

Double Mental Discounting: Reward Points

Tyler Rabey

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By: Tyler Rabey

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Signed by the final examining committee:

- _____ Chair, Darlene Walsh
- _____ Examiner, Dr. Kemal Buyukkurt
- _____ Examiner, Dr. Kamila Sobol
- _____ Supervisor, Dr. Mrugank Thakor

Approved by _____

Dr. Onur Bodur, Graduate Program Director

Dr. Anne-Marie Croteau, Dean, John Molson School of Business

Date _____

Abstract

Double Mental Discounting: Reward Points

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Previous research has shown that when receiving a promotional credit (e.g., a gift card with a primary purchase), consumers mentally deduct the value of the promotion from the cost both when receiving the promotional credit, and when redeeming it, resulting in lower perceived costs than what was truly spent (Cheng & Cryder, 2018). The authors refer to this as “double mental discounting”, which occurred with promotional credit in the form of dollars, but not points. In two between-subjects design experiments, this research broadens our understanding of double mental discounting. Study 1 of this research partially replicates the findings of Cheng & Cryder (2018) and further investigates complexity of the points program as potential moderator to double mental discounting. Study 2 investigates how the payment transparency of the payment method (e.g., cash = high, credit card = low) and the promotion salience of the promotional credit method (e.g., gift card = high, account credit in points = low) affect double mental discounting. Study 1 did not find statistical evidence that complexity moderates double mental discounting, but the findings offer partial support for the theory. Study 2 found that paying with cash decreases double mental discounting compared to paying by credit card, and that receiving a gift card feels more like a discount during the initial purchase, but also more like a payment when being redeemed towards a subsequent purchase. This paper contributes to marketing theory and body of literature regarding price promotions, mental accounting, coupling, and double mental discounting, and puts forth strategic recommendations for the use of promotional credit and

customer loyalty programs in the marketplace. The discussion of this research concludes with limitations, and future research ideas.

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1.0 Introduction

Typically, when a consumer receives a discount with an initial purchase, the amount of the discount is applied to the initial purchase and the discount is not associated with any future purchases. However, when a consumer receives a promotional credit, which refers to a price promotion that is received with an initial purchase which can then be redeemed towards a subsequent purchase, this is not the case. Unlike a discount, which is only associated with a single purchase, promotional credit is strongly associated with two purchases: both the initial purchase when it is received, and the subsequent purchase when it is redeemed (Cheng & Cryder, 2018).

Promotional credit is prominent in the marketplace. For example, Sports Experts (2019) offers varying levels of gift cards depending on the amount spent towards an initial purchase (e.g. receive a \$50 gift card with a purchase of \$249.99 or more, or a \$100 gift card with a purchase of \$499.99 or more). Similarly, with the purchase of a new set of car tires, Costco Canada offers a store gift card ranging from \$50 to \$75 depending on the brand of tires purchased (Costco, 2019).

Research has shown that when receiving promotional credit like in the Sports Experts and Costco examples mentioned, consumers tend to apply the promotional credit as a discount towards both the initial purchase when it is received, and the subsequent purchase when it is redeemed, which results in lower perceived costs over the two purchases than what was truly spent (Cheng & Cryder, 2018). The authors coin this effect *double mental discounting*. For example, imagine making a \$100 purchase and receiving a \$20 gift card with the purchase as a promotion. You might feel like you spent less than \$100 dollars, because the gift card feels

somewhat like a savings. When you make another purchase and redeem the gift card, you again feel like you are saving. Because the \$20 gift card in this scenario was mentally applied twice, it now feels like a greater amount of savings than it actually is. This is double mental discounting. The authors also found that double mental discounting occurs when promotional credit is offered in the form of dollars (e.g., \$50 account credit or \$50 gift card), but not when offered in the form of points that have an equivalent monetary value (Cheng & Cryder, 2018).

However, customer loyalty programs are a prominent source of promotional credit in the marketplace and they often use points, so this topic should be explored further. Customer loyalty programs have become exponentially popular in recent years, nearly tripling in the last decade, increasing from 1.3 billion individual loyalty memberships in 2006 to 3.8 billion in 2016 in the United States alone (Statista, 2019). Worldwide, loyalty programs offered nearly 2 billion US\$ in rewards during 2019 (MarketWatch, 2019). Customer loyalty programs are a key tool for retailers to retain customers and gain a competitive advantage, and the global market is expected to grow to roughly 7 billion USD\$ by the end of 2025, which is a compound annual growth rate of 16.9% through 2019-2025 (MarketWatch, 2019).

With most customer loyalty programs, consumers accumulate rewards towards an account balance when making purchases and can then redeem them as a credit towards future purchases. Customer loyalty programs often use branded currency denominations that only have monetary value when being spent at the store that administered them. For example, PC Optimum members accumulate PC points from in-store purchases, shopping weekly sale items that give bonus points, and from gas purchases. Points that are accumulated can only be spent at stores within the PC Optimum network, which includes Loblaws, Provigo, Shoppers Drug Mart, or

Pharmaprix (PC Optimum, 2019). Compared to traditional discounts on grocery items, consumers have been shown to be more responsive to this type of item-based customer loyalty program (Zhang & Breugelmans, 2012). For example, promoting a \$3 item for \$2.5 or 50¢ off, was less effective at increasing sales of that item compared to advertising the same item at \$3, but with a reward of promotional credit worth 50¢ (Zhang & Breugelmans, 2012).

With the PC Optimum customer loyalty program, every 10,000 points is worth \$10 and points can be saved towards a balance or redeemed towards a purchase in increments of \$10 (PC Optimum, 2019). However, the monetary value of reward points offered by customer loyalty programs are not always this easy to determine. For example, Air Miles reward members also earn points from credit card purchases and purchases at participating stores (Air Miles, 2019), but when redeeming earned AirMiles towards a flight, their value can be more difficult to determine. For example, a flight from Montreal to Paris can cost 6,000 AirMiles in the low season, but cost 9,000 AirMiles in the high season (*Air Miles Points Guide 2020*, 2020). This seasonal variation can make the value of a member's points harder to determine at any given time.

Cheng & Cryder (2018) develop double mental discounting from a theoretical foundation rooted in mental accounting (Thaler, 1985) and the construct of coupling (ie. the strength of association) (Prelec & Loewenstein, 1998). Cheng & Cryder (2018) demonstrate that double mental discounting occurs when receiving promotional credit in the form of dollars because the promotional credit is strongly coupled with both the initial and subsequent purchase, but it does not occur when receiving promotional credit in the form of points because the points are less likely to be coupled and mentally applied as a discount towards the initial purchase.

This research argues that in the scenario used by Cheng & Cryder (2018), calculating the dollar value of the points in the reward program may have been too difficult, and that if an easier to compute reward points program was used, double mental discounting should occur. We reason that if the dollar value is easier to determine, consumers will be more likely to mentally apply the amount as a discount to both the initial and subsequent purchase. This research proposes that complexity of the reward points program moderates double mental discounting such that it will occur when the dollar value of the reward points is easy to determine. Thus, this research seeks to extend the findings of Cheng & Cryder (2018) by establishing complexity of the reward program as a moderator to double mental discounting.

This research also investigates the role of payment transparency, i.e., the salience of the form, amount and timing of a payment method (Soman, 2003) and its effect on double mental discounting. For example, will double mental discounting occur to the same degree when paying with cash or by credit card? When paying with cash, the payment is very salient because you have to count, manipulate, and give the money to the cashier to make a purchase. This high payment transparency may make it harder for consumers to mentally apply the promotional credit as a discount towards the initial purchase when it is not actually being redeemed, compared to when paying by credit card.

This research also applies the construct of payment transparency to the promotional credit received by the consumer and we refer to this as “promotion salience”. For example, despite the fact more and more reward programs use mobile apps to make their rewards as salient as possible, they are not as salient as a physical gift card. When receiving a gift card, the form, amount and timing of the promotional credit are all more salient than when receiving a digital

account credit in an alternative currency because the gift card is physically received and it is stated in dollars while mobile apps tend to use non-monetary currencies and are only digital. Although reward programs that use digital apps are much more salient than those that do not, the fact that they are not tangible and that they are usually stated in an alternative currency, lowers their salience.

Following this logic, a gift card has higher promotion salience compared to an account credit in points. This research argues that the more salient the promotional credit is, the more it should feel like a discount during the initial purchase. However, when redeeming the promotional credit towards a future purchase, promotion salience likely also has an effect. This research argues that the act of giving the gift card to the cashier during the subsequent purchase should also feel more like a form of payment than if the cashier were to apply an account credit in points. This is discussed further in the research propositions section.

In summary, this research seeks to gain a greater understanding of how consumers mentally process promotional credit by investigating how the complexity of the points program, payment transparency of the payment method, and promotion salience of the promotional credit method affect double mental discounting.

2.0 Conceptual Overview

2.1 Mental Accounting

Thaler (1985) introduces the theoretical framework of mental accounting, the theory that describes how humans allocate money to different mental accounts and interpret transactions differently depending on contextual criteria. If humans were to always process monetary

transactions in a perfectly economic and rational way, they would view all money, regardless of the way it is received or spent, as perfectly fungible (Thaler, 1985). In other words, all money would be put into one mental account and processed consistently and rationally regardless of any different contextual factors. However, one can easily imagine that this is rarely the case.

Consumer judgements and evaluations are easily influenced by framing effects such as presentation order (Bagchi & Davis, 2012) and temporal framing (Gourville, 1998). In the same way that judgements and evaluations can be manipulated by marketers to the benefit of the marketer, they can also be manipulated by the individual themselves, to the benefit of the individual. For example, Thaler (1985) proposes that humans are pleasure machines that receive pleasure from gains and pain from losses. In order to maximize pleasure and minimize pain, we allocate money to different mental accounts and process transactions differently depending on the context. For example, it is generally preferred to segregate multiple gains to make them seem larger, and to integrate multiple losses to make them seem smaller (Thaler, 1985).

For example, when evaluating an outcome involving a gain and a loss, how we mentally process the transaction differs depending on the relative size of the loss. For example, when the loss is slightly larger than the gain (+\$40, -\$50) integration is generally preferred because interpreting the two transactions as a single loss of \$10 is less painful than a separate gain of \$40 and a loss of \$50 (Thaler, 1985). In contrast, when the loss is much larger than the gain (+\$40, -\$1000), segregation is preferred due to the silver lining principle, such that the \$40 is valued more as a gain in this context than as a reduction of the large loss (Thaler, 1985). These examples demonstrate how the human mind manipulates our interpretations and mental accounting of transactions to minimize pain and maximize pleasure.

Consider this relatable anecdote from Thaler (1985). A married couple go on a fishing trip and have their package of salmon lost by the airline. They are compensated \$300. The couple then go to a nice restaurant and spend \$225, more than they had ever spent at a restaurant before. In this scenario, the couple perceived the \$300 as a windfall gain and applied it to the windfall gain mental account. For this reason, the couple felt like they could treat themselves to the nice supper that would normally be out of their budget. However, if they had received a combined yearly salary increase of \$300, they would likely apply the amount to the revenue mental account and be less willing to splurge it all on one nice supper (Thaler, 1985). This example highlights the use of different mental accounts to justify uncharacteristic spending. By applying the amount to the windfall gain mental account, the couple was able to minimize the pain of paying and justify the expensive supper (Thaler, 1985).

The use of different mental accounts has also been demonstrated by Tversky & Kahneman (1981). For example, when participants imagined they were entering a theater to see a show and were told they had just lost ten dollars, the majority (88%) stated they would still pay another ten dollars for a ticket to see the show. However, when participants were told they had already bought the ticket and had just lost the ticket, only 46% would purchase another ticket (Tversky & Kahneman, 1981). This is insightful because in both cases the financial implications are equal, but there is a drastic change in consumer behavior. Mental accounting can be used to explain this change in behavior. When participants were told they had just lost ten dollars, they likely applied the loss to the cash mental account. In this case, the cost to see the show was still perceived as ten dollars even after the loss of cash. However, when participants were told they had just lost a ticket and would need to repurchase another, both costs were attributed to the same mental account (entertainment/cost of the ticket). Because of this, the cost of the theatre

show was more likely to be perceived as \$20, which explains the lower likelihood to repurchase a second ticket (Tversky & Kahneman, 1981).

Mental accounting has also been explored regarding sunk costs and “payment depreciation” over time. For instance, participants who imagined they had bought basketball tickets one day before a bad snowstorm were more likely to attend the event than participants who had bought the same tickets 6 months prior (Gourville & Soman, 1998). From an economic perspective, the sunk costs of purchasing the tickets are equal and therefore, participants should be equally likely to attend the game, regardless of the temporal delay. However, the results of the study demonstrate that the temporal delay creates a “payment depreciation” effect that diminishes the value of the sunk cost over time (Gourville & Soman, 1998).

Together, these examples provide strong evidence of the malleability of mental accounting and how contextual factors can greatly affect how we process and respond to monetary transactions.

2.2 Double Mental Discounting

In the recent literature, Cheng & Cryder, (2018) draw from mental accounting (Thaler, 1985) and coupling theory (Prelec & Loewenstein, 1998) to establish and coin the term “double mental discounting”, a phenomenon that occurs when consumers receive one gain, yet mentally apply it to two purchases. The authors extend malleable mental accounting to the association between a single gain and multiple expenditures by showing that consumers tend to apply promotional credit to multiple purchases (Cheng & Cryder, 2018).

Over several studies, Cheng & Cryder (2018) demonstrate that when receiving a promotional credit such as a gift card with a initial purchase that can be redeemed towards a future purchase, consumers mentally couple and apply the credit to both the initial purchase when receiving the gift card, and the subsequent purchase when redeeming the gift card, resulting in lower perceived costs over the two purchases compared to what was truly spent (Cheng & Cryder, 2018). On the other hand, participants who received an equivalent discount with the initial purchase only coupled the discount with the initial purchase and not the second, which in turn did not result in double mental discounting. Thus, the authors establish coupling as a mediator to double mental discounting (Cheng & Cryder, 2018).

Cheng & Cryder (2018) further investigate double mental discounting in the context of different currency denominations of promotional credit such as reward points. The authors hypothesize that the added step of determining the dollar value of the points from the promotional credit should reduce coupling the promotional credit with the initial purchase, and therefore negate double mental discounting. Specifically, the authors state that “if a consumer makes an initial purchase and receives promotional credit in the form of points instead of gift card dollars, (s)he may be less likely or able to couple the promotional credit with the original purchase” (Cheng & Cryder, 2018, pp. 235–236).

Cheng & Cryder (2018) found that double mental discounting did not occur when the promotional credit was given in the form of reward points, supporting their hypotheses. When participants made two purchases of flight tickets that summed to a total of \$1000, on average, participants in the promotional credit (dollars) condition perceived the total cost of the two flights to be \$969.66, significantly less than \$1,000. However those in the discount condition and

the promotional credit (points) did not perceive that they spent significantly less than \$1000 (Cheng & Cryder, 2018).

In summary, double mental discounting occurred when promotional credit was given in dollars, but when given a discount of a promotional credit in the form of points, participants were more likely to perceive the total costs accurately (Cheng & Cryder, 2018).

2.3 Coupling and Pain of Paying

When purchasing a product, consumers must weigh the benefits received from consuming the product against the costs associated with purchasing it. This includes non-monetary costs, such as the pain of paying (Zellermayer, 1996). “Double entry” mental accounting describes this give-and-take relationship between the benefit of consuming and the pain of paying (Prelec & Loewenstein, 1998). Specifically, double entry mental accounting refers to the degree to which the pain of paying decreases the pleasure of consumption and the degree to which consumption shields the pain of paying (Prelec & Loewenstein, 1998).

Fundamental to double entry mental accounting is the notion of coupling, which refers to the strength of an association, which in this context refers to the strength of association between the act of consumption and payment (Prelec & Loewenstein, 1998). Levels of coupling can vary across different forms of payment. Paying with cash produces a high degree of coupling while paying with a credit card produces lower coupling (Prelec & Loewenstein, 1998).

The coupling or decoupling of payment from the act of consumption can lead to different consumption experiences. For example, if a couple prepays for a vacation package, the payment is temporally decoupled from the act of consumption. This allows the couple to more easily

enjoy all the experiences during the vacation without thinking about the cost (Prelec & Loewenstein, 1998). However, if the couple chooses to pay for each service at the time they consumed them, they would be more likely to couple the cost of the service with the act of consumption and think about the cost while enjoying the service, resulting in a less favorable experience (Prelec & Loewenstein, 1998).

Credit cards also provide this type of temporal decoupling because the credit card balance is only truly paid at the end of the billing cycle, and not paid at the time of purchase such as when using cash or a debit card. Paying by credit card incurs less pain of paying and results in higher spending and enjoyment because of this type of decoupling (Raghubir & Srivastava, 2008). Another level of decoupling from credit cards is that they allow many smaller purchases to be combined into one payment, which is not attributed to any specific consumption (Raghubir & Srivastava, 2008).

Interestingly, the pain of paying experienced from making a purchase can be affected by price promotions. For example, over two purchases with an equivalent promotional value, participants who imagined receiving a promotional credit experienced less overall pain of paying than those who received a discount because they coupled the promotional credit with both purchases, while participants who received a discount only coupled the promotion to a single purchase (Cheng & Cryder, 2018). Put simply, because the promotional credit was strongly associated with both purchases, participants felt less pain of paying and felt like they spent less over the two purchases (Cheng & Cryder, 2018). Similarly, consumers experience more pain of paying and tend to spend less when paying by check compared to paying by credit card because

the act of writing a check makes the payment more salient (Soman, 2003). Payment transparency can be used to define how salient different payment methods are.

2.4 Payment Transparency

Payment transparency refers to the extent that a payment method makes the payment salient. It is an assessment that is derived from the salience of the form, amount, and timing of a payment method (Soman, 2003). For example, paying with cash is the most transparent mode of payment because at the time of purchase, the physical form and amount are very salient, and you pay immediately at the time of purchase. The act of holding your money and counting the amount that is due and physically handing the money over as payment, makes the act of paying and the amount of the payment very salient (Soman, 2003). In contrast, when you pay with a credit card, you don't have to physically manipulate or count money, and you don't have to give away your credit card permanently to make the purchase. For this reason, credit cards have lower payment transparency because at the time of payment, the physical form and the amount of the money spent are less salient, and the payment is temporally separated from the purchase (Soman, 2003).

On average, consumers who used payment methods with lower payment transparency experienced less pain of paying and spent more than those who used high payment transparency methods (Soman, 2003). Specifically, in a field study where students were given a task that involved researching and photocopying an unspecified amount of pages that included relevant information, participants who were given cash to make their copies made less copies and spent less than participants who were given a prepaid digital card. Participants who were given cash for their photocopies were also more likely to take handwritten notes instead of making a copy,

demonstrating that they were more judicious in determining what pages were worth photocopying (Soman, 2003).

Similarly, Raghubir & Srivastava (2018) define the varying levels of transparency of payment methods in terms of the degree that individuals feel the outflow of money when making a payment, with cash as the payment method where you feel the outflow of money the greatest. When completing a grocery shopping trip with an identical list of grocery items to obtain, participants who were given a store “scrip” (i.e., gift card like certificate) to pay for their groceries spent more than participants who were given cash to make the same purchases (Raghubir & Srivastava, 2008). In this study, the items on the list did not specify the brand or quantity required, leaving this determination subjective to the participant. This demonstrates the impact that payment method and payment transparency have on consumer spending behavior such that the high transparency of cash leads participants to be more frugal in their spending behavior.

Not only does payment transparency influence spending behavior, but it also affects the ability to accurately recall previous purchase amounts. For example, in a field study, students were approached after making their lunch purchases at the university cafeteria and asked to recall the prices of the products they had purchased. Students who paid with cash were significantly more accurate at recalling the correct amount that they spent on their items than students who had paid with a credit card, which demonstrates that when paying with cash, the amount is more salient than when paying by credit card (Gafeeva et al., 2018).

In other studies, the effect of payment transparency on memory recall has been investigated. For example, in one study, participants were primed with either a cash or credit

stimulus and viewed a product with a list of add-on features that could be purchased. Participants who were primed with the credit stimulus were significantly worse at recalling the price of the add-on features than participants who were primed with cash stimulus, demonstrating that being primed with cash associations makes cost information more salient (Chatterjee & Rose, 2012). In another study, after making a purchase, participants who paid by credit card were significantly worse at recalling the price of the purchase compared to participants who paid by check (Soman, 2001). This occurred because the act of writing the amount on the check made the payment more salient.

In summary, consumers are always grappling with the pleasure of consumption and the pain of paying. The level of payment transparency associated with each payment method has been shown to affect the level of coupling between the pain of paying and consumption, which in turn affects the amount consumers are willing to spend, memory recall, and pain of paying (Gafeeva et al., 2018; Soman, 2003). Together, these examples demonstrate the influence of payment transparency on how we mentally process and react to transactions.

2.5 Complexity of the Points Program

Customer loyalty programs often use alternative currencies for their rewards programs. For example, PC Optimum members accumulate *PC Optimum* points, Air Miles members accumulate *Air Miles*, and Kohl's shoppers accumulate *Kohl's Cash* (PC Optimum, 2019), (Air Miles, 2019), (Kohl's, 2020). The difficulty for consumers to determine the dollar value of a reward program currency varies with each customer loyalty program. For example, of these examples, the easiest reward currency for consumers to evaluate would be *Kohl's Cash*. Kohl's reward members accumulate \$10 in *Kohl's Cash* for every \$50 spent in-store (Kohl's, 2020).

With this reward program, members do not need to do any calculations to convert the alternative currency to an equivalent dollar value, \$10 dollars in *Kohl's cash* is worth \$10 USD at Kohl's. On the other hand, PC Optimum members accumulate points through purchases, and each 1,000 points that is accumulated is worth \$1 (PC Optimum, 2019). With this reward program, converting the points to a dollar amount takes an extra step since consumers must do some (perhaps simple) arithmetic in order to determine the dollar value of their points. For example, if a grocery trip accumulated 4,000 points, the consumer would have to divide the amount by 1,000 (or remove three zeros) to determine that the 4,000 points is equivalent to \$4 in credit.

The Hudson's Bay program also uses its own points program, but every 2,000 points is worth \$10, in other words, every 200 points is worth \$1 (Hudson's Bay, 2020). Comparatively, mentally computing the dollar value of the Hudson's Bay points is slightly harder than the PC Points because you cannot simply remove three zeros. For example, 3,000 Hudson's Bay points equals \$15 but to mentally calculate this, it is slightly harder than the PC points example.

Research has shown that participants are more likely to spend loyalty points when it is easy to know or evaluate the benefits that they can get from using them. For example, loyalty points are more likely to be spent when they equal an easy to compute percentage off of the purchase price (Kwong et al., 2011). Specifically, for a meal purchase of \$7, when the percentage savings was left implicit, participants were significantly more likely to redeem a point balance equaling \$3.5 than \$2.8 or \$4.2, due to the easy-to-compute percentage of 50 percent off of the \$7 purchase. However, when the percentage of savings was stated explicitly, redemption rates in the \$2.8 and \$4.2 groups increased to the same level at the \$3.5 group in the implicit condition and there was no difference across groups (Kwong et al., 2011). In summary, the

findings demonstrate that ease of computation and ability to determine the value of the points affects the decision to spend them.

Preference fluency, defined as the ease or difficulty experienced when deciding (Novemsky et al., 2007), has also been shown to affect consumer behavior and decision making. For example, when selecting a purchase option from product choice sets that used either a hard to read font or an easy to read font, the hard to read font condition was significantly more likely to defer their purchase decision compared to the easier to read condition (Novemsky et al., 2007). This demonstrates how low preference fluency (i.e., higher difficulty processing) leads to greater choice deferral. In other words, when more effort is required to analyze the information, participants prefer to not decide. Preference fluency corresponds well with the complexity of the points program because the more complex a points program is, more effort is required to determine the dollar value of the points.

Research has also compared the effect of non-monetary promotions such as bonus packs to monetary promotions such as discounts (Diamond & Campbell, 1989). When offering a promotion for laundry detergent in the form of a free quantity increase (i.e., bonus pack), participants were more likely to perceive the promotion as a segregated gain compared to participants who received a discount, who were more likely to perceive the promotion as an integrated reduction of a loss (i.e. reduced payment) (Diamond & Campbell, 1989). The authors argue that the increased effort required to convert a bonus pack to an equivalent dollar value leads consumers to mentally perceive the bonus pack promotion as a gain and not a reduction of the payment, which resulted in the discount promotion, but not bonus pack promotion having a negative effect on the product reference price (Diamond & Campbell, 1989). This brings the

question, if the dollar value of the bonus pack was made easy to determine, where little effort was required, would participants be more likely to perceive the bonus pack as an integrated saving instead of a segregated gain?

3.0 Research Propositions & Hypotheses

3.1 Summary of Construct Definitions

Constructs used in the hypotheses of this research are grounded in existing theory discussed in the conceptual overview, but are defined by this research as stated below.

Construct	Definition
Double Mental Discount	To mentally apply a promotional credit towards the initial purchase and subsequent purchase, resulting in lower perceived cost than what was truly spent (Cheng & Cryder, 2018)
Complexity of the points program	The perceived complexity of computing the dollar value of the points in the customer loyalty program
Payment Transparency	The salience of the form, amount, and timing of the payment method
Promotion Salience	The salience of the form, amount, and timing of the promotional credit.
Perceived Cost	The dollar amount that he or she feels like they paid.

3.2 Complexity of the Points Program as a Moderator to Double Mental Discounting

This research seeks to extend the findings Cheng & Cryder (2018) by testing if double mental discounting occurs with promotional credit in the form of points when the dollar value of the points is easy to determine. This research argues that the monetary value of the points in the points program used by Cheng & Cryder (2018) was overly hard to calculate, which is why

double mental discounting did not occur. This research proposes that if a simpler points program were used, where the dollar value of the points is easier to determine, double mental discounting should occur.

In the Cheng & Cryder (2018) study, the stimuli stated “Your tickets also come with 10,000 frequent flier points that can be cashed into credit to spend on a future flight booking. Each point is equivalent to one penny” (Cheng & Cryder, 2018, p. 235). By expressing the value of the points as each worth one penny, the authors make determining the value of the points somewhat hard when calculating for 10,000 points. In this context, it might be easier to compute the value of the points if they were stated in terms of dollars (e.g. Your tickets also come with 100,000 points and each 1,000 in points is equal to 1 dollar).

In the same way that promotional points are less likely to be spent when their value is hard to determine (Kwong et al., 2011), it also makes sense that they would be less likely to be mentally applied as a discount when making a purchase when their dollar value is hard to determine. Without easily being able to determine the dollar value of the points, participants should be less likely to mentally apply the promotional credit as a discount towards the initial purchase. Thus, this research proposes that when the points are presented in a way where the dollar value is easier to determine, such as how they are presented in the PC Optimum program (1,000 points = \$1) (PC Optimum, 2019), consumers should be more likely to mentally apply the points as a discount towards both the initial and subsequent purchase, resulting in double mental discounting.

Furthermore, a main takeaway from preference fluency (Novemsky et al., 2007), is that the level of difficulty to process information can lead consumers to defer their choice. This

further supports complexity as a moderator to double mental discounting. In the same way that the increased effort required to read a hard to read font compared to an easy to read font caused more participants to defer making a choice (Novemsky et al., 2007), when determining the dollar value of the points is difficult and requires more effort, participants should be more likely to defer by not putting effort into calculating the points, which would also reduce the likelihood of double mental discounting to occur. Thus, by making determining the dollar value of the points as easy as possible, double mental discounting should be more likely to occur.

Recall, participants who received a bonus pack were more likely to perceive the bonus pack as a segregated gain, and participants who received a discount were more likely to perceive the discount as an integrated reduction of a loss (i.e., reduced payment) (Diamond & Campbell, 1989). The authors argue that the increased effort required to convert a bonus pack to an equivalent dollar value resulted in consumers mentally perceiving the bonus pack promotion as a gain and not a reduction of a loss (i.e. savings) (Diamond & Campbell, 1989). In a similar vein, This research proposes that the difference in mental accounting demonstrated by the discount versus bonus pack also likely applies to promotional credit offered in the form of points. Like a bonus pack, promotional credit in the form of points are offered in non-monetary currencies and are therefore more likely to be perceived as a gain and not a reduction of a loss.

By linking theoretical constructs regarding computational ease, non-monetary currencies, and mental accounting (Kwong et al., 2011; Raghurir & Srivastava, 2008; Thaler, 1985), this research proposes that if we reduce the level of effort required to determine the dollar value of the points by using a less complex points system, individuals should be more likely to feel like the alternative currency points promotion is reduction of a loss (i.e., savings) toward the initial

purchase and not a segregated gain, which should increase the chance of double mental discounting to occur.

This research has two primary objectives. First, we aim to replicate the study and findings by Cheng & Cryder (2018). Second, based on the arguments thus far presented, we aim to establish complexity of the points program, defined as the level of perceived difficulty to determine the dollar value of the points, as a moderator to double mental discounting. To do this, our study will replicate the original Cheng & Cryder (2018) study while creating and adding two new conditions, a low and high complexity condition.

Hypotheses

H1: Perceived complexity of the points program moderates double mental discounting such that an increase in perceived complexity will result in a lower degree of double mental discounting (i.e., higher perceived costs).

3.3 Payment Transparency and Double Mental Discounting

This research proposes that payment transparency (i.e., the salience of the physical form, dollar amount, and timing of the outflow of money of a payment method) (Soman, 2003), affects double mental discounting. This research also proposes that the construct of payment transparency applies in the same way to the promotional credit received. For clarity, we refer to this as promotion salience.

Consider the difference in payment transparency when paying with cash or credit card. When paying with cash, you have to hold, count, and give the money to the cashier, but when paying with a credit card, there is no counting, there is no touching money, and you don't physically give anything to the cashier. Thus, paying with cash makes the payment and outflow of money more salient (Raghubir & Srivastava, 2008; Soman, 2003). This research argues that this difference in payment transparency should affect the likelihood for a consumer to double mental discount. If the payment during the initial purchase is very salient, it should be harder for the consumer to mentally apply the promotional credit as a discount towards the primary purchase, when it is not actually being redeemed, thus reducing the effect of double mental discounting. However, when the payment is less salient like when paying by credit card, it should be easier to mentally apply the promotional credit towards the initial purchase and therefore increase double mental discounting (i.e., lower perceived cost). In the same way the high payment salience of paying with cash or writing a check improved accuracy of recalling price information (Gafeeva et al., 2018; Soman, 2001), we argue that paying with cash should allow participants to more accurately determine how much they are spending.

We must also consider how the properties of payment transparency transfer to the different types of promotional credit, we refer to this as promotion salience. For example, consider the difference in promotion salience between receiving a promotional credit in the form of a gift card, or a digital account balance in the form of points. If a consumer makes an initial purchase and receives a gift card as a promotion, the gift card is tangible, the amount is stated on the card, and it is physically given to the consumer at the time of the initial purchase. This makes the form, amount, and timing of the promotional credit all very salient (Soman, 2003). On the other hand, if the promotional credit is instead loaded onto the customer's store account as a

digital points balance, the form, amount, and timing of promotional credit all become less salient. The promotional credit is no longer physically received at the time of the initial purchase, the amount is less salient because there is nothing to physically touch and it is in a different currency, and the timing is less salient since you don't physically receive anything at the time of purchase. Thus, by applying the construct of payment transparency (Soman, 2003) towards promotional credit, comparatively, a gift card has high promotion salience and an account credit in points has low promotion salience because the form, amount, and timing of the promotional credit are all less salient.

This research proposes that promotion salience should affect the likelihood of the promotional credit feeling like a discount during the initial purchase when it is received. The more salient the form, amount, and timing of the promotional credit is when it is received, the more it should feel like a discount during the initial purchase when it is received. This research argues that when receiving promotional credit with high promotion salience such as a gift card, it should be easier to mentally apply the promotional credit as a discount towards the initial purchase compared to an equivalent credit in points, which has lower promotion salience.

Promotion salience also likely affects perceived cost when being redeemed. Although promotional credit is received as a promotion during a primary purchase, it also becomes a form of payment when being redeemed towards the subsequent purchase, and it now even more embodies the same characteristics as a payment method. Because a gift card is more salient than an account credit, we argue that it should also feel more like a payment when being redeemed towards the subsequent purchase compared to an account credit. In the same way high payment transparency lead shoppers who received cash to be more aware of the cost and make more

frugal quantity and brand selections compared to shoppers who received a store scrip (Raghubir & Srivastava, 2008), we argue that the high promotion salience of the gift card will make the gift card feel more like a payment than the account credit when being redeemed, which will result in a higher perceived cost during the subsequent purchase.

This research also proposes an interaction effect between payment transparency and promotion salience on purchase 1 perceived cost. This research proposes that there will be a sort of “battle” between how salient the payment is and how salient the promotional credit is, which determines the degree that consumers will apply the promotional credit as a discount towards the initial purchase. When payment transparency is low, such as when paying by credit card, it should be easier to mentally apply the promotional credit as a discount towards the primary purchase, regardless of if it is a gift card or an account credit in points, thus reducing the effect of promotion salience on perceived cost.

On the other hand, when making the primary purchase with cash, which has high payment transparency, receiving an account credit in points may not be salient enough to overcome the high payment transparency of the cash payment, and should be less likely to feel like a discount during the initial purchase. Thus, we predict an interaction effect between payment transparency and promotion salience such that the difference in purchase 1 perceived cost between promotional credit types (gift card or account credit) will be greater when paying with cash than by credit card.

Hypotheses

H2: Receivers of a promotional credit who pay with a credit card (versus cash) will perceive that they paid less (A) for the initial purchase; (B) for the subsequent purchase; and (C) for the combined purchases.

H3: Receivers of a promotional credit in the form of a gift card (versus an account credit in points) will perceive that they (A) paid less for the initial purchase; and (B) paid more for the subsequent purchase.

H4: There will be an interaction effect between payment method (cash or credit card) and promotional credit type (gift card or account credit) on the perceived cost of the initial purchase such that promotion type will have a stronger effect on perceived cost when paying with cash than credit card.

4.0 Study 1: Complexity of the Points Program as a Moderator

The purpose of this study is twofold. First, we aim to replicate the findings of Cheng & Cryder (2018) with the discount, promotional credit (dollars), and promotional credit (points, Cheng replication) conditions, where double mental discounting occurs only in the promotional credit (dollars) condition.

The second goal of this study is to extend the findings of Cheng & Cryder (2018) with an added promotional credit (points, low complexity) and (points, high complexity) conditions, and establish complexity of the points program as a moderator to double mental discounting, such that double mental discounting occurs when the points program is less complex and the dollar value of the points is easy to determine.

4.1 Study 1 Pretest: Manipulating Complexity of the Points Program

The purpose of this pretest is to establish three reward points conditions where determining the dollar value of the points varies in complexity. The (points, Cheng replication) condition is a direct replication (Cheng & Cryder, 2018), and we aim to produce two new conditions, one that is less complex (points, low complexity) and one that is more complex (points, high complexity), in order to ensure a strong manipulation of complexity.

4.2 Pretest Methodology

Participants in this pretest were an anonymous online Amazon Mechanical Turk sample from the United States ($N = 107$). Participants were randomly assigned to one of the three conditions; (points, Cheng replication), (points, low complexity), and (points, high complexity) and the study was between-subjects design. The pretest was designed to test if there was an adequate manipulation of complexity between the conditions.

Each condition read a scenario about receiving reward points that were worth \$100, but the value of the points was expressed in different terms in order to manipulate the level of difficulty to determine the dollar value of the points. Specifically, participants in the (points, Cheng replication) condition read “Imagine that you receive 10,000 frequent flier points and each point is worth one cent.” Participants in the (points, low complexity) condition read, “Imagine that you receive 100,000 frequent flier points and each 1,000 points is worth \$1.” Finally, participants in the (points, high complexity) condition read “Imagine that you receive 15,000 frequent flier points and each point is worth two thirds of a cent.”

After reading the scenario, respondents were asked an adapted measure of complexity “How easy or difficult is it for you to know the total value in dollars of your points?” on a 1-7 likert scale (Kwong et al., 2011). Following a page break, respondents were asked in an open-ended text response, “what is the dollar value of your points?” Responses for this question were coded into a binary variable of either correct/incorrect. Exactly correct responses of \$100 were coded as correct and all other responses were coded as incorrect. Incorrect responses were coded as 0 and correct responses were coded as 1, allowing the ANOVA coefficients to be interpreted as a percentage of correct responses.

4.3 Pretest Results

Table 1 below provides an overview of the study 1 pre-test results (N=107).

Table 1
Study 1 Pretest Results

<i>Measures</i>	<i>Points Program, Low Complexity</i>	<i>Points Program, Cheng Replication</i>	<i>Points Program, High Complexity</i>
Complexity	2.26 ^a	2.64 ^a	3.64 ^b
Correctly estimated points	85.29% ^a	75.68% ^a	30.56% ^b

Notes: Condition means in the same row with different letter superscripts are significantly different from each other at a $p \leq .05$ level. Complexity of the points program was measured on a 1-7 likert scale “How easy or difficult is it for you to know the total value in dollars of your points?”

Perceived complexity of the points program. An ANOVA revealed that there was a main effect of promotion type on the perceived complexity of the points program ($M_{\text{Points, low complexity}} = 2.26$, $SD = 1.56$; $M_{\text{Points, Cheng replication}} = 2.64$, $SD = 1.49$; $M_{\text{points, high complexity}} = 3.64$, $SD = 1.84$; $F(2, 104) = 6.62$, $p = .002$). Planned contrasts revealed that the promotional credit (points, high complexity) condition was significantly more complex than both the promotional credit

(points, low complexity) ($t(104) = 3.51, p = 0.001$) and the promotional credit (points, Cheng replication) ($M = 2.64, SD = 1.49; t(104) = 2.58, p = 0.011$) conditions. The promotional credit (points, low complexity) condition was directionally less complex than the (points, Cheng replication), but the difference between the two was not significant ($t(104) = -.986, p = 0.326$).

Ability to correctly determine the dollar value of points. A linear regression was conducted with the treatment condition as the independent variable and the subject's ability to correctly determine the dollar value of the points as the dependent variable. The independent variable was re-coded into three dummy-coded variables, with each variable representing one of the points conditions (low complexity, Cheng replication, high complexity). The dependent variable was coded as either correct or incorrect, depending on the response of the subject. Exactly correct responses were coded as correct and all other responses were coded as incorrect. The dummy variable for the Cheng replication condition was left out as a reference variable, which allows us to interpret the regression coefficients as the difference in ability to correctly determine the dollar value of the points compared to the Cheng replication condition.

The model obtained an adjusted R-Square of 0.23. The ANOVA revealed that the subject's ability to correctly estimate the dollar value of the points differed significantly as a function of the complexity manipulation, $F(2,104) = 16.87, MSE = 0.18, p < .01$.

The low complexity condition ($b = .096, t(104) = 0.95, p = 0.342$) was better at correctly determining the dollar value of the points than the Cheng replication condition but the difference was not significant. The high complexity condition ($b = -.451, t(104) = -4.54, p = 0.342$) was significantly worse at correctly determining the dollar value of the points than the Cheng replication condition.

4.4 Pretest Discussion

Manipulating complexity of the points program in this pretest is only partially successful. Participants in the low complexity and Cheng replication conditions perceived the points program as significantly less complex than the high complexity condition. However, the low complexity condition was only perceived as directionally less complex than the Cheng replication condition. The difference between the two conditions was not significant because contrary to our expectations, the Cheng replication condition was perceived as less complex than anticipated. In summary, we were able to successfully create a significantly more complex points program, but not a less complex points program.

Results replicated the same trend as perceived complexity when testing the ability of participants to determine the dollar value of the points. The regression model revealed that the high complexity condition was significantly worse at determining the dollar value of the points than the Cheng replication condition. The difference between the low complexity and Cheng replication condition was not significant because the Cheng replication performed better than anticipated, indicating that the points program used by Cheng & Cryder (2018) is not as complex as we had expected.

Based on the results of the pretest, All three conditions will be used for the main study. Although the difference in complexity scores and ability to correctly determine the dollar value of the points between the promotional credit (points, low complexity) and promotional credit (points, Cheng replication) condition were not significantly different at $p \leq .05$, the consistent directional support warrants further investigation. The high complexity points condition will also

be included in the main study, to include a stronger manipulation of complexity of the points program.

4.5 Study 1 Methodology

A survey was conducted with an experimental factor with five levels of types of promotion; discount, promotional credit (dollars), promotional credit (points, Cheng replication), promotional credit (points, low complexity), promotional credit (points, high complexity), between-subjects design. Participants were randomly assigned to each condition.

Participants read an adapted replication of the scenario used by Cheng & Cryder (2018), where they imagined two separate purchases buying plane tickets. In an attempt to determine the effect that the promotion has on pain of paying, two minor modifications were made to the original scenario to reduce any potential confounding effects that might be caused by the destination and cost of the flight. Specifically, original locations of the Caribbean and Japan were changed to Florida and Spain and the cost of the initial purchase was changed from \$300 to \$600 to bring it closer to the cost of the subsequent purchase of \$800. Therefore, the initial purchase cost \$600 and the second cost \$800 and the value of the promotion was \$100. By making the cost of the flight and the climate of the destination of both flights as similar as possible, we hope that we will better capture and isolate the effect that the promotion type has on the pain of paying.

Subjects of each condition read the same purchase scenario but the promotion received was manipulated for each condition. For purchase 1, all participants read, “Imagine that you are buying plane tickets to Florida this winter and you find tickets for \$600. The airline is currently

doing a promotion.” Participants then read the promotion specific to their condition. As a replication of (Cheng & Cryder, 2018), participants in the discount condition then read, “Your tickets also come with a \$100 discount off the present flight booking.” Participants in the promotional credit (dollars) condition read, “Your tickets also come with a \$100 promotional credit to use on a future flight booking.” Participants in the promotional credit (points, Cheng replication) condition read, “Your tickets also come with 10,000 frequent flier points that can be cashed into credit to spend on a future flight booking. Each point is equivalent to one cent.”

The low complexity and high complexity points conditions which were pre-tested for complexity were added to the study to test the hypothesis that complexity of the points program moderates double mental discounting. Participants in the promotional credit (points, low complexity) condition read, “Imagine that you receive 100,000 frequent flier points and each 1,000 points is worth \$1.” Participants in the promotional credit (points, high complexity) condition read, “Imagine that you receive 15,000 frequent flier points and each point is worth two thirds of a cent.”. For an overview of the wording of each condition, please consult Appendix B.

All participants then indicated their Purchase 1 perceived costs in an open ended text box and answered two coupling questions: “How related is the (promotion) to the price of the purchase?” and “How much did you think about the (promotion) when you thought about the price of this purchase?”, and a pain of paying question: “How painful does it feel to pay for the (purchase)?”. All measures were replicated from Cheng & Cryder (2018). An attention check question: “How do we know that you are completing this questionnaire, please respond with

"never" for this item" was added to filter out poor quality responses. For a summary of wording of each measure, please consult appendix A.

Participants then read the subsequent purchase scenario, "Imagine that you are now booking a trip to Spain for your summer vacation. The plane tickets cost \$800." Participants in the discount condition then read, "The airline is no longer holding the \$100 discount promotion." Participants in the promotional credit conditions read "You have decided to apply your previously earned (specific promotional credit earned from purchase 1), which translates to \$100 worth of credit towards your tickets." For the exact wording of each condition, please refer to the appendix B.

All participants then indicated their Purchase 2 perceived costs in an open ended text box and answered the same coupling and pain of paying questions as purchase 1, and indicated their perceived complexity of the points program "How easy or difficult is it for you to know the total value in dollars of your points?". After the purchase, participants also responded to a nominal measure of "simultaneous coupling" (Cheng & Cryder, 2018) "In your opinion, which purchase or purchases did the promotion feel relevant to?" Respondents could choose one of three options; "Purchase 1 only", "Both purchase 1 and purchase 2", or "Purchase 2 only".

4.6 Study 1 Results

An anonymous sample of participants from the United States was recruited from the online platform Amazon Mechanical Turk (N =315). Responses that failed the attention check question "How do we know that you are completing this questionnaire, please respond with

"never" for this item" or were deemed as poor-quality responses were removed. As a cut-off rule, perceived cost responses above the cost, excluding the promotion, of the purchase were removed (ex. Someone felt like they spent above \$600 for purchase 1, or above \$800 for purchase 2). Also, responses which were more than \$300 less than the retail cost were deemed as poor-quality data and also removed (ex. responses less than \$300 for purchase 1, and \$500 for purchase 2). The range of \$300 was chosen to allow for the possibility to observe if complexity of the points program actually leads participants to overestimate the dollar value of the points. This resulted in a final sample of (N=257).

Across all conditions, the initial purchase cost \$600 and the second cost \$800, for a pre-promotion total cost of \$1400, minus the \$100 promotion (discount or promotional credit), resulting in an actual cost of \$1300 for all conditions. The discount was applied to the initial purchase, and the promotional credit was received from the initial purchase and redeemed towards the second.

In order to reveal if our study successfully replicated Cheng & Cryder (2018) regarding perceived cost, coupling, and pain of paying, we conducted the same type of ANOVAs and planned contrasts. Table 2 below provides an overview of study 1 results and planned contrasts (N=257).

Table 2: Summary of Study 1 Results

<i>Measures</i>	Promotional Credit				
	<i>Discount</i>	<i>Dollars</i>	<i>Points Low Complexity</i>	<i>Points Cheng Replication</i>	<i>Points High Complexity</i>
Manipulation check (perceived complexity)	NA	NA	2.58a	3.31b	4.33c
Purchase 1 perceived costs	\$517.5a	\$555.19b	\$569.42b	\$554.85b	\$569.69b
Purchase 2 perceived costs	\$787.5a	\$699.96b	\$706.78b	\$716.79b	\$716.41b
Total perceived costs	\$1305.00a†	\$1255.15b	\$1276.20a†b	\$1271.64b	\$1286.09ab
Purchase 1 coupling	5.66a	4.19bc	4.14bc	4.42b	3.72c
Purchase 2 coupling	3.54a	5.3bc	5.58bc	5.72b	5.06c
Total coupling	9.2a†b	9.48ab	9.71a	10.13a†	8.78b
Purchase 1 pain of paying	4.03a†	4.11a	4.41a	4.55a†	4.55a†
Purchase 2 pain of paying	5.00a†	4.00b	4.24b	4.39a†b	4.33b
Total pain of paying	9.02a	8.11a	8.64a	8.94a	8.88a

Notes: Contrast effects are denoted by superscript letters. Condition means in the same row that share a same letter are insignificant from each other at $p \leq .05$ level. The same letter with a dagger symbol ([†]) indicates a statistically significant difference at a $p \leq .10$ level.

Manipulation Check: Perceived Complexity of the points program. An ANOVA revealed that there was a main effect of promotion type on perceived complexity of the points program ($M_{\text{Points, low complexity}} = 2.58$, $SD = 1.44$; $M_{\text{Points, Cheng replication}} = 3.31$, $SD = 1.72$; $M_{\text{Points, high complexity}} = 4.33$, $SD = 1.70$; $F(2, 187) = 17.98$, $p < 0.001$). Planned contrasts revealed the low complexity condition was rated significantly less complex than the Cheng replication condition ($t(187) = -2.53$, $p = 0.012$) and the high complexity condition ($t(187) = -5.95$, $p < 0.001$). The Cheng replication condition was also significantly less complex than the high complexity condition ($t(187) = -3.56$, $p < 0.001$). Therefore, all three conditions were significantly different from each other and consistent with the intended manipulation. The low complexity condition was the least complex of all three, i.e., the dollar value of the points in this condition was the easiest to determine, the Cheng replication condition was the second easiest, and the high complexity condition was the hardest. It should be noted that when using the same points

programs in the pretest, we did not obtain this successful manipulation. Our thoughts on this are discussed in the following discussion section.

The effect of promotion type on perceived cost of purchase 1. An ANOVA revealed that there was a main effect of promotion type on purchase 1 perceived costs ($M_{\text{Discount}} = \$517.5$, $SD = \$38.48$; $M_{\text{Promotional dollars}} = \555.19 , $SD = \$63.81$; $M_{\text{Points, low complexity}} = \569.42 , $SD = \$57.36$; $M_{\text{Points, Cheng Replication}} = \554.85 , $SD = \$65.31$; $M_{\text{Points, high complexity}} = \569.68 , $SD = \$55.18$; $F(4, 252) = 6.24$, $p < 0.001$). Planned contrasts revealed that participants in the discount condition felt that they spent significantly less than the promotional credit (dollars) ($t(252) = -2.64$, $p = 0.009$), promotional credit (points, low complexity) ($t(252) = -4.42$, $p < 0.001$), promotional credit (points, Cheng replication) ($t(252) = -3.26$, $p = 0.001$), and promotional credit (points, high complexity) ($t(252) = -4.51$, $p < 0.001$) conditions. There were no significant differences between the promotional credit conditions. In summary, the discount condition felt like they spent significantly less on the initial purchase than all promotional credit conditions.

The effect of promotion type on perceived cost of purchase 2. An ANOVA revealed that there was a main effect of promotion type on purchase 2 perceived costs ($M_{\text{Discount}} = 787.50$, $SD = \$31.52$; $M_{\text{Promotional dollars}} = \699.96 , $SD = \$67.88$; $M_{\text{Points, low complexity}} = \706.77 , $SD = \$32.77$; $M_{\text{Points, Cheng Replication}} = \716.79 , $SD = \$44.68$; $M_{\text{Points, high complexity}} = \716.40 , $SD = \$48.02$; $F(4, 252) = 25.50$, $p < 0.001$). Planned contrasts revealed that subjects in the discount condition felt that they spent significantly more than the promotional credit (dollars) ($t(252) = 7.91$, $p < 0.001$), promotional credit (points, low complexity) ($t(252) = 8.87$, $p < 0.001$), promotional credit (points, Cheng replication) ($t(252) = 7.96$, $p < 0.001$), and promotional credit (points, high

complexity) ($t(252) = 7.93, p < 0.001$) conditions. There were no significant differences between the promotional credit conditions. Put simply, subjects in the discount condition felt like they spent significantly more on the subsequent purchase than all subjects in the promotional credit conditions.

The effect of promotion type on total perceived cost. An ANOVA revealed that there was no overall main effect of promotion type on total perceived costs ($M_{\text{Discount}} = \$1305.00, SD = \54.07 ; $M_{\text{Promotional dollars}} = \$1255.15, SD = \$118.61$; $M_{\text{Points, low complexity}} = \$1276.20, SD = \$65.66$; $M_{\text{Points, Cheng Replication}} = \$1271.64, SD = \$84.48$; $M_{\text{Points, high complexity}} = \$1286.09, SD = \$86.90$; $F(4, 252) = 1.86, p = 0.118$). However, planned contrasts revealed that participants in the discount condition felt like they spent significantly more than the promotional credit (dollars) ($t(252) = 2.45, p = 0.015$) and promotional credit (points, Cheng replication) ($t(252) = 2.05, p = 0.042$) conditions. The discount condition also felt like they spent marginally significantly more at $p < 0.10$ than the promotional credit (points, low complexity) condition ($t(252) = 1.72, p = 0.086$). The promotional credit (points, high complexity) condition was directionally but not significantly less than the discount condition ($t(252) = -1.15, p = 0.251$) and was marginally significantly greater at $p < 0.10$ than the promotional credit (dollars) condition ($t(252) = 1.65, p = 0.099$). In other words, the promotional credit (dollars) condition experienced the lowest perceived cost, i.e., the greatest degree of double mental discounting and both the low complexity and Cheng replication felt like they spent significantly less than the discount condition. The high complexity condition was also directionally less than the discount condition but the results were not statistically significant.

Promotion type on purchase 1 Coupling. An ANOVA revealed that there was a main effect of promotion type on purchase 1 coupling ($M_{\text{Discount}} = 5.66$, $SD = 1.50$; $M_{\text{Promotional dollars}} = 4.19$, $SD = 1.61$; $M_{\text{Points, low complexity}} = 4.13$, $SD = 1.63$; $M_{\text{Points, Cheng Replication}} = 4.42$, $SD = 1.62$; $M_{\text{Points, high complexity}} = 3.72$, $SD = 1.61$; $F(4, 252) = 9.58$, $p < 0.001$). Planned contrasts revealed that participants in the discount condition coupled the promotion with the initial purchase to a greater extent than the promotional credit (dollars) ($t(252) = 3.71$, $p < 0.001$), promotional credit (points, low complexity) ($t(252) = 4.66$, $p < 0.001$), promotional credit (points, Cheng replication) ($t(252) = 3.89$, $p < 0.001$), and promotional credit (points, high complexity) ($t(252) = 6.03$, $p < 0.001$) conditions. Also, the promotional credit (points, high complexity) condition coupled the promotion significantly less than the promotional credit (points, Cheng replication) ($t(252) = -2.50$, $p = 0.013$). In other words, the discount condition coupled the promotion towards the initial purchase to a greater extent than all promotional credit conditions and the high complexity condition coupled the promotion the least.

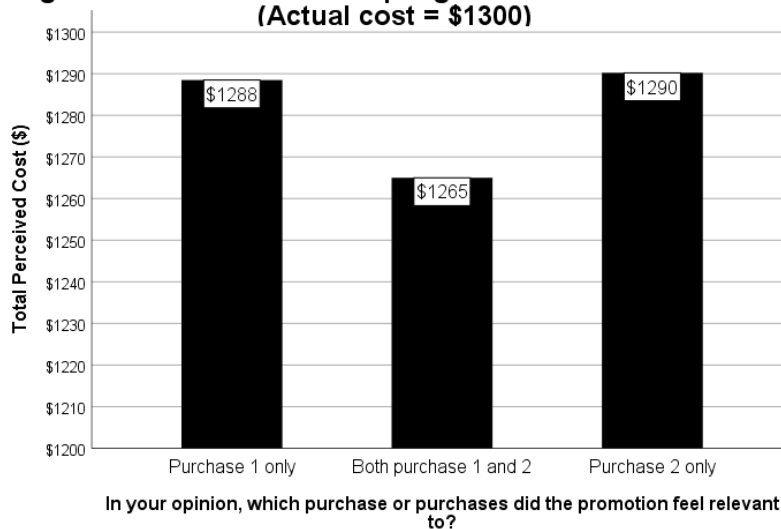
Promotion type on purchase 2 Coupling. An ANOVA revealed that there was a main effect of promotion type on purchase 2 coupling ($M_{\text{Discount}} = 3.54$, $SD = 1.88$; $M_{\text{Promotional dollars}} = 5.30$, $SD = 1.50$; $M_{\text{Points, low complexity}} = 5.58$, $SD = 1.38$; $M_{\text{Points, Cheng Replication}} = 5.71$, $SD = 1.35$; $M_{\text{Points, high complexity}} = 5.06$, $SD = 1.47$; $F(4, 252) = 15.31$, $p < 0.001$). Planned contrasts revealed that participants in the discount condition coupled the promotion with the subsequent purchase to a lesser extent than the promotional credit (dollars) ($t(252) = -4.72$, $p < 0.001$), promotional credit (points, low complexity) ($t(252) = -6.65$, $p < 0.001$), promotional credit (points, Cheng replication) ($t(252) = -7.29$, $p < 0.001$), and promotional credit (points, high complexity) ($t(252) = -5.06$, $p < 0.001$) conditions. Again, the promotional credit (points, high complexity) condition

coupled the promotion significantly less than the promotional credit (points, Cheng replication) ($t(252) = -2.50, p = 0.013$). There were no other significant differences between the promotional credit conditions. Put simply, the discount condition coupled the promotion with the subsequent purchase to a lesser degree than all promotional credit conditions and the high complexity condition again demonstrated lower coupling.

Promotion type on total Coupling. An ANOVA revealed that there was a main effect of promotion type on total coupling ($M_{\text{Discount}} = 9.20, SD = 2.59$; $M_{\text{Promotional dollars}} = 9.48, SD = 2.58$; $M_{\text{Points, low complexity}} = 9.71, SD = 2.28$; $M_{\text{Points, Cheng Replication}} = 10.13, SD = 2.45$; $M_{\text{Points, high complexity}} = 8.78, SD = 2.34$; $F(4, 252) = 2.83, p = 0.025$). Planned contrasts revealed that over the two purchases, participants in the discount condition reported marginally significantly less total coupling than the promotional credit (points, Cheng replication) condition ($t(252) = -1.93, p = 0.054$), but was not significantly less than the other promotional credit conditions. The promotional credit (points, high complexity) condition exhibited significantly less total coupling than the (points, low complexity ($t(252) = -2.13, p = 0.034$) and (points, Cheng replication) ($t(252) = -3.20, p = 0.002$) conditions, demonstrating that high complexity negatively affects coupling

Simultaneous Coupling on total perceived cost. An ANOVA revealed that there was a marginally significant main effect ($p < .10$) of simultaneous coupling on total perceived cost ($M_{\text{Purchase 1 only}} = \$1288.48, SD = \$91.62$; $M_{\text{Both purchase 1 and 2}} = \$1264.99, SD = \$96.79$; $M_{\text{Purchase 2 only}} = \$1290.20, SD = \$54.97$; $F(2, 254) = 2.82, p = 0.061$). Participants who felt like the promotion was related to both purchases felt like they spent less than participants who felt that the promotion was related to only a single purchase.

**Figure 1: Simultaneous Coupling on Total Perceived Cost
(Actual cost = \$1300)**



Promotion type on purchase 1 pain of paying. An ANOVA revealed that there was no main effect of promotion type on purchase 1 pain of paying ($M_{\text{Discount}} = 4.03$, $SD = 1.51$; $M_{\text{Promotional dollars}} = 4.11$, $SD = 1.94$; $M_{\text{Points, low complexity}} = 4.40$, $SD = 1.36$; $M_{\text{Points, Cheng Replication}} = 4.55$, $SD = 1.51$; $M_{\text{Points, high complexity}} = 4.54$, $SD = 1.55$; $F(4, 252) = 1.14$, $p = 0.340$). However, Planned contrasts revealed that participants in the discount promotion condition experienced marginally significantly ($p < 0.10$) less pain of paying than the promotional credit (points, Cheng replication) ($t(252) = -1.71$, $p = 0.088$) and promotional credit (points, high complexity) ($t(252) = -1.68$, $p = 0.094$). There were no other significant differences between the promotional credit conditions.

Promotion type on purchase 2 pain of paying. An ANOVA revealed that there was a marginally significant main effect at $p < 0.10$ of promotion type on purchase 2 pain of paying ($M_{\text{Discount}} = 5.00$, $SD = 1.63$; $M_{\text{Promotional dollars}} = 4.00$, $SD = 1.78$; $M_{\text{Points, low complexity}} = 4.23$, $SD = 1.38$; $M_{\text{Points, Cheng Replication}} = 4.38$, $SD = 1.54$; $M_{\text{Points, high complexity}} = 4.33$, $SD = 1.71$; $F(4,$

252) = 2.04, $p = 0.09$). Planned contrasts revealed that participants in the discount promotion condition experienced significantly more pain of paying than the promotional credit (dollars) ($t(252) = 2.53$, $p = 0.012$), promotional credit (points, low complexity) ($t(252) = 2.34$, $p = 0.020$) and promotional credit (points, high complexity) ($t(252) = 2.10$, $p = 0.037$) conditions, and marginally significantly more pain of paying at $p < 0.10$ than the promotional credit (points, Cheng replication) ($t(252) = 1.93$, $p = 0.055$) condition. In other words, the discount condition felt more pain of paying than all promotional credit conditions. There were no significant differences between the promotional credit conditions.

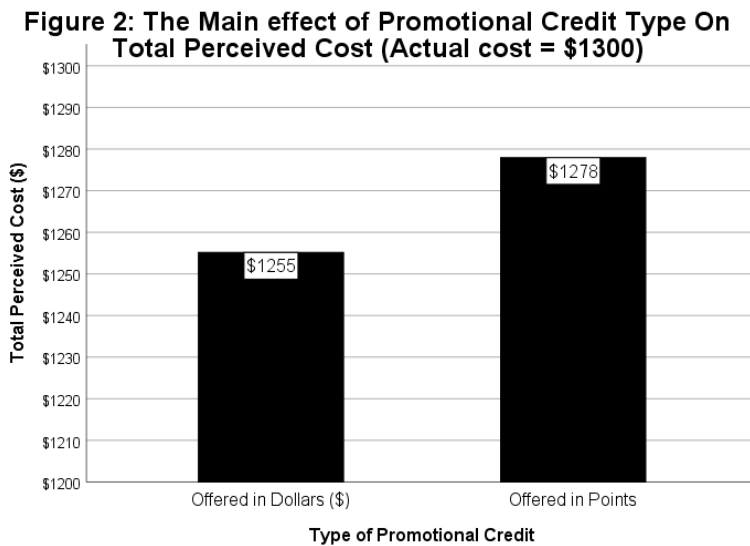
Promotion type on total pain of paying. An ANOVA revealed that there was no overall main effect of promotion type on total pain of paying ($M_{\text{Discount}} = 9.03$ $SD = 2.39$; $M_{\text{Promotional dollars}} = 8.11$, $SD = 3.39$; $M_{\text{Points, low complexity}} = 8.64$, $SD = 2.50$; $M_{\text{Points, Cheng Replication}} = 8.94$, $SD = 2.84$; $M_{\text{Points, high complexity}} = 8.87$, $SD = 2.89$; $F(4, 252) = 0.579$, $p = 0.678$). There were no significant differences in total pain of paying across all conditions at $p < 0.10$.

Complexity as a moderator to Double Mental Discounting

To test complexity as a moderator, first, a general univariate model (ANOVA) was conducted on the influence of one independent variable (type of promotional credit) on total perceived costs. Type of promotional credit represents a new re-coded binary variable, with the original condition of promotional credit in the form of dollars coded as 0, and the three points conditions (low complexity, Cheng replication, high complexity) merged and re-coded as 1. The discount condition was not included in this analysis in order to isolate the effect of complexity of the points program on total perceived cost from the separate main effect of discount vs promotional credit on total perceived cost.

The overall ANOVA was not significant $F(1, 215) = 1.68, p = 0.196$ and there was no overall main effect of promotion type on total perceived cost ($M_{\text{Promotional credit, dollars}} = 1255.15$, $SD = 118.61$; $M_{\text{Promotional credit, points}} = 1277.93$, $SD = 79.81$; $F(1, 215) = 1.68, p = 0.196$).

However, as shown in figure 2 below, participants who received promotional credit in the form of dollars directionally double mental discounted to a greater degree than the average of the three points conditions, which is represented by the lower perceived cost.



The ANOVA was conducted again with perceived complexity added as a covariate to the model. Unfortunately, perceived complexity scores were only collected in the three points conditions, and not the promotional credit (dollars) condition. Therefore, to run this analysis we had to assume that the perceived complexity for all responses in the promotional credit (dollars) condition were equal to 1, the lowest point on the likert scale. While it is not ideal to assume scores for missing data, since the promotional credit offered in this condition is stated in terms of dollars, we believe this is an acceptable assumption.

The overall ANOVA was not significant $F(2, 214) = 0.90, p = 0.408$ and there was no overall main effect of promotion type on total perceived cost $F(1, 214) = 1.75, p = 0.188$ or perceived complexity on total perceived cost $F(1, 214) = 0.13, p = 0.719$. When adding perceived complexity as a covariate to the model, the overall model significance decreases, indicating that perceived complexity does not add any predictive power to the model.

4.7 Discussion

The cost of purchase 1 (\$600) plus purchase 2 (\$800) minus the promotion (\$100) resulted in an actual amount spent of \$1300 by all participants in all conditions. The purpose of this study was two-fold. We aimed to replicate the findings of Cheng & Cryder with the discount, promotional credit (dollars) and promotional credit (points, Cheng replication) condition, where double mental discounting only occurred in the promotional credit (dollars) condition. The second purpose was to demonstrate that complexity moderates double mental discounting such that it occurs in the low complexity condition. Each measure is discussed in more detail below.

Discussion, Manipulation Check: Complexity of the points program. Contrary to the pretest, the main study found a successful manipulation of perceived complexity between the three points conditions. While only speculation, we believe this difference is due to the fact that in the pretest, participants only read a short description pertaining to the points program and did not read the entire purchase scenario. Perhaps, reading the entire purchase scenario and therefore intaking more information, makes processing the dollar amount of the points program seem more complex.

Discussion, perceived cost. The findings partially replicate Cheng & Cryder (2018) such that the discount condition ($M = \$1305.00$) did not double mental discount and the promotional credit (dollars) condition ($M = 1255.15$) did double mental discount. However, contrary to the findings of Cheng & Cryder (2018), the (points, Cheng replication) condition ($M = \$1271.64$) did double mental discount. Therefore, our findings only partially replicate the findings of Cheng & Cryder (2018). Contrary to the findings of Cheng & Cryder (2018), all promotional credit conditions in our study exhibited a degree of double mental discounting, which demonstrates that receiving promotional credit in the form of points can result in double mental discounting. We speculate that this may be due to the different sampling method used in our study. Over several studies, Cheng & Cryder (2018) use both Amazon Mechanical Turk samples and student body samples. However, the study that we are replicating (study 4B) used a student sample. While only speculation, perhaps the fact that we used an Amazon Mechanical Turk sample explains the difference in our findings.

There are no significant differences in double mental discounting across all promotional credit conditions at $p \leq .05$, but we see a trend of directional support for complexity as a moderator to double mental discounting. For example, across all conditions, the promotional credit was fixed at a dollar value of \$100. However, double mental discounting occurred to the greatest extent in the promotional credit (dollars) condition, where the value of the credit is stated explicitly and no calculations are needed to determine the value of the points, thus complexity is a non-issue. Participants in this condition felt like they spent \$1255.15 (i.e., perceived savings of an extra \$44.85 on top of the \$100 promotional credit).

When complexity becomes relevant with the points conditions, double mental discounting occurs to the greatest degree in the promotional credit (points, low complexity) and promotional credit (Cheng, replication) conditions, both of which are conditions where there is a low degree of complexity. Participants in these two conditions felt like they saved an extra \$25.48 and \$28.36 respectively, on top of the \$100 credit. Double mental discounting occurs the least in the promotional credit (points, high complexity) ($M = \$1286.09$) condition. Although not significantly lower than the (discount) condition, they felt like they saved an extra \$13.64, on top of the \$100 credit. The Cheng & Cryder (2018) points replication condition ($M = \$1271.64$) felt like they saved slightly more than the low complexity ($M = \$1276.20$) condition even though it was rated slightly more complex. However, holistically, the results offer directional evidence that complexity might moderate double mental discounting. As mentioned earlier, the points condition used by Cheng & Cryder (2018) was perceived as less complex than anticipated, which is shown in these results. Taken together, there is some support that complexity influences double mental discounting demonstrated by the three points conditions in this study and we will explore this further.

Discussion, Perceived complexity as a moderator to double mental discounting. There was no statistical support for perceived complexity as a moderator in the moderation analysis, thus H1 is not supported. However, this may be in part due to the fact that our attempt to replicate Cheng & Cryder (2018) was not successful since double mental discounting occurred in the replication points condition. As shown in table 2, in our study, double mental discounting occurred to in all points conditions, which may explain why complexity was not a strong predictor. We do observe directional evidence that complexity may affect double mental discounting, since the high complexity condition double mental discounted the least.

Discussion, coupling. Coupling scores for both purchase 1 and purchase 2 are generally as expected. Participants in the discount condition coupled the promotion with the initial purchase to a greater extent than all promotional credit conditions. In the same fashion, during the subsequent purchase, when the discount condition received nothing and the promotional credit conditions redeemed the points they earned from the initial purchase, all promotional credit conditions coupled their promotion to a greater extent towards the subsequent purchase than the discount condition.

Discussion, simultaneous coupling. With this measure, we were able to capture coupling as a simple nominal variable. The overall ANOVA of simultaneous coupling on total perceived cost was marginally significant. We observe that participants who couple the promotion with both purchase 1 and 2 report lower perceived cost than participants who couple the promotion with a single purchase. This makes sense and supports Cheng & Cryder (2018) that coupling mediates double mental discounting.

Discussion, pain of paying. As expected, pain of paying is less when the promotion is being applied to the purchase. For example, the discount condition felt less pain of paying compared to the promotional credit conditions during the initial purchase when the discount was applied, and the promotional credit conditions all felt less pain of paying than the discount condition during the subsequent purchase, when the credit was redeemed.

In summary, the results of Study 1 partially replicated Cheng & Cryder (2018) with the discount and promotional credit (dollars) condition, but not the promotional credit (points, Cheng replication) condition. In our study, all points conditions exhibited a degree of double mental discounting. This is interesting because we demonstrate that contrary to Cheng & Cryder (2018),

promotional credit in the form of points can be double mental discounted. H1 is not supported but the results offer some directional support that the complexity of the reward points system may affect double mental discounting, since of the points conditions, it occurred the least in the (points, high complexity) condition. However, double mental discounting occurred to the greatest extent in the (points, Cheng replication) and a slightly lesser extent in the (points, low complexity) condition, even though the low complexity condition was rated as less complex than the (points, Cheng replication) condition. So, while not perfectly aligned, there is some support that complexity of the points program affects double mental discounting.

Although the moderation analysis was not significant, the findings warrant further research. Furthermore, because our study did not fully replicate the findings of Cheng & Cryder (2018) (e.g., all points conditions in our research double mental discounted), future research could try to replicate the findings of this research and the research of Cheng & Cryder (2018). As a possible explanation for our research not replicating the findings of Cheng & Cryder (2018), perhaps our results are different because we used an open text response and did not use a slider scale to indicate perceived costs like in the research of Cheng & Cryder).

5.0 Study 2: Payment Transparency and Double Mental Discounting

Study 2 seeks to extend the findings of Cheng & Cryder (2018) by investigating the effect of payment transparency (i.e., the salience of the form, amount, and timing of a payment method) (Soman, 2003), and promotion salience (i.e., the salience of the form, amount, and timing of the promotion method), on double mental discounting.

5.1 Study 2 Methodology

Study 2 is a 2 (payment transparency) by 2 (promotion salience) between-subject's factorial design. Payment transparency has two levels (cash = high transparency, credit card = low transparency) and promotion salience also has two levels (gift card = high salience, credit card = low salience) between-subject's design. Therefore, there are four conditions that capture all possible combinations of the two independent variables.

Unlike study 1, where we used an open text box for participants to indicate perceived cost, we opted for a slider scale in this study used in the same way as Cheng & Cryder (2018). As a replication of the methodology of (Cheng & Cryder, 2018), the top end of the slider scale was set as the price of the product without the promotion, and the bottom end of the scale was set at the cost of the purchase minus the full value of the promotion.

Table 3: Study 2 experimental design

		IV1: Payment Method	
		Level 1: Cash (high payment transparency)	Level 2: Credit card (low payment transparency)
IV2: Promotion Method	Level 1: Gift card (high salience)	<i>Condition 1</i> Cash, gift card	<i>Condition 2</i> Credit, gift card
	Level 2: Account credit (low salience)	<i>Condition 3</i> Cash, account credit	<i>Condition 4</i> Credit, account credit

Participants imagined a scenario adapted from Cheng & Cryder (2018) involving two purchases at Best Buy. The scenario was adapted to manipulate the payment method (paid with cash or credit card) and promotion type (received a gift card or account credit in points). For example, to manipulate the payment method both the cash and credit conditions read, “Imagine that you are in Best Buy and you see headphones that you really like priced at \$150 including taxes.” The cash conditions read “You count out \$150 in cash (7 bills of \$20 each and one bill of \$10) and give it to the cashier to pay for the purchase”. The credit card conditions instead read “You tap your credit card to pay \$150 for the purchase”. The purpose of this manipulation is to make the payment amount, form, and timing more salient in the cash conditions by strengthening the payment transparency by having participants imagine counting the money and physically giving it to the cashier.

The promotional credit received is also manipulated to differentiate between receiving a gift from an account credit in points. Participants either read “The cashier gives you the headphones and the \$50 gift card”, or “The cashier gives you the headphones and informs you that you will have \$50 worth of points added to your store loyalty account which can be applied to a future purchase”. After reading the initial purchase scenario, participants indicated their perceived cost using a slider scale of \$100-\$150, which is the same slider scale range as Cheng & Cryder (2018).

For the subsequent purchase scenario, participants imagined purchasing a portable speaker priced at \$200. Participants were told that they decided to redeem the promotional credit they received during the initial purchase (e.g., “You give the cashier the \$50 gift card” or “The cashier applies your \$50 credit”) and then experienced the same payment manipulation as they

did during the initial purchase to pay the remaining amount. Participants then indicated their perceived cost using a slider scale of \$150-\$200, which is the same slider scale range as Cheng & Cryder (2018).

The same coupling, and pain of paying measures from study 1 were also collected in study 2, but as filler questions. For the full and exact wording of each condition, please refer to appendix B.

5.2 Study 2 Results & Integrated Discussion

An anonymous sample of participants from the United States was recruited from the online platform Amazon Mechanical Turk (N =325). Twenty-eight responses failed the attention check question “How do we know that you are completing this questionnaire, please respond with "never" for this item” and six responses were incomplete data. These responses were removed which resulted in a final sample size of two hundred and ninety-one (N=291, 63% male, median age = 35).

To conduct the factorial ANOVAs, a binary variable was created for payment transparency and promotion salience. Thus, the 4 original conditions are now represented by these two dummy variables (payment transparency & promotion salience), both coded as either high or low, which allows us to analyse the main and interaction effects on perceived cost. A two-way analysis of variance was conducted on the influence of two independent variables (payment method transparency, promotion method salience) on perceived costs for purchase 1, purchase 2, and total costs (purchase 1 + purchase 2). The interaction between the two independent variables was also included. Payment method included two levels of payment transparency (cash = high transparency, credit card = low transparency). Promotion method also

included two levels promotion salience (gift card = high salience, account credit in points = low salience).

The purpose of this experiment is to test the following hypotheses:

H2: Receivers of a promotional credit who pay with a credit card (versus cash) will perceive that they paid less (A) for the initial purchase; (B) for the subsequent purchase; and (C) for the combined purchases.

H3: Receivers of a promotional credit in the form of a gift card (versus an account credit in points) will perceive that they (A) paid less for the initial purchase; and (B) paid more for the subsequent purchase.

H4: There will be an interaction effect between payment method (cash or credit card) and promotional credit type (gift card or account credit) on the perceived cost of the initial purchase such that promotion type will have a stronger effect on perceived cost when paying with cash than credit card.

Purchase 1 perceived cost - (cost of purchase = \$150, promotion value = \$50)

Table 4 below provides an overview of the descriptive statistics of the effect of payment method and promotion method on purchase 1 perceived cost.

Table 4: Purchase 1 Perceived Cost Descriptives Statistics

Payment Method		Mean Perceived cost	Std. Dev	N
Cash	Received gift card	\$125.60	22.15	73
	Received account credit	\$132.09	22.31	65
	Total	\$128.66	22.38	138
Credit Card	Received gift card	\$121.31	22.59	78
	Received account credit	\$128.83	22.60	75
	Total	\$124.99	22.84	153
Promotion Type	Received gift card	\$123.38	22.41	151
	Received account credit	\$130.34	22.44	140
	Total	\$126.73	22.66	291

A two-way analysis of variance was conducted on the influence of the two independent variables (payment method, promotion method) on perceived costs for purchase 1. The corrected model was statistically significant $F(3, 287) = 3.04, p = 0.029$. The main effect of payment method yielded a non-significant F ratio of $F(1, 287) = 2.06, p = 0.152$. The main effect for promotion method yielded a significant F ratio of $F(1, 287) = 7.07, p = 0.008$. The interaction term was not significant $F(1, 287) = 0.04, p = 0.845$.

Figures 3, 4, and 5 below provide a visual representation of the main effects of payment method and promotion method, and the interaction effect on purchase 1 perceived cost, rounded to the nearest dollar.

Figure 3: The Main Effect of Payment Method on Purchase 1 Perceived Cost

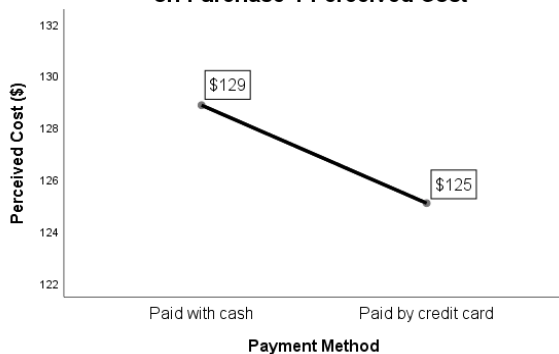
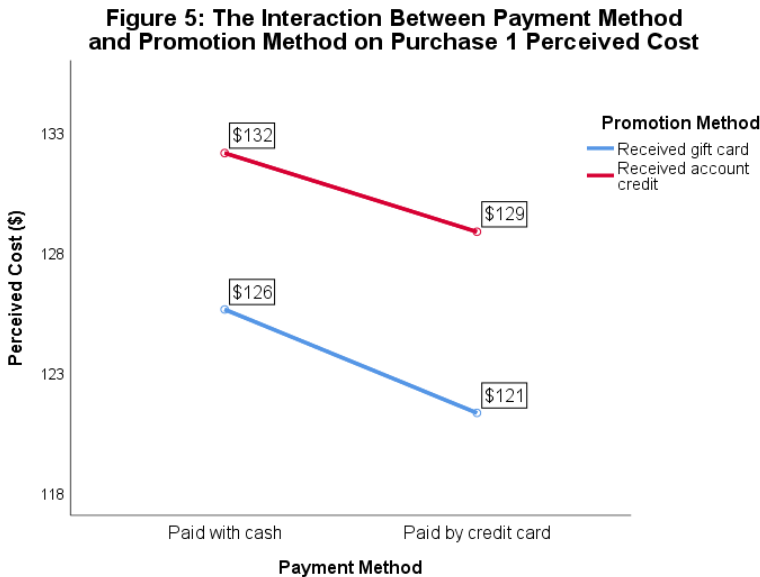


Figure 4: The Main Effect of Promotion Method on Purchase 1 Perceived Cost





Purchase 1 discussion, (cost of purchase = \$150, promotion value = \$50). Although the main effect of payment method on purchase 1 perceived cost was not statistically significant ($p = .152$), participants who paid with cash ($M = \$128.66$) felt like they spent more than participants who paid by credit card ($M = \$124.99$). The main effect of the promotion method was significant ($p = 0.008$) and participants who received a gift card felt like they spent less ($M = \$123.38$) than participants who received an account credit in the form of points ($M = \$130.34$). Thus, H2(A) which states that paying by credit card will result in lower perceived cost for purchase 1 than paying with cash is only directionally supported. H3(A) which states that a gift card will result in lower perceived cost for purchase 1 than an account credit in points is supported. The interaction hypotheses (H4) that the effect of the promotion method will be stronger when paying with cash than credit card is not supported.

Purchase 2 perceived cost - (cost of purchase = \$200, promotion value = redeeming \$50)

Table 5 below provides an overview of the descriptive statistics of the effect of payment and promotion method on purchase 2 perceived cost.

Table 5: Purchase 2 Perceived Cost Descriptives Statistics

Payment Method		Mean Perceived cost	Std. Dev	N
Cash	Received gift card	\$166.71	21.09	73
	Received account credit	\$158.91	17.99	65
	Total	\$163.04	20.01	138
Credit Card	Received gift card	\$160.10	18.25	78
	Received account credit	\$159.72	17.28	75
	Total	\$159.92	17.72	153
Promotion Type	Received gift card	\$163.30	19.89	151
	Received account credit	\$159.34	17.55	140
	Total	\$161.40	18.87	291

A two-way analysis of variance was conducted on the influence of the two independent variables (payment method, promotion method) on perceived costs for purchase 2. The corrected model was statistically significant $F(3, 287) = 2.67, p = 0.048$. The main effect for payment method yielded a non-significant F ratio of $F(1, 287) = 1.73, p = 0.188$. The main effect for promotion method yielded a marginally significant F ratio of $F(1, 287) = 3.47, p = 0.064$. The unexpected interaction term was marginally significant $F(1, 287) = 2.85, p = 0.093$.

Figures 6, 7, and 8 below provide a visual representation of the main effects of payment method and promotion method, and the interaction effect on purchase 2 perceived cost, rounded to the nearest dollar.

Figure 6: The Main Effect of Payment Method on Purchase 2 Perceived Cost

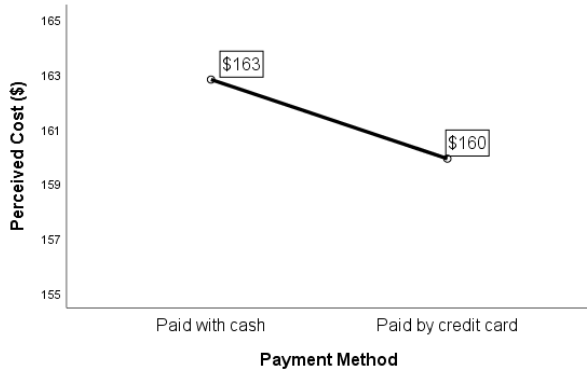


Figure 7: The Main Effect of Promotion Method on Purchase 2 Perceived Cost

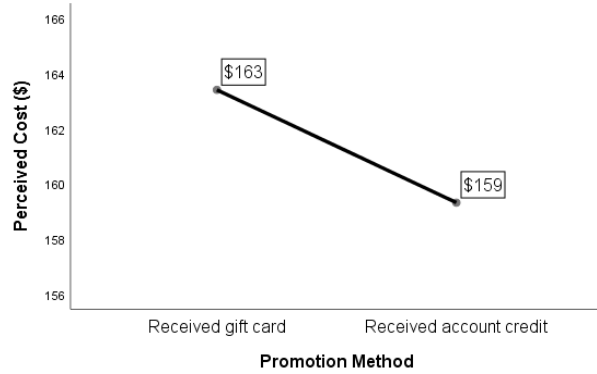
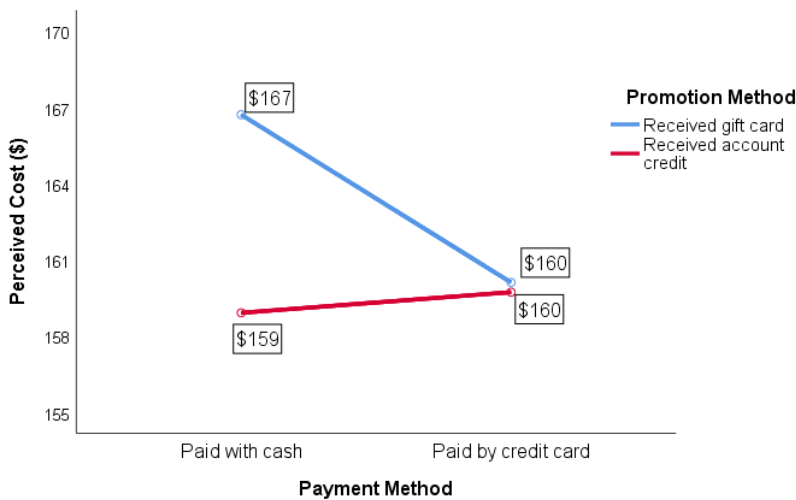


Figure 8: The Interaction Between Payment Method and Promotion Method on Purchase 2 Perceived Cost



Purchase 2 discussion, (cost of purchase = \$200, promotion value = redeeming \$50).

Although the main effect of payment method on purchase 2 perceived cost was not statistically

significant ($p = .188$), participants who paid with cash ($M = \$163.04$) felt like they spent more than participants who paid by credit card ($M = \$159.92$), which offers directional but not statistical support for H2(B). The main effect of the promotion method was marginally significant ($p = 0.064$) and participants who received a gift card felt like they spent more ($M = \$163.3$) than participants who received an account credit in the form of points ($M = \$159.34$). This offers marginal support for H3(B) because the gift card feels more like a payment when being redeemed compared to a digital account credit in points.

There was an unexpected interaction between payment method and promotion method on purchase 2 perceived cost ($p = 0.093$). As we see in figure 6, when paying with cash, the effect of promotion method on purchase 2 perceived cost is stronger than when paying by credit card. When paying with cash and redeeming a gift card, participants felt like they spent \$166.71, but when paying with cash and an account credit, participants felt like they spent \$158.91. However, when paying by credit card, the promotion method had almost no effect on perceived cost.

Total perceived cost

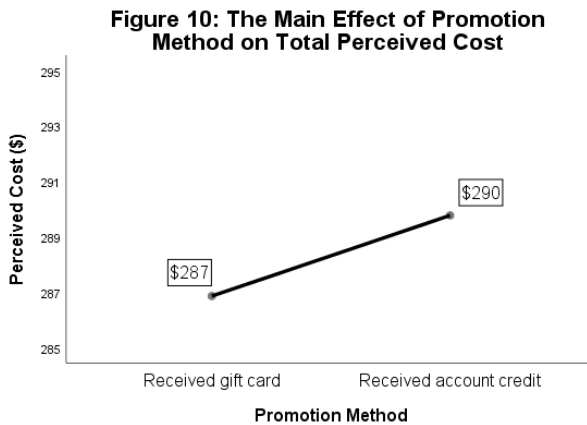
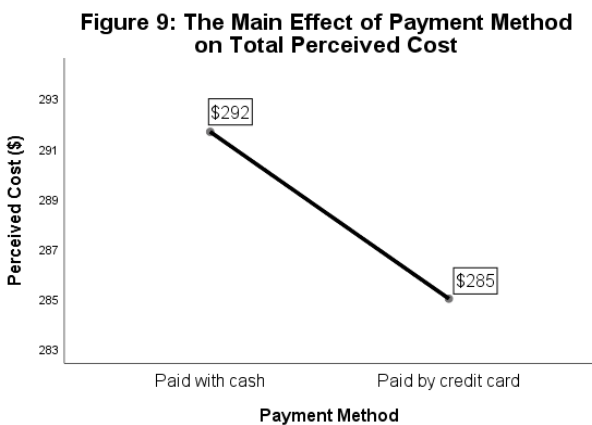
Table 6 below provides an overview of the descriptive statistics of the effect of payment and promotion method on total perceived cost.

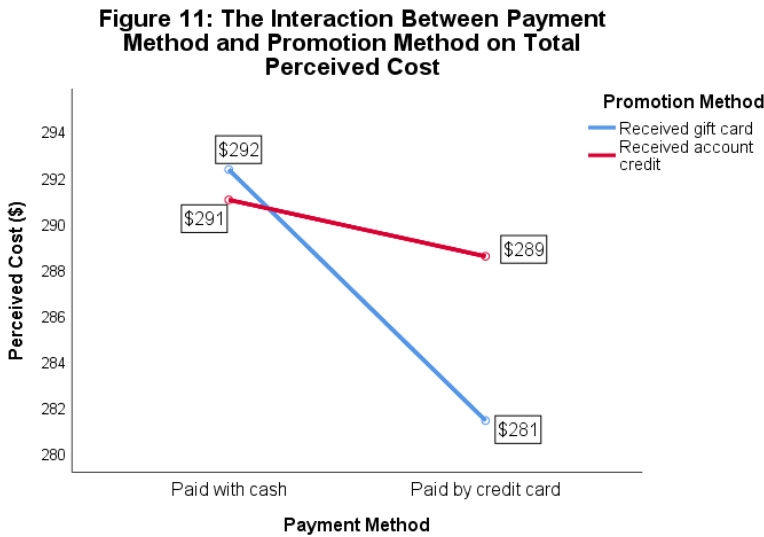
Table 6: Total Perceived Cost Descriptive Statistics

Payment Method		Mean Perceived cost	Std. Dev	N
Cash	Received gift card	\$292.32	32.52	73
	Received account credit	\$291.00	26.37	65
	Total	\$291.70	29.68	138
Credit Card	Received gift card	\$281.41	30.81	78
	Received account credit	\$288.55	30.27	75
	Total	\$284.91	30.66	153
Promotion Type	Received gift card	\$286.68	32.01	151
	Received account credit	\$289.69	28.45	140
	Total	\$288.13	30.34	291

A two-way analysis of variance was conducted on the influence of the two independent variables (payment method, promotion method) on total perceived cost. The corrected model was not statistically significant $F(3, 287) = 1.96, p = 0.121$. The main effect for payment method yielded a marginally significant F ratio of $F(1, 287) = 3.55, p = 0.061$. The main effect for promotion method yielded a non-significant F ratio of $F(1, 287) = 0.67, p = 0.413$. The interaction term was not significant $F(1, 287) = 1.42, p = 0.235$.

Figures 9, 10, and 11 below provide a visual representation of the main effects of payment method and promotion method, and the interaction effect on total perceived cost, rounded to the nearest dollar.





Total perceived cost discussion, (actual amount spent = \$300). As shown in figure 9, participants who paid with cash (M = \$291.70) felt like they spent more over the two purchases than participants who paid by credit card (M = \$284.91), thus offering marginal support (p=0.061) for H2(C).

In figure 9, we see an unexpected (but non-significant, p = 0.235) interaction between payment method and promotion method on total perceived costs. Promotion method seems to have very little effect on total perceived cost when paying with cash, and a strong effect when paying with credit card.

6.0 Contributions

6.1 Table 7: Summary of Hypotheses Results

Study 1 Hypothesis	Result	Notes
H1: Complexity of the points program moderates double mental discounting such that when complexity of the points program is low , double	Partially supported	There is some directional evidence that increased complexity reduces

<p>mental discounting will occur and when complexity of the points program is high, double mental discounting will not occur.</p>		<p>double mental discounting, but since double mental discounting occurred in all points conditions, the effect is not strong.</p>
<p>Study 2 Hypotheses</p>		
<p>H2: Receivers of a promotional credit who pay with a credit card (versus cash) will perceive that they paid less (A) for the initial purchase; (B) for the subsequent purchase; and (C) for the combined purchases.</p>	<p>Not supported</p>	<p>H2(A): directionally but not significantly supported</p> <p>H2(B): directionally but not significantly supported</p> <p>H2(C): Marginally significantly supported</p>
<p>H3: Receivers of a promotional credit in the form of a gift card (versus an account credit in points) will perceive that they (A) paid less for the initial purchase; and (B) paid more for the subsequent purchase.</p>	<p>Supported</p>	
<p>H4: There will be an interaction effect between payment method (cash or credit card) and promotional credit type (gift card or account credit) on the perceived cost of the initial purchase such that the promotion type will have a stronger effect on perceived cost when paying with cash than credit card.</p>	<p>Not supported</p>	<p>There was no interaction effect during purchase 1 as hypothesized. However, there was an interaction during purchase 2, which was not expected.</p>

6.2 Theoretical Contributions

This research makes several significant theoretical contributions to the marketing literature surrounding price promotions, mental accounting, coupling, payment transparency and double mental discounting.

Study 1 contributes to a deeper understanding of the effect that the promotion method has on coupling and pain of paying. The results are consistent with previous research that demonstrate a link between coupling and pain of paying (Cheng & Cryder, 2018; Prelec & Loewenstein, 1998). For example, during the initial purchase, participants who received a discount coupled the promotion with the purchase to a greater extent than all promotional credit conditions, and also felt the least pain of paying for this reason. But during the subsequent purchase, the opposite occurred and participants who received a discount coupled the promotion less than all promotional credit conditions and felt the greatest pain of paying of all conditions. The results showcase how receiving and mentally applying a promotion towards a promotion reduces perceived cost and pain of paying.

Study 1 further contributes to connecting the link between complexity of the points program, coupling, and total perceived cost. While only based on directional evidence, the points condition that double mental discounted the least was the high complexity condition, this condition also exhibited the highest perceived complexity and the lowest total coupling score. On the other hand, of the points conditions, the promotional credit (points, Cheng replication) condition reported lower perceived complexity and greater coupling and experienced the greatest degree of double mental discounting. Thus, based on our directional evidence, we observe that increased complexity may reduce coupling and double mental discounting. This contributes to

knowledge and theory by extending mental accounting (Thaler, 1985) theory to how participants process promotional credit.

As discussed in the research propositions. Consumers have been shown to perceive bonus packs as separate gains when evaluating a transaction, and view discounts as an integrated reduction of a loss (reduced payment) (Diamond & Campbell, 1989). Study 1 contributes to marketing theory with directional evidence that suggests that as complexity increases, participants are more likely to view the promotion as a separate gain and not a reduction in cost during the initial purchase. If they viewed the promotion as a separate gain, the promotion would not feel like a discount during the initial purchase but if they viewed the promotion as an integrated reduction of a loss, they would perceive that they spent less during the initial purchase.

Study 2 contributes to marketing theory and literature regarding promotional credit and payment transparency (Soman, 2003), by extending it to promotional credit that is received by the consumer. We refer to this as promotion salience, and demonstrate that receiving promotional credit with high promotion salience like a gift card feels more like a discount during the initial purchase than an account credit, but also feels more like a payment when being redeemed towards a subsequent purchase. This finding is important because it aligns with previous research of the effect of payment transparency on consumer behavior (Raghubir & Srivastava, 2008; Soman, 2003) but also extends the theory to promotional credit and demonstrates how promotion salience affects perceived cost when receiving and spending a promotional credit.

Study 2 also provides a greater theoretical understanding of the interaction between payment method and promotional credit method on total perceived cost. When paying by credit card, the interaction effect on total perceived cost is stronger such that participants who received a gift card felt like they spent much less than participants who received an account credit. But when paying with cash, total perceived cost was not affected by the promotion method because the reduction in perceived cost achieved during purchase 1, was reversed by the increase in perceived cost during purchase 2.

6.3 Managerial implications

Promotional credit is a widely used form of price promotion. Promotional credit can be offered as a gift card when making a primary purchase (Sports Experts, 2019), or offered by customer loyalty programs in alternative currencies (usually points) which are accumulated towards a balance (PC Optimum, 2019) (Hudson's Bay, 2020). Customer loyalty programs are a key tool for retailers to retain customers and gain a competitive advantage. Thus, having a broader understanding of how consumers process this type of price promotion, is of great relevance for marketing managers and retail strategy. This research provides a deeper understanding of promotional credit and customer loyalty programs. Based on our results, we put forth informed managerial recommendations.

Although based mostly on directional evidence, study 1 demonstrates directional support that when offering reward points, using a less complex reward points system, where the value of the points is easy to determine, increases the extent of double mental discounting. Although this can be explored further, based on the directional evidence, this research recommends that for customer loyalty programs, companies should employ measures to make determining the dollar

value of the points is as easy as possible. This includes having a ratio of points to dollars that is easy to quickly mentally compute and scales well such as 1,000 points = \$1, and not 1,500 points = \$1. We also suggest that if the points received from a purchase are redeemed towards a balance, the dollar value of the points earned from the purchase should be displayed on the physical receipt or customer loyalty app. By stating the dollar value of the points earned from the purchase explicitly, double mental discounting should be more likely to occur.

In study 2, as shown in figure 10, we demonstrate that for high value promotional credit promotions like used in this research, overall, the gift card ($M = \$286.68$) performs slightly better at lowering total perceived costs than the account credit in points ($M = \$289.69$). However, looking more closely at the interaction between payment method and promotional credit method on total perceived cost in figure 11, we see that when paying by credit card, the gift card ($M = \$281.41$) performs much better at lowering total perceived costs than the account credit in points ($M = \$288.55$), which could potentially have the effect of increasing spending (Cheng & Cryder, 2018).

When offering promotional credit promotions for in-store purchases, we recommend that businesses use gift cards.

As shown in Figure 5, when consumers pay by credit card, the gift card ($M = \$121.31$) lowers purchase 1 perceived cost more than the account credit in points ($M = \$128.83$) and also negates the increase in perceived cost when redeeming the gift card during the subsequent purchase, compared to when paying by cash. As demonstrated in figure 8, when paying with a credit card, the gift card ($M = \$160.10$) does not really feel more like a payment than the account credit in points ($M = \$159.72$), which in turn results in the greatest degree of double mental

discounting. On the other hand, when paying with cash, we see that the reduction in perceived cost achieved from receiving the gift card during purchase 1 is lost when redeeming the gift card subsequently increases the perceived costs of purchase 2.

Therefore, we believe that for higher value promotional credit promotions like explored in this research, businesses should use gift cards if possible. The findings here suggest that for a particular business, the greater the percentage of customers that pay by credit card the more they should benefit from this type of price promotion.

7.0 Limitations and Future Research

7.1 Limitations

A limitation of this study is that in both study 1 and 2, participants only imagined making the purchases and did not make any purchases with their own money. For this reason, the external validity is weaker than if this were a field experiment. For example, in study 2 we manipulated payment method by having participants imagine counting money and giving it to the cashier or paying by credit card. But this was not a real transaction with real money. For this reason, the manipulation of payment method and its effect on perceived cost was likely not as strong as it were a real-life purchase. However, a benefit of the online experiment is that we are able to control for confounding factors, such as the possible friendliness of the cashier and other potential factors.

Another limitation is that for study 1, we had input assumed perceived complexity scores for the promotional credit (dollars) condition. Ideally, data for this measure should have been collected from these respondents but since it was not, in order to run the moderation analysis we

had to make the assumption for this treatment condition that complexity was equal to 1 on the complexity 1-7 likert scale. Although the promotional credit was stated in dollar terms, and therefore complexity should not be an issue, having to assume missing data values is not ideal.

In this research, in all hypothetical scenarios we used, making the purchase was not a choice, it was assumed in the scenario. A limitation is that our findings do not take into consideration the choice element of making a purchase, which affects the external validity of the findings. If it were real life promotion that could influence the likelihood to make the initial purchase, it is possible that some of the framings of promotional credit would perform better or worse at converting purchases, which would affect sales revenue and make double mental discounting irrelevant if the initial purchase is not made. For this reason, it is important to know how the promotion affects purchase likelihood when formulating a pricing strategy.

Another limitation of this research is that some of the findings offer merely directional evidence. For example, in study 1, it is possible that we may end up with a statistically significant result by increasing my sample size, or if we were to use a slider scale instead of an open text answer to reduce the variance in each condition. It would be useful to test the ideas put forth in this research in a field study. This would allow us to determine if the difference in the related means found in this research are too small to be relevant for a manager in charge of pricing and promotions, or if they are worthwhile and practically significant.

Finally, throughout all studies, Amazon Mechanical Turk was the sole method of primary data collection. Due to the current Covid-19 pandemic, offline samples were not obtained. Some research has expressed concerns about Amazon Mechanical Turk samples regarding quality of the data. For example Amazon Mechanical Turk participants have been shown to produce poorer

quality results compared to offline samples with tasks that require careful and attentive reading (Goodman et al., 2013). The authors suggest that Amazon Mechanical Turk produces high quality data when filtering poor quality responses with attention checks and avoiding making the survey too long to complete (Goodman et al., 2013). Studies 1 and 2 included attention checks and were kept within 3-4-minute completion time for this reason.

7.2 Future Research

With the recent discovery of double mental discounting (Cheng & Cryder, 2018), there are many research questions that could be further explored to better understand the phenomenon. This research investigated the role of the complexity of the points program in study 1 and the role of payment transparency and promotion salience in study 2. Reflecting on the findings, the following ideas could be explored.

Future research could explore double mental discounting with regards to certain individual difference variables. For example, although not explored in this research, individuals with increased math anxiety have been shown to prefer price promotions stated in terms of dollars-off and not percentages-off (Suri et al., 2013). The effect of math anxiety and complexity of the points program on double mental discounting could be an interesting avenue to explore.

Future research could also investigate how to maximize the effect of double mental discounting. For example, the gift card felt more like a discount towards the initial purchase than the account credit, but also felt more like a payment towards the subsequent purchase. Perhaps there is a way to make the gift card feel less like a payment during the subsequent purchase? This would likely increase the double mental discounting effect. On the other hand, what if we could make the account credit more salient during the initial purchase, this would also likely increase

double mental discounting. With the control that retailers have in their customer loyalty apps, it is possible that there are ways to manipulate the salience of the payment when redeeming points to make the payment less salient, and make receiving points more salient, potentially increasing double mental discounting.

As discussed in the limitations section, the fact that all imagined purchase scenarios in this study assumed that participants make the purchase, we do not capture the effect that the framing of the promotional credit has on consumer choice behavior. Future research could investigate promotion salience of the promotional credit could affect the likelihood to make the initial purchase when given the choice. This would help paint a more accurate picture regarding the effect of promotional credit and double mental discounting on a company's bottom line.

Finally, in this research, we explore promotional credit with moderately high dollar values (e.g., \$100 in study 1, \$50 in study 2). Therefore, the results in this research may not apply to lower value promotions. This can be explored in future research.

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9.0 Appendix A - Study Measures

Study 1 Pretest Measures

Measure	Question	Response	Source
Manipulation check: Perceived complexity	“How easy or difficult is it for you to know the total value in dollars of your points?”	1= Extremely easy, 2= Moderately easy, 3= Slightly easy, 4= Neither easy nor difficult, 5= Slightly difficult, 6= Moderately difficult, 7= Extremely difficult.	Adapted from (Kwong et al., 2011)
Correct estimation of dollar value of points	“What is the dollar value of your points?”	Open ended. Exactly correct answers coded as correct, all others coded as incorrect	None

Study 1 Measures

Measure	Question	Response	Source
Manipulation check: Perceived complexity	“How easy or difficult is it for you to know the total value in dollars of your points?”	1= Extremely easy, 2= Moderately easy, 3= Slightly easy, 4= Neither easy nor difficult, 5= Slightly difficult, 6= Moderately difficult, 7= Extremely difficult.	Adapted from (Kwong et al., 2011)
Perceived cost (purchase 1 and 2)	How much do you feel like you are spending on airline tickets to (location)?	Open ended response.	(Cheng & Cryder, 2018)

Coupling 1 (purchase 1 & 2)	How related is the (promotion) to the price of the purchase?	1=very related, 4=somewhat related, 7=not related at all	(Cheng & Cryder, 2018)
Coupling 2 (Purchase 1 & 2)	How much did you think about the (promotion) when you thought about the price of this Purchase?	1=very related, 4=somewhat related, 7=not related at all	(Cheng & Cryder, 2018)
Simultaneous coupling	In your opinion, which purchase or purchases did the promotion feel relevant to?	Purchase 1 only, Both purchase 1 and purchase 2, Purchase 2 only	(Cheng & Cryder, 2018)
Pain of Paying	How painful does it feel to pay for the (product)?	1=very painful, 4=somewhat painful, 7=not painful at all	(Cheng & Cryder, 2018)
Attention Check	How do we know that you are completing this questionnaire, please respond with "never" for this item.	1= always, 2= most of the time, 3= about half of the time, 4=sometimes, 5=never	None

Study 2 Measures

Measure	Question	Response	Source
Purchase 1 perceived cost	How much do you feel like you are spending on the headphones?	\$100-\$150 slider	Adapted from Cheng & Cryder (2018)
Purchase 2 perceived cost	How much do you feel like you are spending on the portable speaker?	\$150-\$200 slider	Adapted from Cheng & Cryder (2018)
Attention Check	How do we know that you are completing this questionnaire, please respond with "never" for this item.	1= always, 2= most of the time, 3= about half of the time, 4=sometimes, 5=never	None

The coupling, and pain of paying measures from study 1 were also collected in study 2, but as filler questions.

9.1 Appendix B - Study Scenarios

Study 1 Scenario

5 conditions: discount, promotional credit (dollars), promotional credit (points, Cheng replication), promotional credit (points, low complexity), promotional credit (points, high complexity) between subjects' design

Table 1: Study 1 scenario text. Read parts 1-4 in order.

Condition	Part 1 (same for all conditions)	Part 3 (same for all conditions)
All	Imagine that you are buying plane tickets online to travel to Florida this winter and you find tickets for \$600. The airline is currently doing a promotion.	Imagine that you are now booking a round trip flight to Spain for your summer vacation. The ticket costs \$800 round trip.
Specific	Part 2 (specific to each condition)	Part 4 (specific to each condition)
Promotional Credit (dollars)	Your tickets also come with a \$100 promotional credit to use on a future flight booking.	You have decided to apply your previously earned \$100 promotional credit towards your flights.
Discount condition	Your tickets also come with a \$100 discount off the present flight booking.	The airline is no longer holding the \$100 discount promotion.
Promotional Credit (points, Cheng replication)	Your tickets also come with 10,000 frequent flier points that can be cashed into credit to spend on a future flight booking. Each point is equivalent to one cent.	You have decided to apply your previously earned 10,000 points, which translates to \$100 worth of credit towards your flights.

Promotional Credit (points, low complexity)	Your tickets also come with 100,000 frequent flier points that can be cashed into credit to spend on a future flight booking. Each 1,000 in points is worth \$1.	You have decided to apply your previously earned 100,000 points, which translates to \$100 worth of credit towards your flights.
Promotional Credit (points, high complexity)	Your tickets also come with 15,000 frequent flier points that can be cashed into credit to spend on a future flight booking. Each point is equivalent to two thirds of a cent.	You have decided to apply your previously earned 15,000 points, which translates to \$100 worth of credit towards your flights.

Study 2 Scenario

4 conditions. Context: Purchase 1: \$150 headphones, purchase 2: \$200 portable speaker, promotion value: \$50

Condition	Part 1 (same for all conditions)	Part 3 (same for all conditions)
All	Imagine that you are in Best Buy and you see headphones that you really like priced at \$150 including taxes.	Now imagine that you go back to Best Buy one month later. You want to buy a portable speaker and you see that the speaker is priced at \$200 including taxes.
Specific	Part 2 (specific to each condition)	Part 4 (specific to each condition)

Cash, gift card	<p>There is a special today. The headphones come with a \$50 gift card to use at Best Buy in the future.</p> <p>You decide to buy the headphones with cash. You count out \$150 in cash (7 bills of \$20 each and one bill of \$10) and give it to the cashier to pay for the purchase.</p> <p>The cashier gives you the headphones and the \$50 gift card.</p>	<p>You decide to buy the portable speaker using cash and the gift card you received from your previous purchase.</p> <p>You give the cashier the \$50 gift card, and count out \$150 in cash (7 bills of \$20 each and one bill of \$10) and give it to the cashier to pay the remaining amount.</p>
Cash, account credit	<p>There is a special today. The headphones come with a \$50 promotional credit to use at Best Buy in the future.</p> <p>You decide to buy the headphones with cash. You count out \$150 in cash (7 bills of \$20 each and one bill of \$10) and give it to the cashier to pay for the purchase.</p> <p>The cashier gives you the headphones and informs you that you will have \$50 worth of points added to your store loyalty account which can be applied to a future purchase.</p>	<p>You decide to buy the portable speaker using cash and the promotional credit you received from your previous purchase.</p> <p>The cashier applies your \$50 credit, and you count out \$150 in cash (7 bills of \$20 each and one bill of \$10) and give it to the cashier to pay the remaining amount.</p>
Credit card, gift card	<p>There is a special today. The headphones come with a \$50 gift card to use at Best Buy in the future.</p> <p>You decide to buy the headphones with your credit card. You tap your card to pay \$150 for the purchase, and the cashier gives you the headphones and the \$50 gift card.</p>	<p>You decide to buy the portable speaker using your credit card and the gift card you received from your previous purchase.</p> <p>You give the cashier the \$50 gift card, and tap your card to pay the remaining \$150.</p>

<p>Credit card, account credit</p>	<p>There is a special today. The headphones come with a \$50 promotional credit to use at Best Buy in the future.</p> <p>You decide to buy the headphones with your credit card. You tap your card to pay \$150 for the purchase, and the cashier gives you the headphones and informs you that you will have \$50 worth of points added to your store loyalty account which can be applied to a future purchase.</p>	<p>You decide to buy the portable speaker using your credit card and the promotional credit you received from your previous purchase.</p> <p>The Cashier applies your \$50 credit, and you tap your card to pay the remaining \$150.</p>
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