first day of their vacation trip than on the last day of their vacation trip (H_1).	$F(1, 199) = 11.81$, $p < .001$
3A	First vs. last day of a month	Replicating the main effect using an incentive-compatible online study	Body spray	Participants were more likely to participate in a raffle for a utilitarian-framed (vs. hedonic-framed) product on the first (vs. last) day of a calendar month (H_1).	χ^2 (200) = 12.72, $p = .001$
3B	First vs. last workday	Replicating using an incentive-compatible lab study	Guava juice	Participants chose more utilitarian (vs. hedonic) products as a free gift, on the first (vs. last) working day of a week (H_1).	χ^2 (241) = 10.79, $p = .001$

4	First vs. last day of a month	Testing the mediation effect	Headsets	The effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products was mediated by their focus on the process versus outcome (H_2).	Product evaluation: $F(1, 396) = 31.80$, $p < .001$; Process-outcome focus index: $F(1, 396) = 22.04$, $p < .001$; Mediation: $B = .53$; 95% CI: .2022 to .9605
5	First vs. last day of a trip	Using a process-by-moderation approach to test the mediator	Apartment room	The effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products was dismissed when either a process-focused mindset or an outcome-focused mindset was triggered externally (H_2).	Interaction: $F(2, 594) = 3.09$, $p = .046$; Control: $F(1, 594) = 14.55$, $p < .001$; Process focus condition: $F(1, 594) = 0.51$, $p = .474$; Outcome focus condition: $F(1, 594) = 0.69$, $p = .407$
6	First vs. last workday	Showing the moderating role of order type	Headsets	The effect of temporal landmarks on consumers' preference toward hedonic (vs. utilitarian) products was dismissed when the product needs to be pre-ordered (H_3).	$F(1, 397) = 7.69$, $p = .006$; Purchase: $F(1, 397) = 8.12$, $p = .005$; Pre-order: $F(1, 397) = 1.16$, $p = .282$

WEB APPENDIX C

COMPARISON OF DEMOGRAPHIC INFORMATION IN START VERSUS END TEMPORAL LANDMARK GROUPS

Study	Gender Comparison	Age Comparison
1B	$M_{Start\text{-}female}$ = 53.5%, $M_{End\text{-}female}$ = 67.5%; χ^2 (400) = 8.20, p = .004	M_{Start} = 29.80, SD = 16.88, M_{End} = 29.04, SD = 6.40; F(1, 399) = .35, p = .552
2A	$M_{Start\text{-}female}$ = 46.0%, $M_{End\text{-}female}$ = 49.8%; χ^2 (403) = .56, p = .486	M_{Start} = 39.85, SD = 12.65, M_{End} = 39.20, SD = 12.07; F(1, 399) = .28, p = .596
3A	$M_{Start\text{-}female}$ = 47.0%, $M_{End\text{-}female}$ = 43.0%; χ^2 (200) = .32, p = .670	M_{Start} = 39.77, SD = 10.51, M_{End} = 39.63, SD = 11.52; F(1, 199) = .01, p = .929
3B	$M_{Start\text{-}female}$ = 59.2%, $M_{End\text{-}female}$ = 67.8%; χ^2 (241) = 1.92, p = .182	M_{Start} = 22.68, SD = 2.95, M_{End} = 22.61, SD = 14.35; F(1, 240) = .003, p = .957
4	$M_{Start\text{-}female}$ = 56.0%, $M_{End\text{-}female}$ = 52.0%; χ^2 (400) = .64, p = .483	M_{Start} = 41.60, SD = 12.27, M_{End} = 41.83, SD = 12.74; F(1, 399) = .03, p = .854
6	$M_{Start\text{-}female}$ = 56.0%, $M_{End\text{-}female}$ = 52.0%; χ^2 (400) = .64, p = .483	M_{Start} = 41.60, SD = 12.27, M_{End} = 41.83, SD = 12.74; F(1, 399) = .03, p = .854

WEB APPENDIX D

ADDITIONAL MATERIALS IN STUDY 1A

D1: LIST OF SELECTED APPS IN THE LEARNING CATEGORY

Ranking	Name
1	Youdao dictionary
2	Practice for Fluency
3	Hundred words chop
4	Kingsoft Power Word
5	Baidu Translate
6	Youdao Translator
7	English interesting dubbing
8	Scallop words English version
9	Super Curriculum
10	Daily English Listening

D2: LIST OF SELECTED APPS IN THE GAMING CATEGORY

Ranking	Name
1	Glory of Kings
2	Game for Peace
3	Happy cancellation
4	QQ flying car
5	Across the line of fire: the king of gunfight
6	Fifth personality
7	Light encounter
8	Run away! juvenile
9	Happy fight against the landlord
10	Craz3 Match

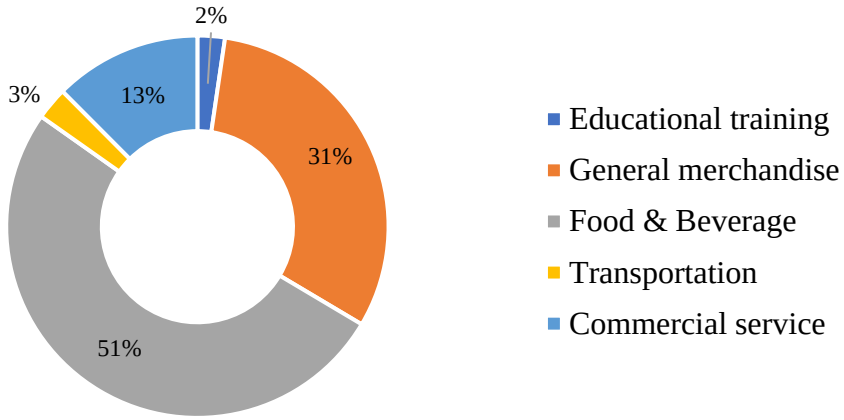
D3: PRETEST OF APPS IN STUDY 1A

This study aimed to confirm that apps in the learning (vs. game) category were considered more utilitarian (vs. hedonic). A total of 100 Chinese participants (49.0% females, M_{age} = 23.18) from Credamo were randomly assigned to evaluate either one of the two app categories (i.e., learning category and gaming category). Participants were first shown the ten selected apps in that specific category. We then provided them with the definition of utilitarian and hedonic consumption: "Consumers purchase products and services from different sellers. Downloading apps can also be regarded as a type of consumption. These consumptions can be classified into two general categories: utilitarian consumption and hedonic consumption. Utilitarian consumption is the consumption mainly aiming for practical problem solving; Hedonic consumption is the consumption mainly aiming for fun and excitement" (adapted from Alba & Williams, 2013; Dhar & Wertenbroch, 2000). We then asked participants, "To what extent do you feel downloading apps from the learning category (vs. gaming category) is a utilitarian or hedonic consumption?" (1 = very much utilitarian, 9 = very much hedonic).

Our analysis revealed that participants perceived downloading apps from the learning (vs. gaming) category to be more utilitarian (vs. hedonic) ($M_{learning}$ = 2.23, SD = 1.91 vs. M_{gaming} = 7.68, SD = 1.59; $F(1, 98) = 237.74$, $p < .001$, $\eta_p^2 = .71$).

WEB APPENDIX E

PRODUCT CATEGORIES PURCHASED IN STUDY 1B



WEB APPENDIX F

ADDITIONAL MATERIALS IN STUDY 2A

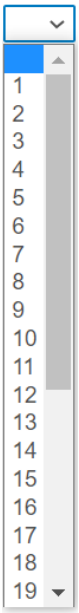
F1: MANIPULATIONS OF START VERSUS END TEMPORAL LANDMARK IN STUDY 2A

Please fill out the sentence below:

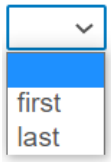
Today is _____.

Month

Date



It is the _____ day of this month.



The correct answer in the **start** temporal landmark condition is:

Today is _____.

Month Feb

Date 1

It is the ____ day of this month.

first

The correct answer in the **end** temporal landmark condition is:

Today is _____.

Month Jan

Date 31

It is the ____ day of this month.

last

F2: MANIPULATIONS OF UTILITARIAN VERSUS HEDONIC CONDITION IN STUDY 2A

Utilitarian condition:

Imagine that **today you are shopping.**

Then you see the following advertisement for a pack of **nutritional pomegranate juice** **for boosting heart health and regulating blood pressure**.

Hedonic condition:

Imagine that **today you are shopping.**

Then you see the following advertisement for a pack of **delicious pomegranate juice** **for relaxing and brightening up your days**.

F3: PRETESTS OF PRODUCTS IN STUDY 2A

We conduct pretests for the stimuli used in Studies 2A, 2B, 2C, 3A, 3B, 4, and 6 for two purposes: 1) to confirm the manipulation of hedonic and utilitarian framings of the products was successful, and 2) to ensure that the manipulation don't influence the product attractiveness and product evaluations.

For each study, we first assessed the product evaluation on a three-item, nine-point scale: "Please indicate your overall feelings of this product:" (1 = bad/unpleasant/dislike, 9 = good/pleasant/like; Bergkvist & Rossiter, 2007). We further assessed the attractiveness of the product by asking participants: "To what extent do you feel this product to be attractive?" (1 = not at all, 9 = very much). Next, as a manipulation check for the hedonic and utilitarian framings, we showed participants a brief introduction to hedonic and utilitarian consumptions: "Consumers purchase products and services from different sellers. These consumptions can be classified into two general categories: utilitarian consumption and hedonic consumption. Utilitarian consumption is the consumption mainly aiming for practical problem solving; Hedonic consumption is the consumption mainly aiming for fun and excitement" (adapted from Alba & Williams, 2013; Dhar & Wertenbroch, 2000). We then ask participants, "To what extent do you feel the consumption of the product is utilitarian or hedonic?" (1 = very much utilitarian, 9 = very much hedonic).

In the pretest for Study 2A, a total of 100 participants (M_{age} = 40.96, 51.0% females) were recruited from MTurk. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed pomegranate juice as either a utilitarian product (nutritional pomegranate juice) or a hedonic product (delicious pomegranate juice). The procedure of this study was described above.

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed product (nutritional pomegranate juice) was rated to be more utilitarian and less hedonic than the hedonic-framed product (delicious pomegranate juice)($M_{\text{utilitarian-framed}}$ = 3.84, SD = 1.76 vs. $M_{\text{hedonic-framed}}$ = 5.59, SD = 2.37; $F(1, 98) = 17.51$, $p < .001$, $\eta_p^2 = .15$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{\text{utilitarian-framed}}$ = 7.24, SD = 1.43 vs. $M_{\text{hedonic-framed}}$ = 7.02, SD = 1.77; $F(1, 98) = .46$, $p = .499$; $\alpha = .974$) and product attractiveness ($M_{\text{utilitarian-framed}}$ = 6.10, SD = 1.84 vs. $M_{\text{hedonic-framed}}$ = 6.14, SD = 1.92; $F(1, 98) = .01$, $p = .926$), indicating the manipulation did not influence the product evaluation and attractiveness.

F4: MEASURES IN STUDY 2A

Product Evaluation (adapted from Bergkvist & Rossiter, 2007):

Please indicate your overall feeling of this product: (1 – 9)

Bad……...…….Good

Unpleasant……Pleasant

Dislike……...…….Like

Purchase intention (adapted from Hodges & Chen, 2022):

To what extent would you consider buying the product? (1 = Not at all, 9 = Very much)

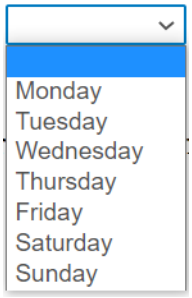
WEB APPENDIX G

ADDITIONAL MATERIALS IN STUDY 2B

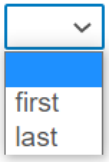
G1: MANIPULATIONS OF START VERSUS END TEMPORAL LANDMARK IN STUDY 2B

Please fill out the sentence below:

Today is _____.

Day 

It is the _____ working day of this week.



The correct answer in the **start** temporal landmark condition is:

Please fill out the sentence below:

Today is _____.

Day Monday

It is the ____ working day of this week.

first

The correct answer in the **end** temporal landmark condition is:

Please fill out the sentence below:

Today is _____.

Day Friday

It is the ____ working day of this week.

last

G2: THE ADDITIONAL STUDY IN STUDY 2B

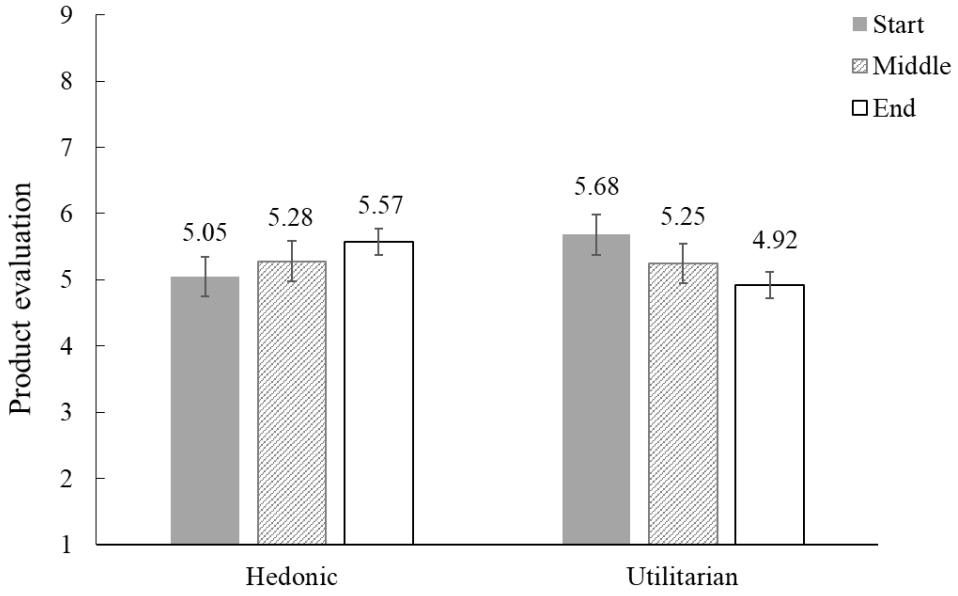
For an exploratory purpose, we conducted a similar study on February 16th, 2022 (i.e., a Wednesday), the middle working day of the week. The manipulation of this temporal landmark was similar to Study 2B. Participants then read the same shopping scenario and completed the product evaluation for body spray.

Aggregating data of all three conditions (i.e., Monday, Wednesday, and Friday) together, a two-way ANOVA on product evaluation revealed a significant interaction between temporal landmark and product type ($F(1, 595) = 4.36$, $p = .013$, $\eta_p^2 = .01$; see Figure 1). Consistent with our prediction, on the first day of the week, participants evaluated the utilitarian-framed product more positively ($M = 5.68$, SD = 2.11) than the hedonic-framed product ($M = 5.05$, SD = 2.09; $F(1, 595) = 4.2$, $p = .041$, $\eta_p^2 = .01$). On the contrary, at the last day of the week, as predicted participants evaluated the hedonic-framed product more positively ($M = 5.57$, SD = 2.21) than the utilitarian-framed product ($M = 4.92$, SD = 2.18; $F(1, 595) = 4.51$, $p = .034$, $\eta_p^2 = .01$). This effect, however, disappeared on the middle day of the week, there was no significant difference between the evaluation for the utilitarian-framed product ($M = 5.25$, SD = 2.12) and the hedonic-framed product ($M = 5.28$, SD = 2.29; $F(1, 595) = .01$, $p = .931$).

The results of this additional study provided further support for our hypothesis that the effect of start (vs. end) temporal landmarks was driven by both the start and end. Specifically, people have a more positive attitude toward utilitarian (vs. hedonic) products when a start (vs. end) temporal landmark was salient.

FIGURE 1

EFFECT OF TEMPORAL LANDMARK ON PRODUCT EVALUATION FOR UTILITARIAN AND HEDONIC PRODUCTS – ADDITIONAL STUDY IN STUDY 2B



G3: STIMULI IN STUDY 2B

FIGURE 2

HEDONIC CONDITION

FIGURE 3

UTILITARIAN CONDITION

G4: PRETESTS OF PRODUCTS IN STUDY 2B

A total of 100 participants (M_{age} = 39.55, 54.0% females) were recruited from MTurk. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed body spray as either a utilitarian product (deodorant body spray) or a hedonic product (fragrance body spray). The procedure of this study was similar to pretests in Study 2A (see Web Appendix F3).

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed product (deodorant body spray) was rated to be more utilitarian and less hedonic than hedonic-framed product (fragrance body spray) ($M_{utilitarian\text{-}framed}$ = 3.44, SD = 2.64 vs. $M_{hedonic\text{-}framed}$ = 6.76, SD = 2.02; $F(1, 98) = 50.06$, $p < .001$, $\eta_p^2 = .34$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{utilitarian\text{-}framed}$ = 5.32, SD = 1.95 vs. $M_{hedonic\text{-}framed}$ = 5.34, SD = 2.12; $F(1, 98) = .002$, $p = .961$; $\alpha = .98$) and product attractiveness ($M_{utilitarian\text{-}framed}$ = 4.62, SD = 1.91 vs. $M_{hedonic\text{-}framed}$ = 4.72 SD = 2.36; $F(1, 98) = .05$, $p = .816$), indicating the manipulation did not influence the product evaluation and attractiveness.

WEB APPENDIX H

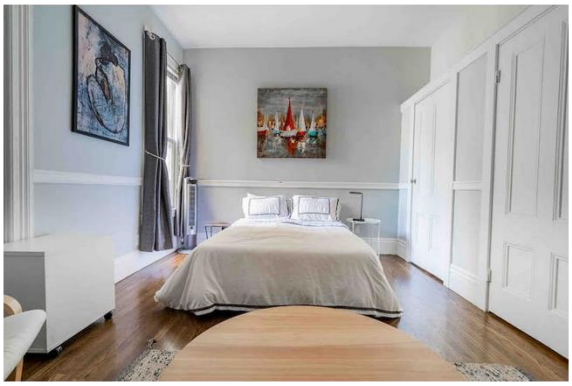
ADDITIONAL MATERIALS IN STUDY 2C

H1: STIMULI IN STUDY 2C

FIGURE 4

STIMULI IN STUDY 2C

Option A



- ✓ Equipped with game & movie rooms for relaxing
- ✓ Beautiful views with lots of light
- ✓ Perfect for kicking back & having fun

Option B

- ✓ Equipped with a large desk & ergonomic chair
- ✓ Easy walk to bus stops and grocery stores
- ✓ Convenient for living & business

H2: PRETESTS OF STIMULI IN STUDY 2C

A total of 50 participants (44.0% females, M_{age} = 45.10) were recruited from MTurk. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed two apartment rooms, one as a utilitarian apartment and the other as a hedonic apartment. The procedure of this study was similar to pretests in Study 2A (see Web Appendix F3).

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed apartment was rated to be more utilitarian and less hedonic than the hedonic-framed apartment ($M_{utilitarian-framed}$ = 3.42, SD = 2.08 vs. $M_{hedonic-framed}$ = 5.24, SD = 2.16; $F(1, 49) = 36.66$, $p < .001$, $\eta_p^2 = .43$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{utilitarian-framed}$ = 6.66, SD = 1.90 vs. $M_{hedonic-framed}$ = 6.99, SD = 1.39; $F(1, 49) = 2.09$, $p = .154$; $\alpha = .921$) and product attractiveness ($M_{utilitarian-framed}$ = 6.56, SD = 1.70 vs. $M_{hedonic-framed}$ = 6.94, SD = 1.45; $F(1, 49) = 2.95$, $p = .092$), indicating the manipulation did not influence the product evaluation and attractiveness.

WEB APPENDIX I

ADDITIONAL MATERIALS IN STUDY 3A

I1: READING TASK AND COMPREHENSION QUESTIONS IN STUDY 3A

Post Office[1]

Every town in the United States has a post office. Some are very small, and you may also find them in the corner of a shop. Others are larger buildings. If you know how much the postage is for your letter, you can buy stamps at any window. In some post offices, you can buy stamps from machines. Stamps are sold at many different prices, from one cent to many dollars. If you are not sure how much postage is for your letter, you may ask the man or the woman in the post office for help. He or she will give you the stamps you need. If you are sending your letter far away, you should use airmail envelopes. Remember that postage will be more expensive for a letter to be sent outside the country. At a post office, you can also buy postcards. A postcard is cheaper than a letter. Usually, the price of the postage for a postcard is about half that of a letter. The postcards that you buy at a post office do not have pictures. However, also they are not to be sent outside the country. Letters are an easy and cheap way to keep in touch with people in many different countries.

Do you find this article hard to read?

- Yes
- No
- Neither hard nor easy

[1] The paragraph was adapted from http://www.1010jiajiao.com/czyy/shiti_id_030d22e3957b0599464519e529285b7d

What is this article about?

- Post office [Correct answer]
- Food
- Universe

According to the article, the price of postage for _____ is more expensive.

- A letter written on envelope
- A letter by airmail [Correct answer]
- A postcard with pictures

According to the article, if you are not sure how much postage is for your letter, you can _____.

- Send a cheap postcard instead of your letter
- Get in touch with somebody you know in the post office
- Ask the man or the woman in the post office for help [Correct answer]

I2: STIMULI IN STUDY 3A

FIGURE 5

STIMULI IN STUDY 3A

Product A

- ✓ Infused with modernity and fashion
- ✓ The scent that makes you feel attractive
- ✓ Experiences all the pleasantness in the world

Product B

- ✓ Provides up to 48 hours of protection
- ✓ Contains 1/4 moisturizers for soft underarms
- ✓ 0% alcohol, skin friendly

I3: PRETESTS OF PRODUCTS IN STUDY 3A

A total of 50 participants (51.0% females, M_{age} = 43.71) were recruited from MTurk. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed body spray as either a utilitarian product (deodorant body spray) or a hedonic product (fragrance body spray). The procedure of this study was similar to pretests in Study 2A (see Web Appendix F3).

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed product (deodorant body spray) was rated to be more utilitarian and less hedonic than hedonic-framed product (fragrance body spray) ($M_{utilitarian\text{-}framed}$ = 3.69, SD = 2.18 vs. $M_{hedonic\text{-}framed}$ = 6.24, SD = 2.21; $F(1, 50) = 41.15$, $p < .001$, $\eta_p^2 = .45$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{utilitarian\text{-}framed}$ = 6.22, SD = 1.93 vs. $M_{hedonic\text{-}framed}$ = 5.90, SD = 1.84; $F(1, 50) = 2.12$, $p = .151$; $\alpha = .944$) and product attractiveness ($M_{utilitarian\text{-}framed}$ = 5.12, SD = 2.17 vs. $M_{hedonic\text{-}framed}$ = 5.29, SD = 2.04; $F(1, 50) = .58$, $p = .451$), indicating the manipulation did not influence the product evaluation and attractiveness.

WEB APPENDIX J

ADDITIONAL MATERIALS IN STUDY 3B

J1: STIMULI IN STUDY 3B

FIGURE 6

STIMULI IN STUDY 3B

产品 A

【品名】营养番石榴汁
【净含量】250mL
【产品特色】该果汁是一种营养的饮料。不仅能够防中暑和脱水，还能降低血压有助身体健康。

产品 B

【品名】美味番石榴汁
【净含量】250mL
【产品特色】该果汁是一种好喝的饮料。美味可口，不仅给你清爽酸甜的口感，还能使你身心愉悦享受。

English Translation:

Product A

Product Name: Nutritious Guava Juice
Weight: 250 mL
Product Features: the juice is a nutritious beverage. It can prevent not only dehydration and heatstroke but also lower blood pressure to keep one's body healthy.

Product B

Product Name: Delicious Guava Juice
Weight: 250 mL
Product Features: the juice is a delicious beverage. Its tastiness can not only bring a refreshing and sweet-and-sour taste but also make you feel pleasure and enjoyment.

J2: PRETESTS OF PRODUCTS IN STUDY 3B

This pretest was conducted in Chinese. In order to better accommodate the language habit of Chinese, we assessed the product evaluation by asking participants: "What is your overall evaluation of the guava juice?" (1 = very bad, 9 = very good). We further assessed the perceived quality of the product by asking participants: "To what extent do you think this product is of good quality?" (1 = not at all, 9 = very much). Next, we assessed the product attractiveness and manipulations of hedonic versus utilitarian framing using the same method as previous pretests.

A total of 210 participants (55.7% females, M_{age} = 23.41) were recruited from Credamo. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed guava juice as either a utilitarian product (nutritional guava juice) or a hedonic product (delicious guava juice). The procedure of this study was described above.

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed product (nutritional guava juice) was rated to be more utilitarian and less hedonic than hedonic-framed product (delicious guava juice) ($M_{utilitarian\text{-}framed}$ = 4.59, SD = 2.76 vs. $M_{hehonic\text{-}framed}$ = 6.51, SD = 2.36; $F(1, 209) = 79.56$, $p < .001$, $\eta_p^2 = .28$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{utilitarian\text{-}framed}$ = 6.32, SD = 1.82 vs. $M_{hehonic\text{-}framed}$ = 6.34, SD = 1.75; $F(1, 209) = .04$, $p = .835$), perceived product quality ($M_{utilitarian\text{-}framed}$ = 6.25, SD = 1.79 vs. $M_{hehonic\text{-}framed}$ = 6.17, SD = 1.76; $F(1, 209) = .68$, $p = .411$), and product attractiveness ($M_{utilitarian\text{-}framed}$ = 5.97, SD = 2.13 vs. $M_{hehonic\text{-}framed}$ = 6.08,

SD = 1.91; $F(1, 209) = 1.10$, $p = .296$), indicating the manipulation did not influence the product evaluation, perception of product quality, and product attractiveness.

WEB APPENDIX K

ADDITIONAL MATERIALS IN STUDY 4

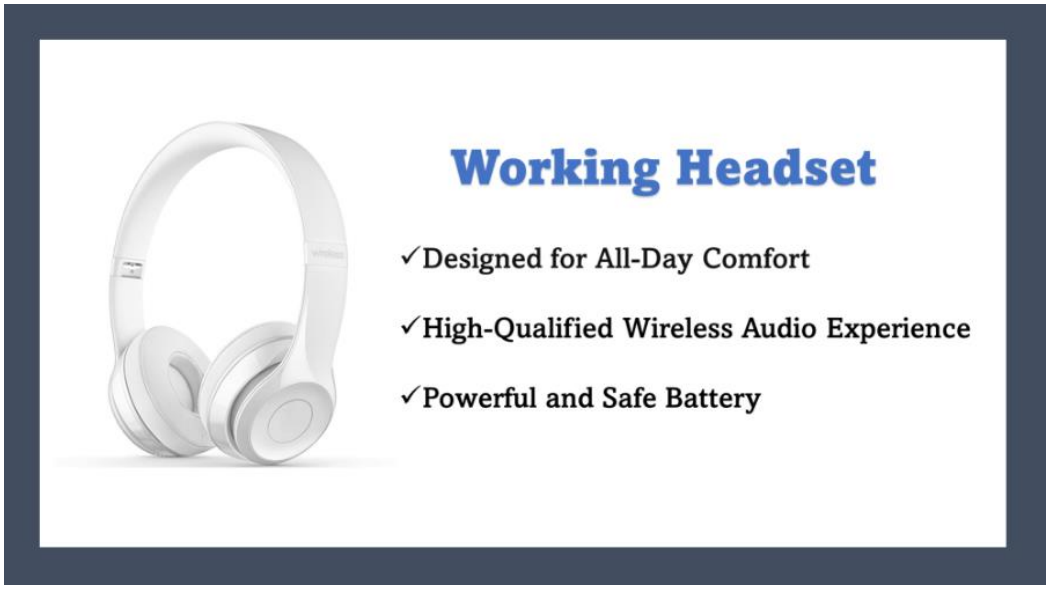
K1: STIMULI IN STUDY 4

FIGURE 7

STIMULUS IN STUDY 4 (HEDONIC CONDITION)

FIGURE 8

STIMULUS IN STUDY 4 (UTILITARIAN CONDITION)



K2: PRETESTS OF PRODUCTS IN STUDY 4

A total of 100 participants (50.0% females, M_{age} = 40.84) were recruited from MTurk. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed a headset as either a utilitarian product (working headset) or a hedonic product (entertainment headset). The procedure of this study was similar to pretests in Study 2A (see Web Appendix F3).

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed product (working headset) was rated to be more utilitarian and less hedonic than hedonic-framed product (entertainment headset) ($M_{utilitarian\text{-}framed}$ = 4.86, SD = 2.17 vs. $M_{hedonic\text{-}framed}$ = 6.88, SD = 2.05; $F(1, 98) = 22.97$, $p < .001$, $\eta_p^2 = .19$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{utilitarian\text{-}framed}$ = 7.25, SD = 1.64 vs. $M_{hedonic\text{-}framed}$ = 6.83, SD = 1.37; $F(1, 98) = 2.00$, $p = .160$; $\alpha = .972$), indicating the manipulation did not influence the product evaluation.

K3: PROCESS AND OUTCOME FOCUS SCALE IN STUDY 4

The scale was adapted from Escalas et al. (2004):

While viewing the ad for the headset,

1. how much did you think about using the product on a daily basis? (process)
2. how much did you think about the possibility of changing your current habits or behavior in order to use the product effectively? (process)
3. how much did you think about incorporating the product into your daily routine? (process)
4. how much did you think about how you would feel after you had used the product? (outcome)
5. how much did you think about the end benefits or results of using the product? (outcome)

(1 = not at all, 9 = very much)

WEB APPENDIX L

MANIPULATION CHECKS FOR PROCESS VERSUS OUTCOME FOCUS IN STUDY 5

This study aimed to confirm if the process and outcome manipulations in Study 5 were successful. A total of 100 participants (51.0% females, M_{age} = 39.66) recruited from MTurk were randomly assigned to either the process or outcome focus condition. To manipulate process versus outcome focus, participants completed a writing task (adapted from Zhao et al., 2007; Chang & Hung, 2018). Participants imagined that they were having a ten-day vacation trip. Specifically, in the *process focus* condition, participants were instructed to write about how they would spend each day of this trip, whereas in the *outcome focus* condition, participants were instructed to write about the benefits they would get from this trip. For each condition, we assessed the process-outcome focus on a four-item, nine-point scale: "How much did you think about the process of this trip? [process focus]", "How much did you think about the trip in terms of daily plan? [process focus]", "How much did you think about how you would feel after the trip? [outcome focus]", and "How much did you think about end benefits or results the trip? [outcome focus]" (1 = not at all, 9 = very much; adapted from Escalas & Luce 2003, 2004).

Our analysis revealed that participants in the *process focus* condition were more process-focused ($M_{process}$ = 6.88, SD = 1.74 vs. $M_{outcome}$ = 5.59, SD = 1.92; $F(1, 98) = 12.21$, $p < .001$, $\eta_p^2 = .11$) and were also less outcome-focused than those in the *outcome focus* condition ($M_{process}$ = 6.21, SD = 2.26 vs. $M_{outcome}$ = 7.11, SD = 1.53; $F(1, 98) = 5.63$, $p < .001$, $\eta_p^2 = .05$). Overall, the results showed that our manipulations of process and outcome focus were successful.

WEB APPENDIX M

ADDITIONAL MATERIALS IN STUDY 6

M1: STIMULI IN STUDY 6

FIGURE 9

STIMULI IN STUDY 6

Product A

- ✓ Excellent working headset
- ✓ Superior noise reduction and voice clarity technology for communication
- ✓ Long battery life and fast charging

Product B

- ✓ Excellent entertainment headset
- ✓ Refined sounds for pleasurable music and game experiences
- ✓ Humanized design provides superior comfort

M2: PRETESTS OF PRODUCTS IN STUDY 6

A total of 51 participants (56.9% females, M_{age} = 44.25) were recruited from MTurk. This study followed a 2 cell (product type: utilitarian vs. hedonic) between-subjects design. Participants were randomly assigned to one of the conditions. We framed a headset as either a utilitarian product (working headset) or a hedonic product (entertainment headset). The procedure of this study was similar to pretests in Study 2A (see Web Appendix F3).

A one-way ANOVA on utilitarian-hedonic perception with product type as the independent variable revealed a significant effect that the utilitarian-framed product (working headset) was rated to be more utilitarian and less hedonic than hedonic-framed product (entertainment headset) ($M_{utilitarian\text{-}framed}$ = 4.22, SD = 2.45 vs. $M_{hedonic\text{-}framed}$ = 6.61, SD = 1.95; $F(1, 50) = 45.58$, $p < .001$, $\eta_p^2 = .48$), suggesting the manipulation of utilitarian and hedonic consumption was successful. Moreover, there was no significant difference between the two products on product evaluation ($M_{utilitarian\text{-}framed}$ = 7.27, SD = 1.55 vs. $M_{hedonic\text{-}framed}$ = 7.23, SD = 1.47; $F(1, 50) = .06$, $p = .814$; $\alpha = .932$) and product attractiveness ($M_{utilitarian\text{-}framed}$ = 6.55, SD = 1.64 vs. $M_{hedonic\text{-}framed}$ = 7.04, SD = 1.61; $F(1, 50) = 3.43$, $p = .070$), indicating the manipulation did not influence the product evaluation and attractiveness.

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