THE INFLUENCE OF PRODUCT TYPE ON CONSUMERS' VALUE PERCEPTIONS OF EXPIRING PRODUCTS

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ABSTRACT

This research explores the impact of product type on consumers' value perceptions of expiring goods. I found that consumers value expiring utilitarian products less than expiring hedonic products and this effect holds for both buyers and sellers. Moreover, I further predict that this effect will be mediated by consumers' greater focus on feasibility (vs. desirability) when purchasing utilitarian (vs. hedonic) products and moderated by the type of expiration date (i.e., best before date, use by date) and consumers' construal level. This work has several implications for both expiring goods literature and hedonic and utilitarian consumption literature. The findings may also benefit consumers, marketing practitioners, and policy makers. Nevertheless, there are also some limitations to be improved in the future.

Keywords: hedonic products, utilitarian products, desirability, feasibility, expiring products, type of expiration date, construal level

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CHAPTER 1. INTRODUCTION

Imagine you go into a store planning to buy a box of whole grain biscuits (vs. a box of cream chocolate cookies), and you find that it will expire after two days. How much would you like to pay for it (e.g., the percentage of its original price)? To understand consumers' responses for this question, we must figure out how consumers value different expiring products.

The expiring products industry is a thriving market incited by the growing food waste all over the world; for example, FAO (i.e., food and agriculture organization of the united nations) revealed that on a global level, more than one-third of all food produced ends up in the trash nowadays which not only leads to about 1 trillion dollars financial loss per year but causes severe climate problems. However, at the same time, nearly 800 million people are still struggling with hungry (Sustainability Pathways: Food Loss and Waste, 2020).

As early as 2012, Doug Rauch, former president of Trader Joe's, established a nonprofit community grocer named Daily Table, helping to address the challenges of food waste and hunger by offering expiring but still edible products to people at prices everyone can afford. Till now, it has fed over 43,000 people in need (Daily Table, 2012). In 2013, Adam Smith funded the real junk food project (i.e., TRJFP) which produces meals using

discarded but still edible food and sells them to anyone who wants on a pay what you want basis. Since its opening, this project has helped more than 10,000 people using over 20 tons of expiring food (Campbell, 2014). In 2016, DanChuchAid, a Danish humanitarian non-governmental organization aimed at supporting the world's poorest, opened the world's first supermarket named Wefood, which offers only expiring goods to everyone interested usually at a discount of 30%-50% of the original price. In the same year, a Chinese entrepreneur, Yong Lei, set up an online shopping platform (i.e., HaoShiQi) selling only expiring products and it is the first platform that employs a dynamic pricing strategy, that is, the closer the expiration date, the lower the price (好食期 – 品牌食品特卖，2016). In addition to these leading brands or platforms, recently, nearly all supermarkets have special counters selling expiring products at a discount price and this industry is still in its early stage of development with great potential to be explored.

Although expiring products are grabbing increasing attention in daily life, academic research in this area is quite limited. Currently, most researchers in this area try to figure out the optimal pricing strategy and inventory strategy for products whose demand depends on the time and price through incorporating kinds of variables into their models (Chaudhary, Kulshrestha, & Routroy, 2018; Chen, Pang, & Pan, 2014; Duan & Liao, 2013; Herbon, 2018; Janssen, Claus, & Sauer, 2016; San-José, Sicilia, González-De-la-Rosa, & Febles-Acosta, 2020). Few researchers in consumer behavior domain mainly examines consumers'

awareness and understanding of various kinds of expiration date (e.g., sell by date, best before date) (Hall-Phillips & Shah, 2017; Li, Messer, & Kaiser, 2020); consumers' perceptions (e.g., product quality, consumption risk), attitudes, and behaviors (e.g., WTP, disposal tendency) toward products with different ages (e.g., expiring products, expired products) (Harcar & Karakaya, 2005; Sen & Block, 2009; Tsiros & Heilman, 2005).

However, to my best knowledge, few researchers, if not none, have delved into examine the effect of product type on consumers' value perceptions of expiring products, that is, whether consumers value expiring hedonic products and expiring utilitarian products similarly. Therefore, in this thesis, I propose that consumers value expiring utilitarian products less than expiring hedonic products and consumers' different focuses (i.e., focus on feasibility, focus on desirability) mediate the effect. Furthermore, the type of expiration date and consumers' construal level can moderate the effect discussed above.

This work contributes to the hedonic and utilitarian consumption literature and expiration date literature theoretically by demonstrating that consumers value expiring hedonic products and expiring utilitarian products differently due to their distinct focuses when purchasing different products. Besides, this thesis provides useful guides both for marketing practitioners to effectively price or promote expiring hedonic products and expiring utilitarian products and for policy makers to educate consumers and debias their valuations toward expiring products which may work together helping to reduce waste,

decrease consumers' indulgent consumption, and benefit the whole society.

In the next part, I will thoroughly explain my predictions, design six studies to attest to the hypotheses, and discuss the implications and limitations of this work briefly.

CHAPTER 2. CONCEPTUAL FRAMEWORK

2.1. Expiration Date and Feasibility Consideration

An expiration date is a previously determined date after which something should no longer be sold or used because of an expected decline in quality or effectiveness. Although there are no federal regulations defining what different types of expiration date mean or requiring manufacturers to provide appropriate expiration date information on the package of products in the United States (Tsiros & Heilman, 2005), there are indeed two types of commonly used expiration date that are officially defined by the European Union legislation: best before date and use by date. Specifically, the best before date refers to the period within which the product will not be stale which indicates the freshness (i.e., best quality) or quality of the product and the use by date implies the period within which the product will not have harmful bacteria impacting consumers' health negatively that signifies safety of consuming the product (Hall-Phillips & Shah, 2017; Wansink & Wright, 2006; Yeung & Morris, 2001).

Although expiration date has been examined for a long time, most literature in this

area is contributed by modelers who try to figure out the optimal pricing strategy and inventory strategy for products whose demand depends on the time and price through incorporating kinds of variables into their models (Chaudhary et al., 2018; Chen et al., 2014; Duan & Liao, 2013; Herbon, 2018; Janssen et al., 2016; San-José et al., 2020). Researchers in consumer behavior area dabbled in this topic by exploring consumers' awareness and perceptions of kinds of expiration date and found that most consumers tend to check the expiration date before making a purchase or consuming a product while more than half of them cannot tell the differences between different types of expiration date which can lead to some negative consequences (e.g., confusion, suboptimal choices, purchase deferral) (Hall-Phillips & Shah, 2017; Harcar & Karakaya, 2005; Shah & Hall‐Phillips, 2018; Zielińska et al., 2020). Tsiros and Heilman (2005) took the research in this area a big step forward by demonstrating the role of perceived risk on consumers' frequency of checking expiration dates and their willingness to pay for expiring products. Specifically, when consumers perceive the functional, performance, and physical risks of purchasing a product to increase, they are more likely to check the expiration date which may in turn, impact their willingness to pay for the product in question. Sen and Block (2009) then extended the research scope of previous literature further by examining the influence of expiration date on consumers' post-purchase consumption behaviors and showed that with other costs controlled, simply owning a product can increase consumers' consumption of expired products because of the

underestimated risk of consuming the product. Moreover, several researchers in this area work to investigate how expiration date-based pricing (i.e., EDBP), a commonly used pricing strategy for products with an expiration date in real world, can influence consumers' purchase intention (Konuk, 2018), post-purchase satisfaction (Yassin & Soares, 2020), and brand image perceptions (Theotokis, Pramatari, & Tsiros, 2012).

Adding to this area of research, in the current thesis, I argue that consumers' value perceptions of different expiring products differ with each other because they focus on distinct aspects of products (i.e., desirability, feasibility) when purchasing different types of products and expiration date is usually perceived to be a feasibility consideration. Researchers have suggested that desirability refers to the value of an action's end state which reflects the why aspects of an action, whereas feasibility emphasizes the ease or likelihood of reaching the end state indicating the how aspects of an action. (Liberman & Trope, 1998; Trope & Liberman, 2010; Vallacher & Wegner, 1987). In terms of purchasing a product, the desirability refers to the benefits of consuming the product while the feasibility means the ease or likelihood of getting the benefits provided by the product.

I think that expiration date is a feasibility consideration for several reasons. First and obviously, by definition, expiration date tells people the consumption period left according to which people can estimate whether they can consume all of the product and get the intended benefits offered by it effectively. Besides, in daily life, people usually tend to treat expiration

date as a deadline of consuming the product rather than a deadline of getting the peak quality of the product. For example, while purchasing a product, consumers check the expiration date mainly to make sure there are enough time for them to use the product and after purchasing the product, they employ various measures to keep track of the expiration date, plan their consumptions, and consume all of the product in time (e.g., DYMO Mobile Labeler). In addition, Shah and Hall-Phillips (2018) have shown that consumers usually spend effort searching and checking expiration date while shopping for and before consuming a product to reduce the perceived risk of buying or consuming a bad product. And consumers most often throw out products, especially food, due to the concern about the product safety (Li et al., 2020). Both perceived risk and safety of consuming the product are related with consumers' likelihood of getting the benefits through consuming the product. In sum, expiration date influences if consumers can consume all of the product easily and get the benefits offered by it effectively. Thus, I predict that consumers treat expiration date as a feasibility concern.

Some may argue that expiration date is also a signal of product quality which sounds like a desirability consideration. But in fact, it is not the case. Because although expiration date can serve as a quality indicator, consumers usually estimate the product quality according to expiration date to reduce the risk or make sure the safety of consuming the product rather than to get a product with best quality (Fortin, Goodwin Jr, & Thomsen, 2009; Li et al., 2020; Shah & Hall-Phillips, 2018; Tsiros & Heilman, 2005). Furthermore, for

expiring products examined in this thesis, because the time component is naturally made salient and urgent to consumers, they usually have a greater tendency to check the expiration date, calculate the consumption period left, and consider if they can use up or eat up the product to get the intended benefits effectively. Thus, I predict that at least in this context, the expiration date is more like a feasibility consideration.

2.2. Product Type and Consumers' Focus

Given that expiration date is perceived to be a feasibility concern, I further propose that expiration date will impact utilitarian products negatively to a greater extent, that is, consumers will value expiring utilitarian products less than expiring hedonic products. The reason is that when purchasing utilitarian products, consumers focus more on the feasibility aspects of products while when purchasing hedonic products, consumers pay more attention to the desirability aspects of products.

Consumer products are usually categorized as either hedonic or utilitarian. Specifically, hedonic products are those whose consumption or purchase is usually affectively driven and mainly provides consumers with affective or sensual pleasure, fun, and enjoyment while utilitarian products refer to those whose consumption or purchase is more cognitively driven and mainly provides consumers with practical or functional benefits (Dhar & Wertenbroch, 2000; Hirschman & Holbrook, 1982; Strahilevitz & Myers, 1998).

Given that people's purchase or consumption of hedonic products is usually intrinsically motivated and to get the affective and sensory experience provided by the product per se, a hedonic product is usually perceived to be an end itself. In contrast, utilitarian products are always pursued due to the extrinsic motivations which are not rewarding by default but are instrumental and can help people to achieve their higher-level goals; thus, a utilitarian product is usually treated as a mean to an end (Batra & Ahtola, 1991; Botti & McGill, 2011; Dhar & Wertenbroch, 2000; Hirschman & Holbrook, 1982; Holbrook & Hirschman, 1982; Mano & Oliver, 1993; Pham, 1998).

In addition, as mentioned before, desirability refers to the value of an action's end state which reflects the why aspects of an action, whereas feasibility emphasizes the ease or difficulty of reaching the end state indicating the how aspects of an action. In other words, the distinction between desirability and feasibility corresponds to the distinction between means and ends (Liberman & Trope, 1998; Trope & Liberman, 2010; Vallacher & Wegner, 1987).

Therefore, I predict that when purchasing a hedonic product, consumers will focus more on the desirability of the product while when purchasing a utilitarian product, consumers instead will pay more attention to the feasibility of the product.

This prediction is consistent with and indirectly supported by Roy and Ng (2012)' work demonstrating that when purchasing a hedonic product, consumers tend to adopt a promotion focus while when considering a utilitarian product, consumers instead take a

prevention focus which in turn, will direct people's attention to desirability aspects of the product or feasibility aspects of the product, respectively (Lee, Keller, & Sternthal, 2010).

Putting them together, I propose the following two hypotheses:

H1: Consumers value expiring utilitarian products less than expiring hedonic products.

H2: The effect is mediated by consumers' different focuses (i.e., desirability focus vs. feasibility focus) adopted when purchasing different products (i.e., hedonic products vs. utilitarian products).

2.3. The Moderating Role of The Type of Expiration Date

As mentioned above, there are mainly two types of commonly used expiration date: best before date and use by date. The best before date refers to the period within which the product will not be stale which indicates the freshness (i.e., best quality) or quality of the product and the use by date implies the period within which the product will not have harmful bacteria impacting consumers' health negatively that signifies safety of consuming the product (Hall-Phillips & Shah, 2017; Wansink & Wright, 2006; Yeung & Morris, 2001).

Literally, the best before date directs consumers' attention to the peak quality provided by the products rather than the time constraints or safety issues since the product is still safe

to be consumed after the labeled best before date although with lower quality. Thus, best before date is more like a desirability consideration. However, the use by date leads consumers to think about the time left to consume the product, get the benefits offered, and achieve the related end effectively which is more like a feasibility consideration.

Following this logic, it is natural to deduce that if the end state of the action (i.e., peak quality of the product) is made salient to consumers, the stated effect will be attenuated or even reversed. Thus, I further propose that the type of expiration date will moderate the effect discussed above. Concretely speaking, I predict that when given use by date, consumers will value expiring utilitarian products less than expiring hedonic products while when given best before date, the effect may be reversed with consumers valuing expiring hedonic products less than expiring utilitarian products.

One thing to note is that in most of the following studies, I used the general term "expiration date" and found that consumers valued expiring utilitarian products less than expiring hedonic products which is similar with the effect I predict to appear when given use by date. It is consistent with above theorizing that unless best quality is made salient, people tend to perceive the expiration date to be a feasibility concern at least under the expiring products context.

H3: The type of expiration date will moderate the effect; when given use by date (vs. best before date), consumers will value expiring utilitarian products less (vs. more) than expiring hedonic products.

2.4. The Moderating Role of Consumers' Construal Level

Construal level theory describes the relationship between psychological distance and how people represent objects or events in their minds. Specifically, people tend to represent psychologically distant things in a relatively abstract manner while represent psychologically close things in a relatively concrete manner (Bar-Anan, Liberman, & Trope, 2006; Trope, Liberman, & Wakslak, 2007). A commonly examined consequence of construal level is consumers' emphasis on products' desirability attributes and feasibility attributes which reflect the why aspects of an action and how aspects of an action, respectively. Previous literature has shown that consumers with low level of construal focus more on the feasibility attributes while consumers with high level of construal pay more attention to the desirability attributes (Liu, 2008; Sagristano, Trope, & Liberman, 2002).

In addition, although literature on construal level theory suggests that the default construal level in any control condition is unclear (Fujita, Trope, Liberman, & Levin-Sagi, 2006; Ledgerwood & Callahan, 2012; Schmeichel, Vohs, & Duke, 2011), given in our context, subjects are required to evaluate the value of a specific expiring product which is

kind of psychologically close and the information about expiration date is quite clear and salient to them, I expect that by default, consumers will endow a low level of construal when completing this task.

Therefore, based on these findings and deduction, I predict that consumers' construal level will moderate our effect. That is, consumers with low level of construal will value expiring hedonic products more than expiring utilitarian products while this effect will be attenuated or even disappear for consumers with high level of construal.

H4: Consumers' construal level will moderate the effect; consumers with low level of construal rather than those with high level of construal will value expiring utilitarian products less than expiring hedonic products.

The overall conceptual model is as follows (Fig. 1).

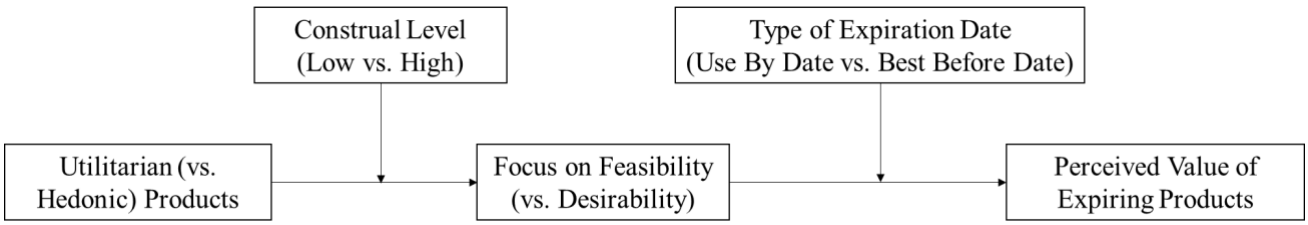

Fig. 1 Conceptual Model

CHAPTER 3. THE CURRENT RESEARCH

3.1. Overview of Studies

I have conducted two studies providing initial support for the main effect proposed above. Specifically, study 1 provides initial evidence for the main effect that consumers value an expiring utilitarian product less than its equivalent expiring hedonic product. Study 2 demonstrates the generalizability of the effect by showing that the distinct valuation exists for both sellers and buyers. In both studies, the sample sizes are predetermined, and I used all data without blocking any participants. Besides, participants were asked to provide their basic demographic information (i.e., gender and age) at the end of study but given they did not influence the results significantly, I will not discuss them anymore in the following parts.

In addition, I plan to carry out another four studies attesting to the robustness and external validity of the main effect, the mediation role of feasibility focus, and the moderation roles of the type of expiration date and consumers' construal level. To be more specific, I plan to extend the external validity of this effect via a behavioral study (i.e., study 3). Study 4 will examine the mediating role of consumers' focus (i.e., focus on desirability, focus on feasibility) and the final two studies (i.e., study 5 and study 6) are designed to test the moderating role of the type of expiration date and consumers' construal level, respectively.

3.2. Study 1

This study follows a 2 (product type: utilitarian vs. hedonic) × 2 (time points: 6 months before expiration vs. 2 days before expiration) between-subjects design to examine whether the expiration date influences utilitarian products and hedonic products differently.

3.2.1. Method

Participants. 605 participants from Prolific participated in this study in exchange for a £0.13 payment (63.8% female; M_{age} = 36.68, SD = 13.07).

Design and procedure. At the beginning of the study, all participants were told that the purpose of this study is to collect consumers' evaluations of product values. Then they were randomly assigned to one of the four experimental conditions. Specifically, in the *utilitarian product* condition, participants were instructed to estimate the value of a box of whole grain biscuits while in the *hedonic product* condition, participants were told to estimate the value of a box of chocolate cream cookies. The two products used were pretested to be a typical hedonic product (i.e., a box of chocolate cream cookies; M = 1.89, SD = 1.42; $t(99)$ = -21.89, $p < .001$) and a typical utilitarian product (i.e., a box of whole grain biscuits; M = 6.63, SD = 1.93; $t(99)$ = 8.46, $p < .001$), respectively. Then subjects were told to imagine that the product would expire after either six months or two days depending on their conditions assigned and were instructed to indicate their perceived value of the described product for now using the percentage of the original price on a slider ranging from 0 to 100.

For example, participants in utilitarian product and six months before expiration date

condition were shown the following scenario: “If a box of whole grain biscuits will expire after six months, how will your perceived value of it be for now (i.e., six months before expiration)? Please indicate your perceived value of it using the percentage of its original price (%).”

3.2.2. Results

The ANOVA revealed a significant main effect of product type ($F(1, 601) = 22.84$, $p < .001$; $\eta^2 = .04$) and a significant main effect of time ($F(1, 601) = 286.71$, $p < .001$; $\eta^2 = .32$) which are qualified by a significant interaction effect, $F(1, 601) = 13.89$, $p < .001$; $\eta^2 = .02$, indicating that the value of utilitarian products and hedonic products decreases at different rates (see Appendix A). Specifically, consumers’ valuation of hedonic products and utilitarian products differs significantly at 2 days before expiration date ($M_{hedonic} = 67.01$, $SD = 26.15$; $M_{utilitarian} = 51.60$, $SD = 26.58$; $F(1, 299) = 25.71$, $p < .001$; $\eta^2 = .08$) but not at 6 months before expiration date ($M_{hedonic} = 90.94$, $SD = 17.10$; $M_{utilitarian} = 89.03$, $SD = 17.52$; $F(1, 302) = 0.92$, $p = .34$), indicating that the expiration date has a greater influence on utilitarian products than hedonic products.

3.2.3. Discussion

In sum, the results of study 1 support my main prediction that the value of utilitarian products decreases faster than the value of hedonic products and the difference is mainly driven by the relatively greater influence of expiration date on consumers’ valuation of

utilitarian products. That is, consumers value expiring utilitarian products less than expiring hedonic products.

Besides, given I used a quite neutral description in this study, it's possible that some subjects took a seller perspective while the others took a buyer perspective. Figuring out whether both sellers and buyers value expiring utilitarian products less than expiring hedonic products is both theoretically important (e.g., extend the generalizability of the effect) and valuable practically (e.g., guide marketers to price and promote different expiring products effectively, debias consumers' value perceptions for different expiring products and help them to spend money in a clever manner).

Therefore, in study 2, I examined whether the effect holds for both sellers and buyers by assigning participants to be either a buyer or a seller randomly and I predict that both sellers and buyers value expiring utilitarian products less than expiring hedonic products. Because generally, consumers will tend to treat utilitarian products as means to achieve high-order goals while perceive hedonic products as ends per se which means either selling or buying a hedonic (vs. utilitarian) product will lead consumers to focus more on the desirability (vs. feasibility) aspects of the product. Furthermore, under expiring products context, for buyers, expiration date influences whether they can use up or eat up the product in time to get the benefits offered effectively and for sellers, expiration date impacts the ease or possibility that they can sell the product and get the money successfully. In sum, both

buyers and sellers may treat expiration date as a feasibility concern at least under expiring products context.

3.3. Study 2

This study follows a 2 (product type: utilitarian vs. hedonic) × 2 (role: buyer vs. seller) between-subjects design to examine whether both buyers and sellers value expiring utilitarian products less than expiring hedonic products. To make the scenario more realistic (i.e., sellers can sell the expiring products successfully), I set the time point to be one week before the expiration date.

3.3.1. Method

Participants. 605 participants from Prolific participated in this study in exchange for a £0.13 payment (66.4% female; M_{age} = 38.14, SD = 14.12).

Design and procedure. First, all participants were instructed to complete an imagination task and randomly assigned to one of four experimental conditions. I used same products as study 1 to manipulate product type (i.e., a box of unopened whole grain biscuits vs. a box of unopened chocolate cream cookies) and the role was manipulated by presenting participants with different scenarios. Specifically, those in the *seller condition* were told to imagine that they found a box of unopened whole grain biscuits (vs. chocolate cream cookies) at home which would expire after 1 week and they were to resell it on a second-hand

platform. While subjects in the *buyer condition* were instructed to imagine that they were viewing a second-hand platform and were considering buying a box of unopened whole grain biscuits (vs. chocolate cream cookies) which would expire after 1 week. Then as an index of participants' valuation of products, sellers were asked to indicate at what price were they willing to sell the product and buyers were asked to indicate the price that they would be willing to pay for the product both using the percentage of its original price on a slider ranging from 0 to 100.

3.3.2. Results

The ANOVA revealed only a significant main effect of product type ($F(1, 601) = 8.29$, $p = .004$; $\eta^2 = .01$), indicating that subjects valued expiring hedonic products and expiring utilitarian products differently. The main effect of role ($F(1, 601) = 0.03$, $p = .87$) and the interaction effect between product type and role ($F(1, 601) = 0.55$, $p = .46$) are both nonsignificant (see Appendix B).

Therefore, I collapsed the data from buyers and sellers and conducted another ANOVA with product type as the independent variable and subjects' willingness to pay or willingness to accept as the dependent variable finding that subjects valued expiring utilitarian products less than expiring hedonic products ($M_{\text{hedonic}} = 42.49$, $SD = 24.86$; $M_{\text{utilitarian}} = 36.93$, $SD = 22.42$; $F(1, 603) = 8.32$, $p = .004$; $\eta^2 = .01$).

As a post-hoc analysis, I split the data by role and examined the effect of product type

on subjects' valuation of different expiring products for both sellers and buyers, separately. The ANOVA showed that sellers indeed valued expiring utilitarian products less than expiring hedonic products ($M_{hedonic}$ = 43.35, SD = 24.84; $M_{utilitarian}$ = 36.38, SD = 21.60; $F(1, 301)$ = 6.79, p = .01; η^2 = .02) while buyers didn't value expiring hedonic products and expiring utilitarian products differently ($M_{hedonic}$ = 41.62, SD = 24.94; $M_{utilitarian}$ = 37.49, SD = 23.26; $F(1, 300)$ = 2.21, p = .14). I think that these asymmetric results may be caused by sellers' greater focus on the negative aspects of the expiring products. Specifically, compared with buyers who can freely decide whether to buy or not to buy the expiring products, sellers are more uncertain and stressed about the situation because they are not sure if the price is suitable to sell and with time going on, it becomes more and more difficult for them to sell the expiring products.

3.3.3. Discussion

In a word, this study demonstrates the generalizability of the effects by showing that generally, consumers value expiring utilitarian products less than expiring hedonic products and compared with buyers, this effect is stronger for sellers who may perceive the expiration date as a more serious feasibility concern. Based on the findings from study 1 and 2, I further planned four studies to extend the external validity of our effect via a behavioral study, explore the underlying mechanism of this effect by directly measuring the mediator (i.e., consumers' focus) and examining two theoretically meaningful moderators (i.e., the type of

expiration date, construal level).

3.4. Study 3 (planned)

To further extend the external validity of our effect, I plan to conduct a behavioral study. This study will be conducted in the lab and employ a 2-cell (product type: utilitarian vs. hedonic) between-subjects design to examine whether consumers are willing to pay more for expiring hedonic products (vs. expiring utilitarian products) in reality.

3.4.1. Method

Participants. 300 participants from a university in Hong Kong will be recruited to participate in this study in exchange for a HK$10 payment.

Design and procedure. After arriving at the lab, participants will be required to complete an unrelated study where their demographic information (i.e., gender and age) will be collected. Then each participant will get HK$10 as their reward. When they are going to leave the lab, another experimenter will approach each subject and introduce to them that to reduce food waste, this lab is helping the 7-11 store on campus to sell some expiring products, if they'd like to join us, they can go to another room to buy a product using the reward they just got.

Participants who are willing to join the program will be led to one of two rooms randomly and individually where there is either a box of chocolate bars (M = 2.33, SD = 1.56;

$t(99) = -17.07$, $p < .001$) or a box of protein bars ($M = 6.86$, $SD = 1.89$; $t(99) = 9.84$, $p < .001$) depending on the conditions and introduced that the product has an original price of HK$10 and because it will expire after 2 days, consumers can get it at a discount price. Then all subjects will be instructed to pay whatever they want to pay and get the product. Finally, subjects will be debriefed and thanked for their participation.

3.4.2. Predicted Results

Firstly, I will transform the price subjects paid for the products to the percentage of its original price (i.e., HK$10) and it serves as the primary dependent variable. Then the ANOVA will show a significant main effect of product type, indicating that subjects valued expiring utilitarian products less than expiring hedonic products (see Appendix C).

3.5. Study 4 (planned)

In study 4, I try to explore the underlying mechanism of the effect using a 2-cell (product type: utilitarian vs. hedonic) between-subjects design.

3.5.1. Method

Participants. 300 participants from Prolific will be recruited to participate in this study in exchange for a £0.25 payment.

Design and procedure. The procedure will be similar with that of study 1 except that in this study, I will focus only on expiring products, use products from another domain (i.e.,

personal care), and after the valuation task, subjects' focus will be measured using two items adapted from Liu (2008) and Lu, Xie, and Xu (2013) (i.e., Please indicate whether your valuation is driven by feasibility consideration or desirability consideration? (1= feasibility, 9=desirability); Please indicate whether your valuation is driven by how the product is going to be consumed or why the product is going to be consumed? (1–9: "focus on how" to "focus on why")).

3.5.2. Predicted Results

An ANOVA with valuation as the dependent variable and product type as the independent variable will show a significant main effect of product type, which will replicate the main effect found in previous studies that consumers value expiring utilitarian products less than expiring hedonic products (see Appendix D).

The two items used to measure consumers' focus (i.e., desirability focus vs. feasibility focus) will be highly correlated and an ANOVA using consumers' focus as the predicted variable and product type as the predictor will reveal a significant main effect of product type, indicating that when purchasing hedonic (vs. utilitarian) products, consumers will focus more on the desirability (vs. feasibility) aspect of products, respectively.

Then the PROCESS model 4 will demonstrate a significant mediation effect of consumers' focus for the relationship between product type and consumers' valuation of expiring products which provides support for my proposed mechanism directly.

Therefore, this study will not only extend the effect to another product domain but also provide direct support for the underlying mechanism proposed. In the final two studies, I aim to provide more evidence for the proposed mechanism through two moderators (i.e., the type of expiration date and construal level).

3.6. Study 5 (planned)

This study will follow a 2 (product type: utilitarian vs. hedonic) × 3 (expiration date type: use by date vs. best before date vs. general term (i.e., expiration date)) between-subjects design to examine the moderation effect of the type of expiration date and provide more evidence for the mechanism (i.e., consumers' focus).

Because as I mentioned above, extant literature on consumers' understanding of different types of expiration date states that consumers have a hard time distinguishing these different types of expiration date and more than 50% consumers fail to tell the difference between these two types of expiration date (Whitworth, 2001; Zielińska et al., 2020), I introduce the definition of the related expiration date to participants in the scenario.

According to the theorizing before, I predict that when given use by date or general term (i.e., expiration date) (vs. best before date), consumers will value expiring utilitarian products less (vs. more) than expiring hedonic products.

3.6.1. Method

Participants. 600 participants from Prolific will be recruited to complete this study in exchange for a £0.13 payment.

Design and procedure. The procedure will be similar with that of study 4 with participants being presented with different scenarios (i.e., distance to use by date vs. distance to best before date vs. distance to expiration date) depending on their conditions assigned and instructed to evaluate the value of either an expiring hedonic product or an expiring utilitarian product. After the valuation task, participants will be asked to provide their basic demographic information (i.e., gender and age) and thanked for their participation. I will not measure the mechanism in this study.

3.6.2. Predicted Results

The ANOVA will show a significant main effect of product type and a significant main effect of the type of expiration date which will be qualified by a significant interaction between product type and the type of expiration date, showing that the type of expiration date will moderate the impact of product type on consumers' valuation toward expiring products (see Appendix E).

Disentangle the omnibus interaction and I will find that consistent with previous findings and my prediction, when given use by date or general description (i.e., expiration date), consumers will value expiring utilitarian products less than expiring hedonic products

while when given best before date, consumers will value expiring hedonic products less than expiring utilitarian products.

3.7. Study 6 (planned)

This study will follow a 2 (product type: utilitarian vs. hedonic) × 3 (construal level: high vs. low vs. control) between-subjects design to examine the moderation effect of consumers' construal level and provide more evidence for the mechanism (i.e., consumers' focus). According to my elaboration before, I predict that subjects in both control condition and low-level construal condition will value expiring utilitarian products less than expiring hedonic products while for subjects endowed with high-level construal, the effect will be attenuated.

3.7.1. Method

Participants. 600 participants from Prolific will be recruited to complete this study in exchange for a £0.25 payment.

Design and procedure. Firstly, all participants will be randomly assigned to one of six experimental conditions. Then participants in *high-level construal* and *low-level construal conditions* will be told that in this study, they will need to complete two unrelated tasks with the first task aiming to know how people categorize things and the second task trying to get an understanding of how people evaluate products. While participants in *control condition*

will be instructed to complete the product evaluation task only.

I will follow the method used by Van Kerckhove, Geuens, and Vermeir (2015) to manipulate participants' construal level. Specifically, subjects in *high level of construal* will be required to put the items that are usually used in a barbecue into 2-3 categories while those in *low level of construal* will be instructed to put the same set of items (see Appendix F) into 6-7 categories. Then all of them will be informed that "all items need to be put into a category, but you can freely decide which items you will put into each category." Participants in *control condition* will not be shown this task.

After the manipulation of construal level, all participants will evaluate the value of either an expiring hedonic product or an expiring utilitarian product depending on their conditions. Finally, participants will be asked to provide their basic demographic information (i.e., gender and age) and thanked for their participation.

3.7.2. Predicted Results

The ANOVA will show a significant main effect of product type and a significant main effect of construal level which will be qualified by a significant interaction between product type and construal level, showing that construal level will moderate the impact of product type on consumers' valuation toward expiring products (see Appendix G).

Disentangle the omnibus interaction and I will find that consistent with previous findings and my prediction, participants in both control condition and low-level condition

will value expiring utilitarian products less than expiring hedonic products. While participants in high-level condition will not value them differently, that is, value both products more.

CHAPTER 4. GENERAL DISCUSSION

This research investigates consumers' value perceptions of different expiring products (i.e., expiring hedonic products vs. expiring utilitarian products). Across two experiments, this research demonstrated that consumers value expiring utilitarian products less than expiring hedonic products (study 1). In addition, this effect holds for both buyers and sellers with different levels of strength (study 2). I further predict that this effect is strong enough to influence consumers' real behaviors (study 3) and it is consumers' focus (i.e., focus on desirability, focus on feasibility) that mediates the effect of product type on consumers' valuation of expiring products (study 4). Moreover, the type of expiration date and consumers' construal level will moderate this effect, respectively (study 5 and study 6).

4.1. Theoretical Contribution

This research contributes to the current literature in several ways. First, this paper contributes to the literature on expiration date and extends the research scope of this area. Currently, most researchers in this area work on establishing models to figure out the optimal

pricing strategy and inventory strategy for products with expiration date (Chaudhary et al., 2018; Chen et al., 2014; Duan & Liao, 2013; Herbon, 2018; Janssen et al., 2016; San-José et al., 2020). Few researchers in consumer behavior area mainly focus their attention on consumers' awareness and understanding of expiration date (e.g., sell by date, best before date) (Hall-Phillips & Shah, 2017; Li et al., 2020) and consumers' perceptions (e.g., product quality, consumption risk), attitudes, and behaviors (e.g., WTP, disposal tendency) toward products with different ages (Harcar & Karakaya, 2005; Sen & Block, 2009; Tsiros & Heilman, 2005). This thesis delves deeper by examining the impact of product type on consumers' valuation for expiring products and finds that consumers value expiring utilitarian products less than expiring hedonic products which also suggests that there are many potential factors which can be introduced to explore in the context of expiring products and provides ways for future researchers.

Besides, extant research on hedonic and utilitarian consumption mainly shows that a hedonic product is usually perceived to be an end itself while a utilitarian product is usually treated as a mean to an end (Batra & Ahtola, 1991; Botti & McGill, 2011; Dhar & Wertenbroch, 2000; Hirschman & Holbrook, 1982; Holbrook & Hirschman, 1982; Mano & Oliver, 1993; Pham, 1998). Following this logic, the current thesis goes further and identifies a novel consequence of consumers' different perceptions of hedonic products and utilitarian products, that is, when purchasing hedonic products (vs. utilitarian products), consumers will

focus more on the desirability (vs. feasibility) aspects of the products which may interact with other factors influencing consumers' following perceptions, attitudes, or behaviors.

4.2. Limitations and Directions for Future Research

I must admit that there are some limitations exist in this thesis which can be solved by future research. Firstly, there are some possible alternative explanations to be ruled out or examined further in future research. Specifically, because hedonic products mainly provide consumers with sensory pleasure, fun, and enjoyment while utilitarian products offer consumers practical or functional benefits, whether consumers perceive the functional part to decrease faster than the sensory part by default may help to explain the proposed effect. This explanation needs to be ruled out by conducting another pilot study testing if consumers indeed hold this lay belief. Another explanation is that since the purchase or consumption of hedonic products are usually difficult to justify compared with utilitarian products, the discount prices of expiring products indeed serve as a reason for people to purchasing hedonic products with lower level of guilty. To rule out this alternative explanation, I can directly measure consumers' perceived guilty in a future study to see if they feel less guilty when purchasing an expiring hedonic product compared with purchasing a normal hedonic product.

Besides, given I assume that when purchasing expiring products, people will

automatically pay more attention to the time component and search or calculate the consumption period left on their own, to get a strong effect, in the above studies, I directly tell subjects the period left which is consistent with what existing platforms do. While if this information is not directly or explicitly provided, I will predict a smaller but still significant effect that need to be further tested by future studies.

In addition, in the conducted two studies and planned four studies, I select to compare consumers' valuation for a typical hedonic product and a typical utilitarian product. But what if I frame a product to be either a hedonic one or a utilitarian one? If this kind of framing manipulation will still have an effect, it can provide more ways for marketers to promote expiring products. In fact, in the exploration stage, I conducted an experiment where I described a box of unopened sugarcane juice to be either a hedonic product (i.e., tasty and delicious beverage) or a utilitarian one (i.e., nutritional beverage) and found a marginal significant and predicted result. However, due to the small sample size and non-standard descriptions used in that exploratory study, future studies are needed to provide more convincing evidence.

Moreover, there are other potential moderators to be explored further. For instance, Harcar and Karakaya (2005) showed that consumers from different countries treat expiration date differently. Specifically, consumers from countries with higher level of uncertainty avoidance or risk aversion (e.g., the United States, Canada) will take expiration date more

seriously (e.g., check the expiration date more often before purchasing or consuming a product) than those from countries with lower level of uncertainty avoidance (e.g., Turkey). Thus, I predict that the effect demonstrated above will be attenuated for consumers who are willing to take risk and this proposition can be examined by future researchers.

Furthermore, the study design can be improved and refined. To be more specific, because I'm trying to examine if the value of hedonic products and utilitarian products decreases at different rates rather than if consumers can consume all products, I should pay attention to the product quantity and avoid possible confounding. Also, to get a stronger effect and prevent subjects from thinking diversely, directly telling them the shopping goal may be a better way.

Finally, although I include two time points after the expiration date in one of my pilot studies for the exploratory purpose, I did not get any meaningful results for the after-expiration period from that study. While Li et al. (2020) show that some consumers indeed still will consume products after their expiration dates. Thus, future researchers can continue to explore whether consumers' attitudes or behaviors toward expired products differ depending on the product type or other valuable factors.

4.3. Practical Implications

Moreover, these findings are valuable to consumers, marketing practitioners, and

policy makers. For consumers, knowing that their valuation toward different expiring products is biased can lead consumers to spend their money in a better manner, that is, buy more expiring utilitarian products and less expiring hedonic products which may be indulgent. For marketing practitioners, this work provides them with helpful guidance of how to price different kinds of expiring products to get more profit and how to increase the sales of expiring utilitarian products, for example, they can take some measures (e.g., same-day delivery) to increase the feasibility of buying the product. In addition, if the type of expiration date indeed moderates the effect as I predict, brands can also promote different expiring products effectively by using different labels (i.e., use by date for expiring hedonic products and best before date for expiring utilitarian products). For policy makers, the results suggest that they can educate consumers that their valuation for different expiring products is biased to boost the purchase of expiring utilitarian products which not only is good for consumers as mentioned above but also can reduce product waste and climate problems that may benefit the whole society.

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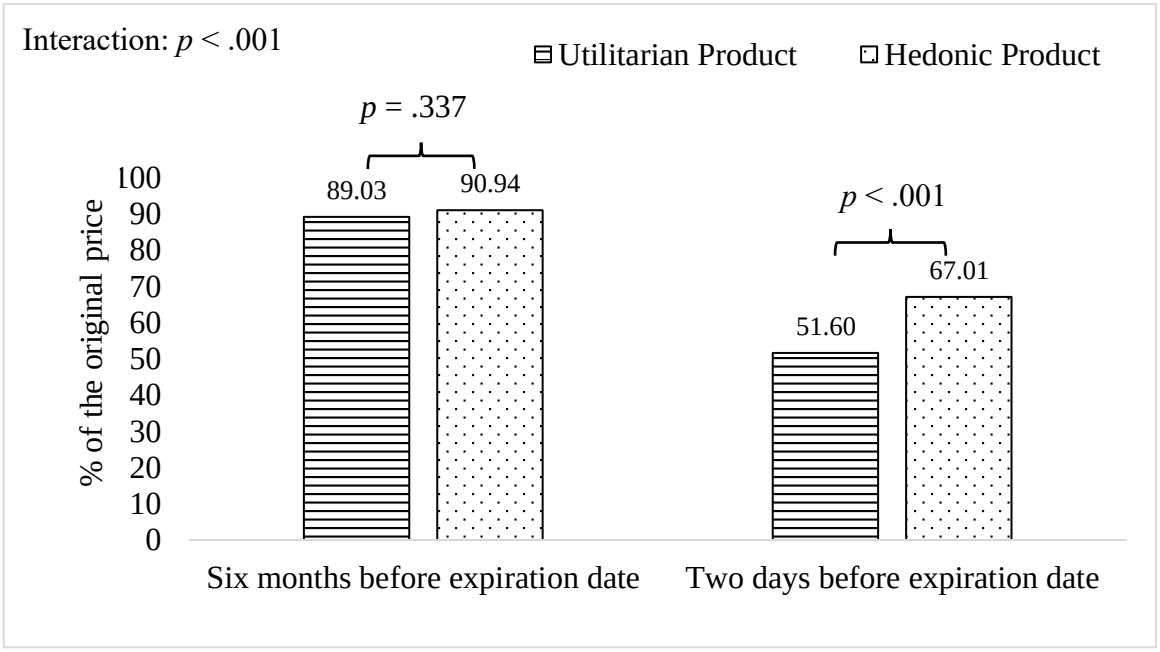
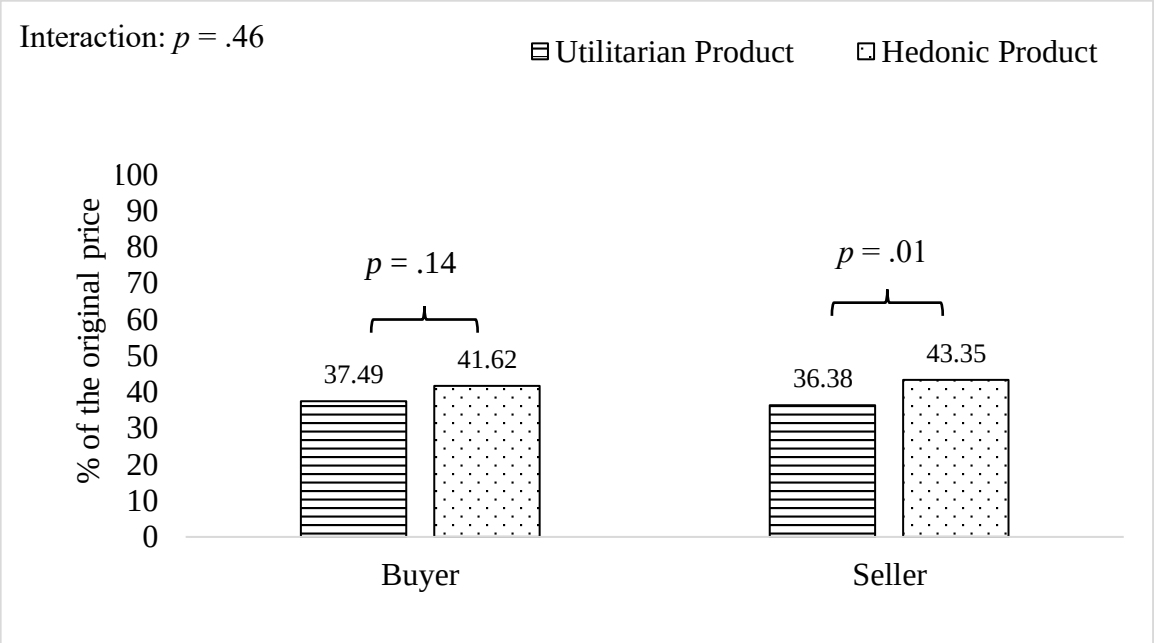
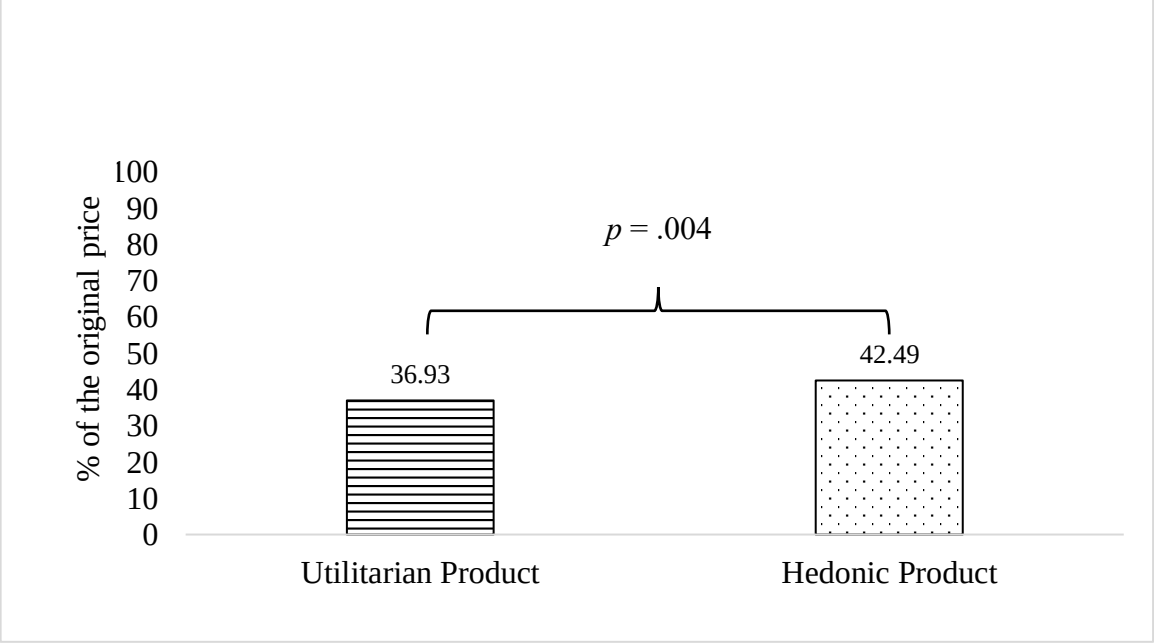
APPENDICES

Appendix A: Results (Study 1)

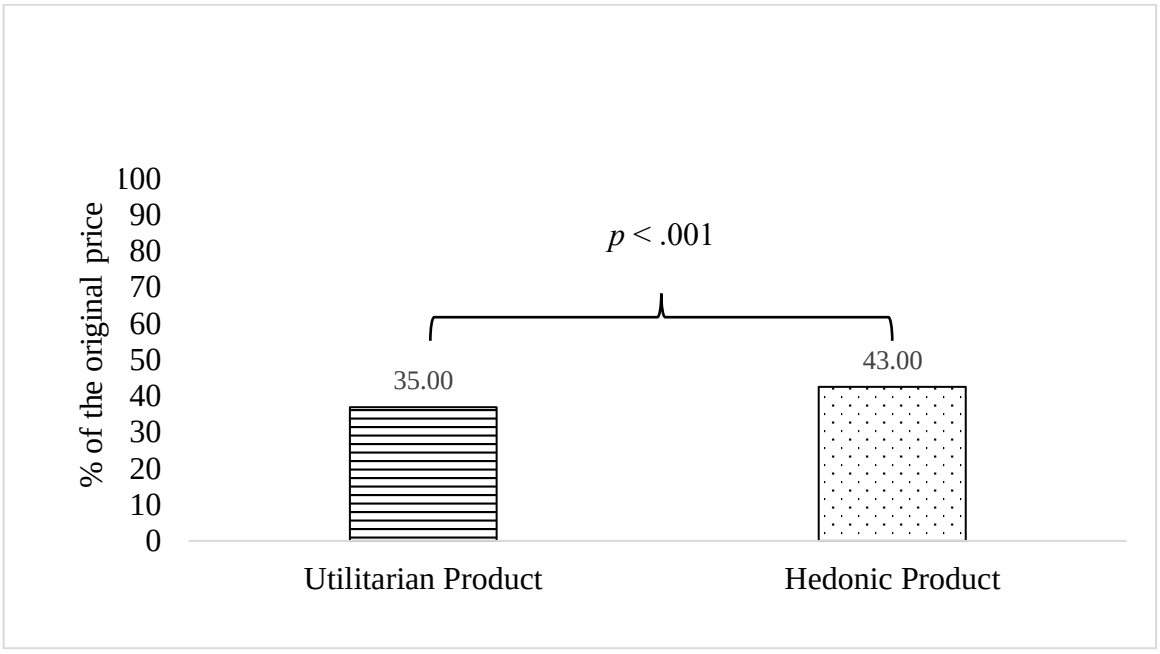


Appendix B: Results (Study 2)

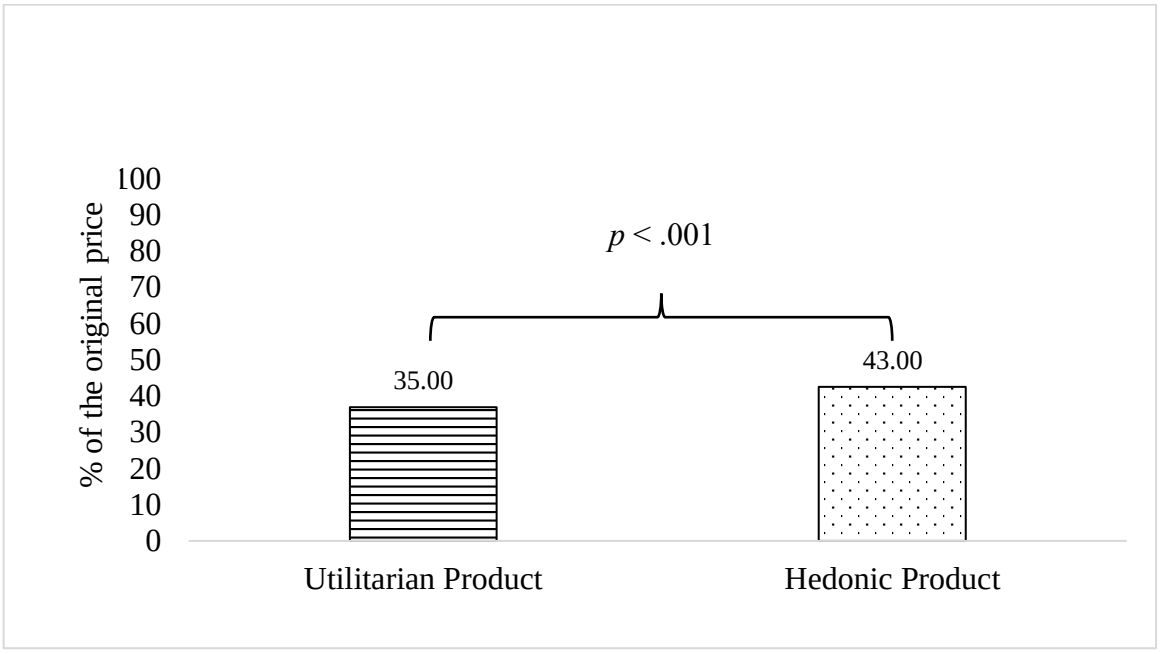


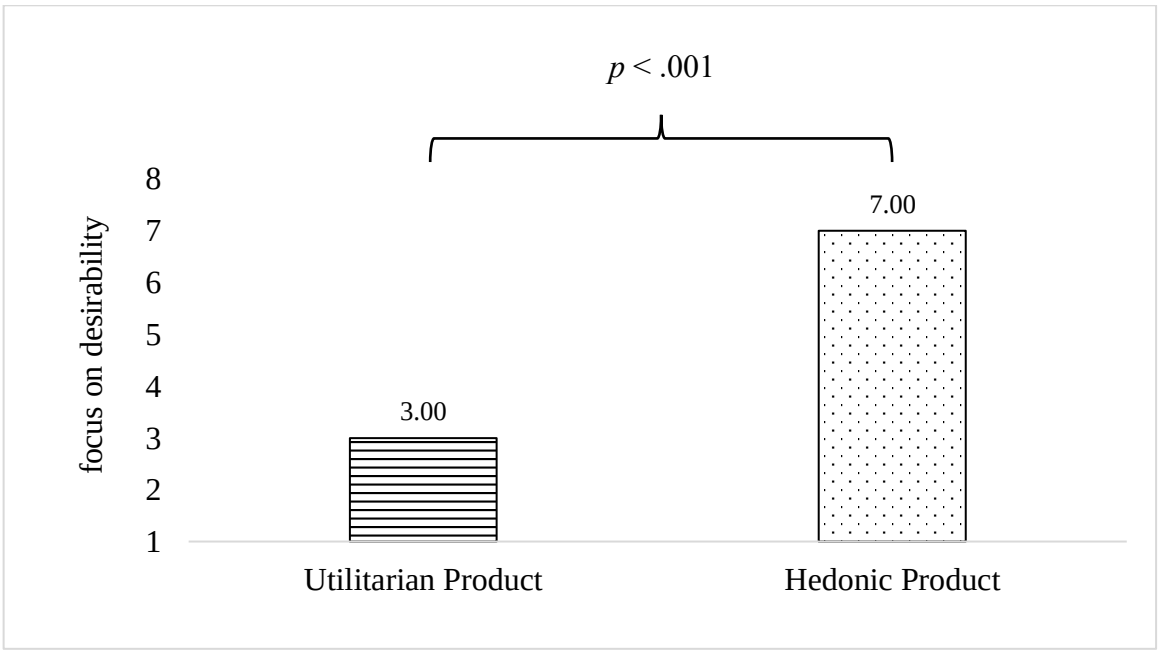


Appendix C: Predicted Results (Planned Study 3)

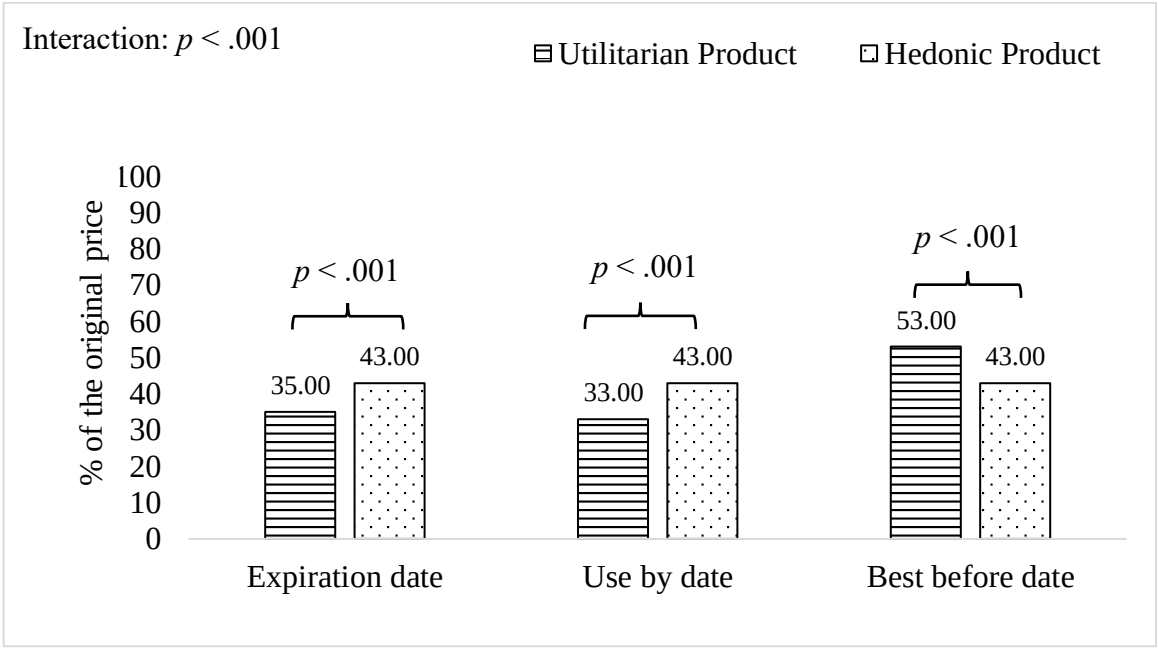


Appendix D: Predicted Results (Planned Study 4)





Appendix E: Predicted Results (Planned Study 5)



Appendix F: Items Used in the Manipulation of Construal Level (Planned Study 6)

1. Pepper
2. Potato
3. Water
4. Napkin
5. Juice
6. Cup
7. Scrubbing brush
8. Soap
9. Tablecloth
10. Onion
11. Soda
12. Meat
13. Salt
14. Vegetables
15. Plate
16. Fork
17. Oil
18. Cheese
19. BBQ Sauce
20. Knife

Appendix G: Predicted Results (Planned Study 6)