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Spilling the Beans: Consumer Strategies that Mitigate Choice Overload

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Abstract

Spilling the beans: Consumer strategies that mitigate choice overload

By Archana Ravi

With the large increase in product variety over the past few decades, consumers face high levels of choice overload during the decision-making process. This study evaluates how choice architecture influences choice overload. Using a between-subject experimental design, this study looks at assortment perception, difficulty of decision-making, regret and satisfaction levels as participants decide which coffee they would prefer when given one of four menus: a 'maximizing strategy' menu that provides a description for each coffee, a 'satisficing strategy' menu that lists the coffees under three categories, a 'combination strategy' menu that provides categories and descriptions, and a 'control' menu with just the coffee names. The study found that the participants in the combination strategy menu experienced lower levels of regret and difficulty of decision-making, as well as higher levels of satisfaction compared to the satisficing strategy group and the control menu group. Additionally, there was a positive correlation between the maximizer score and regret levels for the combination strategy group. The nature of the decision-maker, choice set variety and complexity of the decision are some factors that may have contributed to the results found in this study.

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Figures, Tables and Visual Items

Introduction

Over the past few decades, product variety has grown by nearly 400% (Cross, 2000). For example, the number of options in the detergents category was 65 in 1950 and increased to 350 options by 2004 (Boniwell, 2008). This increase in options is not limited to detergents. Many supermarkets have over 200 varieties of cookies, nearly 100 options for cereal, and 90 varieties of snacks (Cross, 2000). While choice is essential to autonomy, having too much choice can decrease consumer satisfaction and the quality of decision-making (Schwartz, 2009). Having too many options often demotivates consumers and tarnishes their shopping experience (Iyengar & Lepper, 2000). This phenomenon, called choice overload, exists when too many choices are available for consumers (Iyengar & Lepper, 2000). This term was introduced by Alvin Toffler and refers to the point when the benefits of having a diverse set of options are canceled by the complexity of the decision-making process for the consumer (Toffler, 1970).

Choice overload can lead to decision paralysis, choice deferral, and decision fatigue. These consequences have been captured by studies that look at how choice assortment informs decision-making (Iyengar & Lepper, 2000), the relationship between choice overload and higher levels of regret (Chernev, 2003), and how a large variety of options can lead to loss of confidence (Haynes, 2009).

Previous research on choice overload mitigation has looked at techniques like decreasing choice assortment, using default options, increasing perceived variety, and reducing choice set complexity (Chernev, 2006; Payne et al., 1993; Szrek, 2017). Most of these techniques are meant to target businesses and the role they play in reducing choice overload. However, because not all businesses use these techniques, consumers still face an abundance of choices every day (Cross, 2000). To my knowledge, there are fewer studies on tactics that consumers can use to reduce

being overwhelmed by the number of choices. By employing consumer strategies, individuals can address this problem and minimize unpleasant shopping experiences or buyer's remorse. These consumer tactics require individuals to adopt new decision-making strategies.

To better explore these consumer tactics, this between-subject study looks at the effects of choice overload when using different consumer strategies. Choice overload can differently impact decision-making for two broad categories of decision-makers: maximizers and satisficers (Schwartz, 2009; Simon, 1955). Maximizers seek and only accept the best option (Simon, 1955). They use maximizing strategies to exhaust all other alternatives before making their decision. In this study, the maximizing strategy will provide participants with detailed information about each item. Satisficers look for an option that is good enough (Simon, 1955). They use satisficing strategies to choose the first option that exceeds the minimum requirements for the product (Simon, 1955). In this study, the satisficing strategy will encompass categorizing all the items. The combination strategy will have two steps- first, the participants will pick a category, and then they'll get detailed information about only the items under that category. The study compares decision outcomes from three consumer strategies: maximizing strategy, satisficing strategy, and a combination of the two. This study will compare the participants' satisfaction, difficulty of decision-making, assortment perception, and regret between the maximizing, satisficing, and combination strategies. The aim of this study is to better understand the role of consumer strategies in mitigating choice overload. The hypothesis guiding this study is that if excess information is a key contributor to choice overload, then using the combination strategy - which reduces the amount of information processed- will increase satisfaction and ease of decision making.

The results of this study can help us better understand how consumers can interact with menus or large choice assortments in a way that reduces choice overload. If reducing the amount of information that needs to be processed helps mitigate the effects of choice overload, consumers can first choose a category from the menu before perusing the different options under the category. This is similar to the combination strategy and is helpful because the information is reduced into more digestible pieces. However, if reducing the amount of information doesn't affect choice overload, then it may be useful to employ a strategy that provides comprehensive details about each item. In this case, they could apply the maximizing strategy. Overall, the results of this study can improve shopping experiences for consumers by understanding the best strategy that consumers can employ to mitigate choice overload.

Literature Review

Choice Overload

Choice overload refers to when the complexity of the decision-making process is greater than the cognitive resources needed to make a decision (Toffler, 1970). The biggest reason for choice overload is the large assortment of choices (Schwartz, 2009). However, that doesn't necessarily mean that having a large variety of options is inherently bad. There are many benefits to having a large number of options (Chernev et al., 2015). One of these benefits is that people will be able to find a product that best matches their preference (Baumol & Ide, 1956). Additionally, it allows consumers to be more flexible with their tastes, creates a perception of freedom of choice, and increases choice satisfaction (Levav & Zhu, 2009). Despite having a number of benefits for large choice assortments, there are various drawbacks when the number of choices exceeds our cognitive resource threshold.

Consequences of Choice Overload

The three main negative consequences of choice overload are decision paralysis, choice deferral and decision fatigue (Chernev et al., 2015). Decision paralysis refers to when it is difficult to make a decision because of overanalyzing the situation and potential outcomes (Schwartz, 2009). In most cases, the decision is never made out of fear of making a decision that would have negative consequences. Choice overload can lead to decision paralysis because the benefits of having choices are offset by the cognitive cost involved with processing the outcomes for each of the options (Chernev et al., 2015). For example, a study looked at how consumer behavior varied with the number of jam options offered (Iyengar & Lepper, 2000). On one day, the researchers offered samples to customers from a spread of 24 jams, and on another day, they offered samples

from a spread of 6 jams. They found that the large display attracted more customers, but customers were one-tenth more likely to buy a jam they saw the smaller display (Iyengar & Lepper, 2000). Hence, decreasing the size of the assortment increase purchase likelihood because excessive choice leads to decision paralysis.

Choice deferral behavior is when one does not make a decision when required and postpones the decision so they can choose later (Wei et al., 2021). It has been argued that having a larger assortment of options tends to shift consumers' ideal product (Schwartz et al., 2002). However, because of this shift in 'ideal,' it is more difficult to attain. Additionally, this increase in variety has inflated their perception of how easy it is to attain their ideal product and the degree to which it will match their expectations (Chernev et al., 2015). Consequently, consumers feel disappointed when their expectations aren't met. They must then decide between options that don't meet their ideal product as closely, and this can lead to choice deferral.

Decision fatigue is described as the inability to make a decision as a consequence of repeated acts of decision-making (Pignatiello et al., 2020). This phenomenon usually occurs because choice variety is subject to diminishing returns (Chernev et al., 2015). The marginal benefit of an additional option decreases as the number of options increases. At some point, the marginal benefit of the additional option is zero, after which there are negative consequences of having more options. Eventually, the marginal benefit is offset by the additional cost of processing the alternatives, which causes decision fatigue (Chernev et al., 2015). This fatigue leads to a decrease in purchasing likelihood. Hence, due to choice overload, individuals can feel overwhelmed and frustrated by the situation.

Identifying Solutions for Mitigating Choice Overload

To mitigate consumer choice overload, consumers can use maximizing and satisficing strategies. Individuals that use maximizing strategies seek the best option (Schwartz et al., 2002). There are two main components of individuals using a maximizing strategy- their goal is to optimize decision-making by choosing the best option, and their strategy is to seek information about alternatives and compare them (Cheek & Schwartz, 2016). They engage in an extensive comparison of options, consider more alternatives and spend more time and effort understanding the different options before making a decision (Cheek & Schwartz, 2016). However, maximizers also tend to experience more regret. A study gave participants two surveys to assess their tendency to maximize and satisfice and measure their levels of regret after a decision (Schwartz et al., 2002). They found a significant correlation between maximizers and post-decision regret.

Individuals that use satisficing strategies choose the first option that exceeds the minimum requirements for the product (Schwartz et al., 2002). Some examples of satisficing strategies are categorization, providing recommendations, and having a default option (Caplin et al., 2011). A study that looked at mere categorization as a satisficing tool found that the presence of categories, irrespective of how the choices are categorized, improves consumer satisfaction (Mogilner et al., 2008). This effect occurs because having categories signals greater variety and allows consumers to feel a sense of self-determination when they make a decision. Most individuals that use satisficing strategies are more satisfied with their decision compared to maximizers (Schwartz et al., 2002). However, it doesn't always lead to the optimal decision for the individual. This is especially amplified when the individual is experiencing choice overload. Choice overload leads to higher chances of regret in maximizers but also lower quality of decision-making in satisficers (Schwartz et al., 2002).

Foraging and Decision-Making

As seen earlier, consumers get overwhelmed when faced with too many options. This can either lower the quality of their decision-making or result in them not deciding at all (Iyengar & Lepper, 2000). Both consequences are sub-optimal, so it is essential to consider whether maximizing strategies and satisficing strategies can help mitigate choice overload (Simon, 1955). Both of these strategies are similar to strategies that humans and other animals use when they forage for food. Foraging is the process by which animals gather food to produce the energy needed for various activities like taking care of their young, avoiding predators, and reproduction (Pyke, 2019). To consider why maximizing and satisficing strategies are still used, we can look at how these strategies helped foragers survive.

One of the prominent theories that helps us make predictions about animals' behavior during foraging is the optimal foraging theory (OFT) (Charnov, 1976). This theory suggests how long an animal should spend eating in a patch before moving to the next one (Charnov, 1976). The gain in patch per unit time will decrease with time as the animal depletes the patch (Pyke, 2019). Hence foragers must consider the current gain against the expected gain of the other patch. If the current rate of gain in the existing patch is lower than the expected rate of gain in the other patch (while taking into consideration the cost of finding and/or traveling to a new patch), then the animal should leave the existing patch and go to a new one (Martin, 1983). Therefore, due to the law of diminishing returns, animals have to take into consideration the costs and benefits of their prey to maximize their energy. Additionally, the OFT predicts that animals will pursue prey items which yield that greatest caloric payoff per unit time foraging. For example, oystercatchers forage for mussels and have to be able to crack them open with their bills in order to eat them (Sinervo, 2007). While larger mussels provide more energy than smaller ones, larger mussels are

harder to crack open because they have thicker shells. The benefit of having larger mussels would be the higher energy content, but the cost is a longer handling time (Sinervo, 2007). Ultimately, whether oystercatchers decide to open a large mussel or find another one depends on how they perceive the cost. One main distinction between maximizers and satisficers is how they perceive costs (Schwartz, 2009). In the case of foraging, the costs are either the time spent or energy required to find a new prey (Carmel & Ben-Haim, 2005). The animal's decision will be based on whether they think the cost of searching for a new prey will be greater than the benefit of the gain in energy. In a market setting, the cost that consumers face is the mental effort and time needed to process the extra information. Consumers can choose to make a decision with the existing information or can either choose to acquire more information about the product or look for more options. How the consumer perceives the cost of the added mental effort can contribute to whether they seek more information. Usually if a person uses maximizing strategies to make their decision, they will perceive the costs to be lower than the benefit of making a more informed decision. However, someone using satisficing strategies may feel the opposite and consider the cost to be greater than the benefits. Hence, they will be satisfied with making a decision with the given information.

Study at Hand

The present study builds on previous literature by presenting a new strategy that could help reduce consumer choice overload during decision-making. Building off of the Mogilner et al. (2008) study, which only looked at a satisficing strategy, my study will incorporate a maximizing strategy, satisficing strategy, and a combination of the two. This study evaluates the effectiveness of three strategies by measuring consumer satisfaction, willingness to pay, ease of decision-making during decision-making in the presence of a large assortment size. There are two types of

indicators used to measure choice overload- a process-based indicator that describes the state of the individual and an outcome-based indicator that reflects the individual's behavior (Chernev et al., 2015). Some process-based indicators are captured by confidence, regret, and satisfaction. In general, individuals experiencing choice overload are prone to higher levels of regret and lower levels of satisfaction and confidence (Schwartz et al., 2002). I'm using consumer satisfaction and regret as a measure of preference. Through this study design, I hope to better understand the subjective preferences of consumers and what drives decision satisfaction. I believe that the treatment that combines the satisficing and maximizing strategy will show the greatest satisfaction. Since maximizing strategies induces post-decision regret and satisficing strategies don't necessarily ease the decision-making process, the combination strategy will ease decision-making by reducing the amount of information that needs to be processed while also allowing participants to benefit from the mere categorization effect.

Hence, this study aims to determine whether using a maximizing strategy, a satisficing strategy, or a combination of both is best to reduce choice overload. The results of this study can help improve shopping experiences for consumers by understanding the best strategy that consumers can employ to mitigate choice overload. I hypothesize that consumer satisfaction will be greatest for the strategy that combines maximizing and satisficing strategies.

Materials and Methods

Materials

All students from Emory University who are at least 18 years old were eligible to participate through recruitment around campus. Participants were recruited using academic extra credit incentives. Additionally, flyers informing the students about the study were posted and individuals passing the study stall were invited to participate. Data collection occurred in common spaces on Emory University's campus, such as the Emory Student Center and Cox Dining Food Court.

The materials for this study are coffee, cups, an informed consent form, and a survey- split by demographic questionnaire, consumer satisfaction questionnaire, domain familiarity questionnaire, and a personality questionnaire.

Coffee was used in this study because coffee is a popular drink on college campuses. Additionally, students usually don't have a preference for the variety of coffee beans they consume. Hence it is possible to form categories that don't immediately reveal vital information about the coffee bean. Previous studies have used coffee instead of other beverages because most participants drink coffee and are invested in choosing a good coffee that they can drink even after the experiment (Mogilner et al., 2008; Vu, 2018).

There were nine different flavors of coffee that acted as the decision-making item of the study. The coffee names used in the menu were different from the brand name of the coffee to prevent familiarity from influencing their decisions.

Surveys

The following surveys can be found under *Items 1A-1C* in the Appendix.

Demographic survey: Participants self-reported their gender, age, major and academic year.

Decision-making task: The decision-making task varies depending on which treatment the individual was assigned. Participants were shown a menu with nine different coffee flavors (with varying degrees of information provided) and were asked to select which coffee flavor they would like to drink.

Consumer satisfaction survey: Participants were asked to complete 7-point Likert Scale questions to learn more about their assortment perception, satisfaction, remorse, and ease of decision-making. These questions were adapted from Hardar and Sood (2014) and Vu (2018). An average score was calculated for each dependent variable.

Domain familiarity survey: Participants rated, on a Likert Scale, how often they buy coffee and how often they drink coffee. Similarly, they rated how busy they were at the time of the decision and how important the decision was to them.

Maximizer survey: Participants answered five questions from a maximizer questionnaire (Schwartz et al., 2002) to determine where on the maximizing/satisficing scale the individual falls. The score on each question was summed to determine how much of a maximizer/satisficer they were.

Procedure

Upon recruitment, all participants received a brief explanation of the study and signed a physical informed consent form. Participants were randomly assigned to one of four groups: maximizing strategy (MS), satisficing strategy (SS), combination strategy (CS), and control (CL). Prior to providing the menu, the researcher read aloud, "You will be asked to make a decision regarding

coffee. You will receive a cup of the coffee you choose. Do you have any questions?" Once the participant confirmed that they didn't have any questions, the researcher provided them with a menu. Participants were then asked to choose a coffee from nine different flavors—however, the manner in which these flavors were presented on the menu varied by treatment.

Treatments

The following menus can be found under *Item 2A-2C* in the Appendix.

The maximizing strategy (MS) group viewed a menu with a list of all nine coffee flavors and a description of each flavor.

The satisficing strategy (SS) group viewed a menu with a list of all nine coffee flavors split into three different categories. There were no descriptions for the coffee flavors.

The combination strategy (CS) group viewed a menu with only three categories on it. After the participant chose a category, they were shown descriptions of all three coffee flavors under that category.

The control (CL) group viewed a menu with a list of all nine coffee flavors. However, there were no descriptions for the coffees.

After selecting their preferred coffee, individuals completed a survey that comprised of a demographic survey, consumer satisfaction survey, domain-familiarity survey, and personality survey.

After completing the surveys, participants received the contact information of the research team and were encouraged to contact the team if they had any questions. In addition, they received a cup of the coffee they chose earlier to express gratitude for their participation.

Data Analysis

All data analyses were conducted using Jamovi, with an alpha level of $p<0.05$. Four Analyses of variance (ANOVAs) tests were run with menu type (MS/SS/CS/CL) as the independent variable and satisfaction, regret, assortment perception, and difficulty of decision making as the dependent variables. In addition, to assess whether the effects differed as a function of personality type, the ANOVA test was run again with the maximizer score as a covariate.

Results

This study had 122 participants recruited from Emory University. The age of the participants ranged from 18 years old to 23 years old (M=20.8, SD=2.2). The sample included 67 (54.9%) women, 51 (41.8%) men, 3 (2.5%) nonbinary individuals and 1 (0.8%) individual who preferred not to specify. Twenty-four (21.8%) participants were first-years, 22 (20%) participants were second-years, 30 (27.3%) individuals were third-years, and 34 (34.9%) individuals were fourth-years. Participants were from a number of academic majors, including but not limited to Art History, Biology, Business, Music, Philosophy, and Physics.

Primary Analysis

The primary analysis involved running an ANOVA test for the effects of the independent variable (menu type) on the four dependent variables (assortment perception, difficulty of decision-making, satisfaction, and regret). There were multiple questions in the survey that targeted each of these dependent variables. First, a score for each of these variables was calculated by taking an average of their responses to the questions pertaining to the variable. This method is similar to the way the utility scores were calculated in other studies (Mogilner et al., 2008; Vu, 2018). All questions were asked using a Likert scale. Hence the assortment perception score, the difficulty of decision-making score, satisfaction, and regret score ranged from 1 to 7. Following the ANOVA test, post-hoc t-tests (with Tukey correction for multiple comparisons) were done to compare the different menu groups.

Decision Utility Variables vs. Menu Type									
	MS Menu		SS Menu		CS Menu		CL Menu		P Value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Assortment Perception	5.80	0.96	5.56	1.28	5.11	1.01	5.39	1.21	0.14
Difficulty of Decision-Making	4.23	1.66	4.05	1.58	2.35	1.16	4.38	1.68	<0.001
Satisfaction	5.04	1.13	4.58	1.56	5.55	0.98	4.17	1.48	<0.001
Regret	3.35	1.28	3.64	1.40	2.78	0.94	3.89	1.29	0.01

Table 1: Mean score for the decision utility variables for each menu type

Table 1 shows the mean score and standard deviation of the dependent variable for the four menus. The p values present in Table 1 are from the ANOVA tests done to find the effects of menu type on these variables. There was a significant effect of the menu type on the difficulty of decision making, regret, and satisfaction, but not on assortment perception.

Assortment Perception

Assortment perception is based on whether the individual thinks there are enough options to choose from (Szrek, 2017). There was no significant difference between the mean menu groups reported for assortment perception ($F(3,117)=1.88$; $p=0.14$). Hence there was no difference in how individuals perceived assortment between the different menu types.
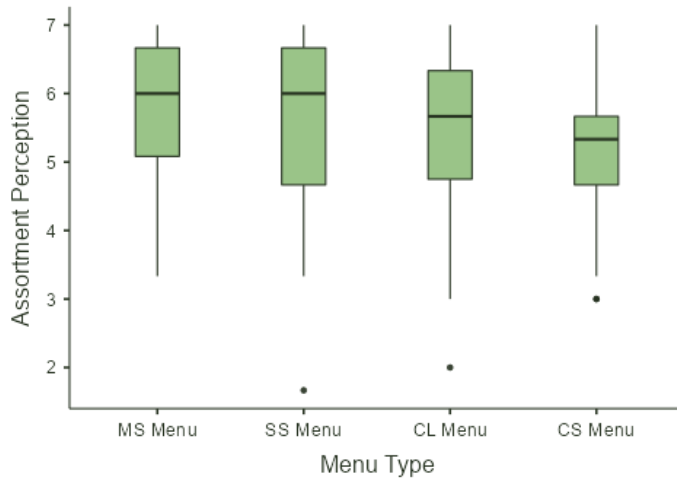
Figure 1: Assortment Perception vs. Menu Type

Difficulty of decision-making

The ANOVA test found a significant difference between the mean utility values for the difficulty of decision-making ($F(3,188)=10.6$; $p<0.001$). A post hoc test revealed that there was a significant difference between the MS Menu and the CS Menu ($t_{118}=4.61$; $p_{tukey}<0.001$), the SS Menu and the CS Menu ($t_{118}=4.24$; $p_{tukey}<0.001$), and between the CL Menu and the CS Menu ($t_{118}=4.96$; $p_{tukey}<0.001$). Hence, individuals found it easier to make a decision for the combination (CS) Menu compared to the MS, CL, and SS Menu.
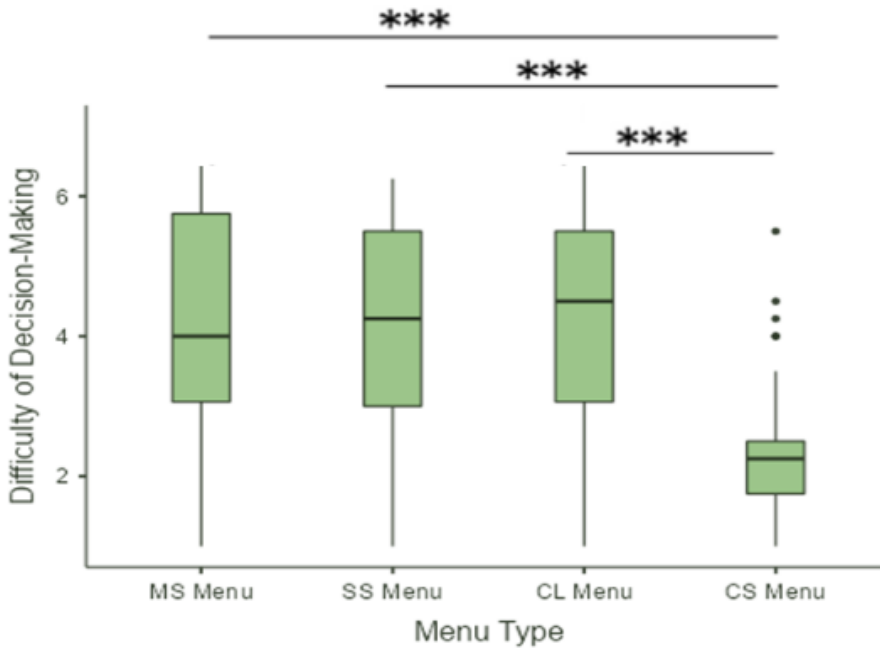
Figure 2: Difficulty of decision-making vs. Menu Type

Satisfaction

The ANOVA test showed that there is an effect of the menu type on satisfaction ($F(3,118)=5.90$; $p<0.001$). The post-hoc test showed that there was a significant difference between the SS Menu and the CS Menu ($t_{118}=-2.86$; $p_{tukey}=0.026$) and the CS Menu and the CL Menu ($t_{118}=-3.97$; $p_{tukey}<0.001$). Hence, the participants in the CS group were more satisfied with their decision compared to the participants in the CL group and SS group.
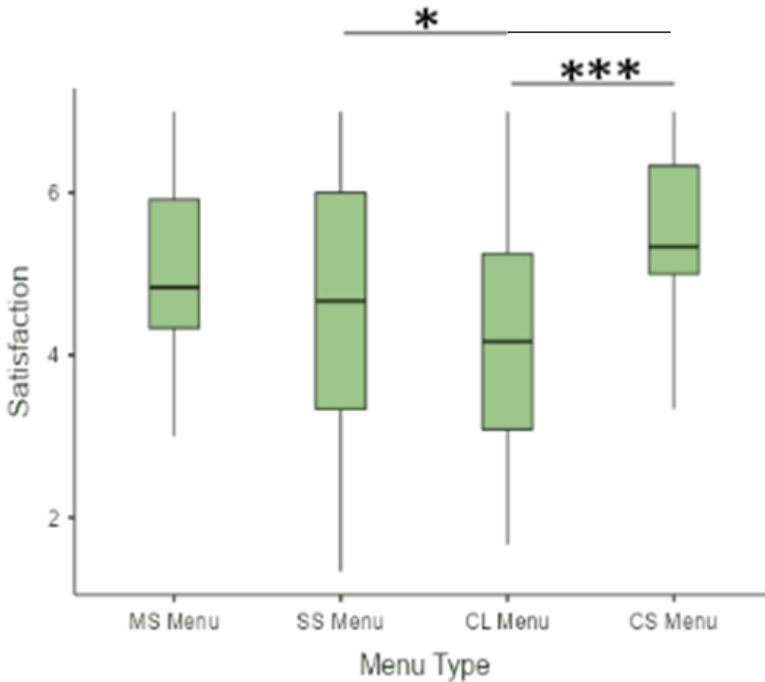
Figure 3: Satisfaction Score vs. Menu Type

Regret

The ANOVA test found a significant effect between regret and the menu type ($F(3,118)=4.18$; $p=0.007$). The post-hoc tests revealed that the difference in regret scores is significant between the SS Menu and CS Menu ($t_{118}=2.66$; $p_{tukey}=0.043$) as well as the CS Menu and CL Menu ($t_{118}=3.35$; $p_{tukey}=0.006$). Therefore, participants in the CS group showed lower levels of regret compared to participants in the CL and SS groups.
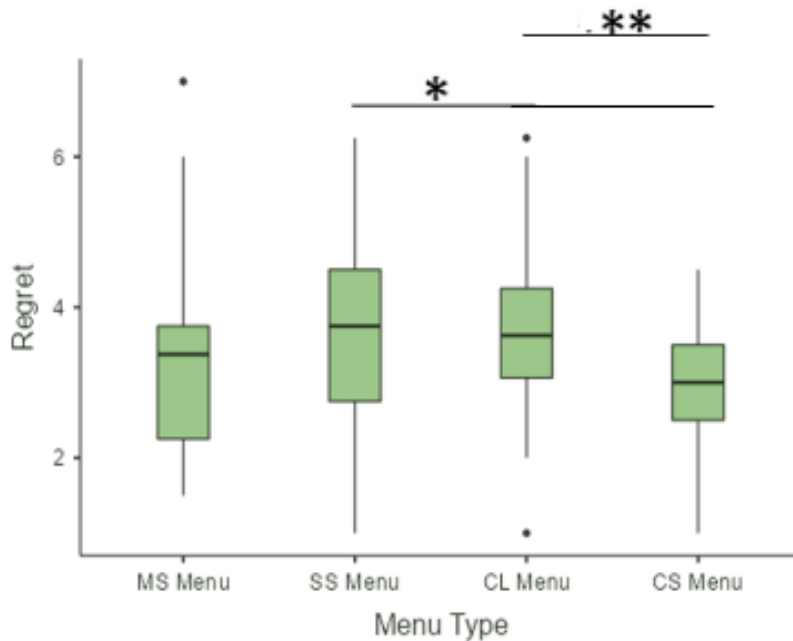
Figure 4: Regret Score vs. Menu Type

Maximizer Score and Decision Utility Variables

The next section looks at whether any of these effects are modulated by the participants' personality types. A maximizer score was calculated based on their answers to five questions from the maximizer questionnaire in Schwartz et al. (2002). The score was calculated by summing the responses to each question. This is similar to the way the score was calculated in the Schwartz et al. (2002) paper. A participant who is a maximizer would have a high score, and a satisficer would have a low score. All the ANOVA tests were repeated with the maximizing score as a covariate, and interactions between the maximizing score and menu type were looked for. There is a significant interaction between the maximizing score and menu type on assortment perception ($F(3,114)=2.94$; $p=0.036$). Additionally, there was a significant interaction between maximizing score and menu type on regret ($F(3,118)=4.18$; $p=0.007$). There were no

significant interactions found between maximizing score and menu type when examining satisfaction and difficulty of decision-making.

Following this, running post-hoc Pearson correlations between maximizer score and assortment perception, as well as between maximizer score and regret, separately for each menu group helped to better understand the nature of the interaction. The only significant correlation between the dependent variables (assortment perception and regret) and the maximizer score was for the CS group. There is a negative relationship between the maximizer score on assortment perception for individuals in the CS group (R=-0.46; p=0.012). Hence, individuals in the CS group who had a higher maximizer score had lower assortment perception. Additionally, there was a positive correlation between the maximizer score and regret levels for those in the CS group (R=0.54; p=0.003). Therefore, those in the CS group with higher maximizer scores experienced higher levels of regret post-decision.
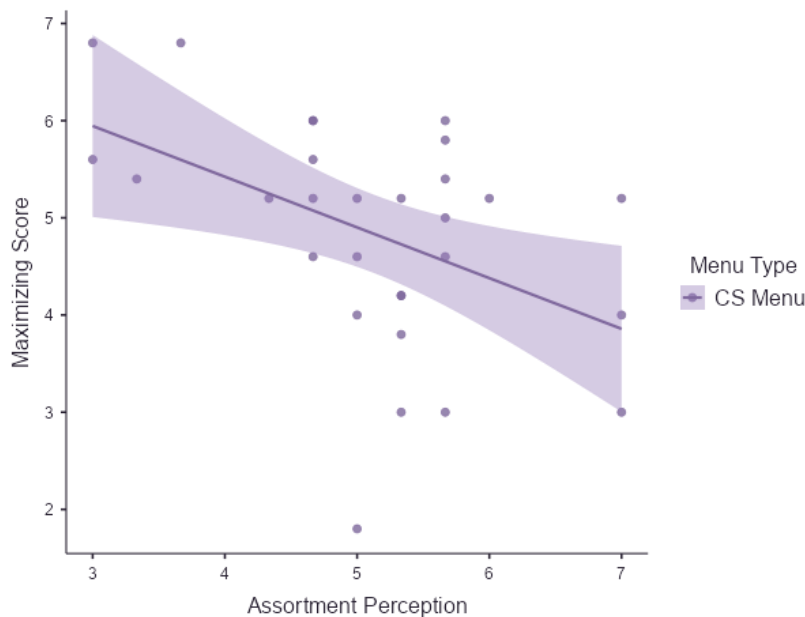
Figure 5: Correlation between assortment perception score and maximizer score for the CS Menu
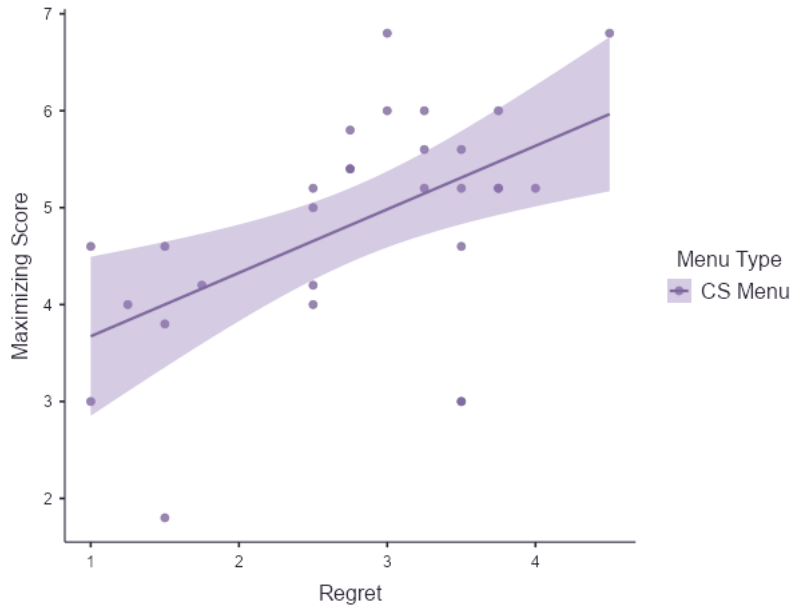
v

Figure 6: Correlation between regret score and maximizer score for the CS Menu

Secondary Analysis

Table 2: Demographics, Psychographics, and Context

	R²
Gender	0.007
Age	0.015
School Year	0.004
Domain Familiarity	0.017
Importance of decision	0.069

To ensure that the effects are not driven by baseline differences between menu groups in any demographic variables, in domain familiarity, or in the importance of the decision, a correlation matrix was run to show the relationship between the above-mentioned variables and the dependent variables. There is no significant relationship between the demographic variables and

decision utility. Therefore, the age, gender, and academic year of participants do not affect assortment perception, satisfaction, difficulty of decision-making, or regret. Additionally, there is no significant finding between domain familiarity and the dependent variables. Hence, coffee expertise isn't related to levels of regret, satisfaction, assortment perception, or difficulty of decision-making. Participants were asked to self-report how important this decision was to them. There is no direct relationship between the two. It is important to note that since these variables are not relevant to the principle aim of this study, no relationships should exist.

Discussion

The aim of this study was to better understand consumer decision-making during choice overload. This was studied by having three treatment groups and a control group (CL). The three treatment groups were the maximizing strategy (MS) group, satisficing strategy (SS) group, and combination strategy (CS) group. The hypothesis was that the participants receiving the combination menu (CS) would experience the lowest levels of assortment perception, difficulty of decision-making, satisfaction, and regret compared to the groups.

The results showed the participants in the CS group found it is easier to make the decision, were more satisfied with their choice, and experienced lower levels of regret. However, there was no significant relationship between the menu type and assortment perception. Additional analysis with the maximizer score as a covariate showed that there is a negative linear relationship between assortment perception and the maximizer score for the CS group. Furthermore, there is a positive correlation between regret levels and the maximizer score for the CS group.

Utility Variables

Satisfaction and Regret: The participants in the CS group experienced higher levels of satisfaction and lower levels of regret compared to the participants in the SS and CL groups. A large contributor to anticipated regret is our inability to accurately calculate opportunity costs (Gabillon, 2020). This inability to calculate opportunity cost could be due to the lack of clarity in choices or due to the lack of information provided for each option (Gabillon, 2020). In this study, I suspect it is the latter because the SS group and the CL group were not provided descriptions of the coffees. Hence, the lack of information could have been a contributor to the high levels of

regret for the SS group and CL group. Additionally, low levels of information can contribute to a decrease in satisfaction if there is a small number of choices (Hadar & Sood, 2014). Since this study had a relatively small number of choices, the effect of not providing much information to the SS and CL groups on satisfaction may have been greater.

There was no significant difference in regret and satisfaction levels between the combination strategy (CS) and maximization strategy (MS) group. Previous research has shown that the maximizing strategy usually results in higher levels of regret due to the high expectations of finding the 'ideal' product that comes with having more information on each option (Schwartz et al., 2002). Hence, when these expectations are not met, participants are disappointed and face post-decision regret. However, these findings do not match the results of this study. This could be because there were only 9 coffee options in this study. Nine coffees were chosen to mimic the number of coffee options usually found on a menu (Paap & Roske-Hofstrand, 1986). However, this number doesn't reflect how many options are usually present in other domains like chocolate, cookies, and others (Cross, 2000). When there are more options, there are high chances of thinking about the options forgone and regretting the current decision made (Schwartz et al., 2002). This also leads to lower satisfaction. However, when there are fewer options, this may not be true. Hence, the effect of imagining situations where the alternative options were chosen is reduced.

Difficulty of decision-making- The participants in the CS group found it is easier to make the decision compared to the MS, SS, and CL group. The difficulty of decision-making parameter is determined by how much mental effort is required, how confident they are at the end of the decision, and the time it takes to make the decision (Vu, 2018). The MS group had a description for each option. This means that they had more information to process, which increases the time

required and the mental effort needed. Since the CS group only had to process coffee descriptions for a third of the options, the participants required less time and energy compared to the MS group. For the SS and CL groups, participants didn't have to process as much information as in the MS group, but the lack of descriptive information in the CL group meant that participants were less confident and kept second-guessing their decision. While the SS group did have categories, it is still harder to be confident with the given information compared to the CS group because the CS group had categories and information for the relevant coffees. Therefore, it is possible that the participants in the CL and SS groups weren't as confident with their choice, and they took more time to make the decision compared to the CS group. In the CL group, participants had to initially choose a category. By having this additional step, they only had to process 3 coffee descriptions. These participants required less mental energy, were more confident with their decision, and hence found it easier to make the decision.

Assortment perception- The initial hypothesis was that the MS group and CS group would experience low levels of assortment perceptions while the SS group would experience high levels of assortment perception. This was hypothesized because participants in the CS and MS group have access to information about each coffee, and participants in the SS group would experience the mere categorization effect (Mogilner et al., 2008). However, the results portray a different story. The effect of information on perceived variety depends on how many choices are present (Szrek, 2017). For a small set of options, more information is correlated to greater perceived variety (Szrek, 2017). However, with larger choice sets, having more information is associated with lower levels of assortment perception (Hadar & Sood, 2014). In the cited study, the small set was made of 5 choices, and the large set consisted of 25 choices (Hadar & Sood, 2014). Since this study had 9 coffee options to choose from, the effect of providing more

information in the MS and CS group is not as strong. Additionally, I imagined that the participants in the SS group would have a higher assortment perception score because of the mere categorization effect. The mere categorization effect suggests that just the presence of categories positively influences satisfaction by signaling a greater variety of options (Mogilner et al., 2008). However, the mere categorization effect may be greatest when a large number of categories are present. A previous paper has studied this effect when there were 10 categories (Mogilner et al., 2008). Since this study only had 3 categories, this may contribute to the lack of effect that categorization had on assortment perception in this study.

Maximiser score

The maximizer score was calculated based on the average response for the five questions the participants answered from the maximizer questionnaire by Barry Schwartz (Schwartz et al., 2002). This scale is a spectrum where higher scores indicate the individual is a maximizer and lower scores indicate the individual is a satisficer. There is a positive relationship between the maximizer score and the CS group on regret. Schwartz et al. (2014) looked at the correlation between the maximizer scale and regret scale for participants. They found that individuals that scored high on the maximizer scale also scored high on the regret scale. They concluded that maximizers are more sensitive to regret. Maximizers opt for the best possible option. In order to find this option, they exhaust all other alternatives. However, due to the practical constraints that exist, which may make this elimination process impossible, maximizers experience post-decision regret about the options forgone (Schwartz et al., 2002). Additionally, trying to find the optimal solution can be difficult. Often, the parameters for the optimal choice are unclear and implicit. This makes finding this option, especially when there are many options, a lot harder. When these expectations are not met, maximizers experience regret (Schwartz et al., 2002). Hence, as a result

of high standards, rational constraints, and the inability to always calculate opportunity cost, maximizers tend to experience higher levels of regret.

There is a negative relationship between the maximizer score and assortment perception for the CS group. Hence, a maximizer faces lower levels of assortment perception compared to a satisficer. Assortment perception is based on whether the individual thinks there are enough options to choose from (Szrek, 2017). Therefore, maximizing individuals think that there are not enough options to choose from, and satisficers think that there are enough options. Studies have shown that maximizers usually prefer large assortments compared to small assortments (Gorokhov, 2015; Hadar & Sood, 2014). Having a large assortment increases the probability of finding the best option for them (Gorokhov, 2015). This could be why maximizers feel like the choice set in the CS group was not enough compared to the satisficers.

There are no significant relationships between either satisfaction or difficulty of decision-making and maximizer score for the CS group. This could be because decision-making difficulty has to do with choice architecture and personality. The number of options, amount of information, and cognitive effort required to determine decision-making difficulty are not perceived differently by maximizers (Vu, 2018). One reason why there is no relationship between satisfaction and maximizer score is that the decision in the study is low stakes. The nature of the decision can influence how participants view their choice. Regardless of which coffee they choose, they receive a free coffee, and their decision is not linked to any other future decisions. Hence, their satisfaction rating may have been indicative of how they feel about the coffee rather than the decision itself. This may be why there isn't any significant difference between satisfaction and the maximizer score for the CS group.

Overall, participants experienced higher levels of satisfaction, lower levels of decision-making difficulty, and lower levels of regret for the CS group. This suggests that there is some benefit to finding a compromise between spending too much time on a decision and not having the adequate knowledge needed to make an informed decision. The CS Menu allows individuals to save time and cognitive energy by choosing a category they like best and then processing coffee descriptions for coffees in their favorite category. This idea also applies to animals during foraging. As seen earlier, the optimal foraging theory (OFT) allows us to predict what prey an animal will go for (Charnov, 1976). This theory suggests that animals will maximize their calorie intake per unit of time. Hence animals have to take into consideration the time it takes to find prey, energy intake from potential prey, and how much physical and/or mental energy will be needed in order to make an informed decision (Pyke, 2019). Animals often face a trade-off between time and energy intake. While they want to spend time evaluating their choices to choose the prey that will provide them with the greatest calorific input, they cannot afford to spend too much time making this decision because that gives the prey a chance to escape (Carmel & Ben-Haim, 2005). Even with choosing the menu, there are trade-offs between spending the time and mental energy processing all the information and making a high-quality decision. With the maximizing strategy, individuals are prioritizing their ability to make an informed, high-quality decision. With the satisficing strategy, individuals are prioritizing the ability to make a quick decision that doesn't require much cognitive energy.

Design Considerations and Future Directions

Limitations

Participants: Although there were >30 participants in each group, having a larger data set could improve the statistical power of this study, which would make these results more reliable. Additionally, all participants in this study are from Emory University. Hence, the participation pool is not from varied backgrounds. Furthermore, many of the participants were recruited using extra credit incentives. Hence, the convenience sampling method could bias the results. Having a more diverse and random sampling set can improve the chances of reproducibility and makes it easier to generalize findings to a population or even subpopulation (Dotson & Duarte, 2020).

Choice Set: This study had 9 coffee options that participants could choose from. This number was chosen because it mimics coffee menus in cafes and restaurants. However, this number doesn't reflect the number of options that are present in other domains like chocolates, cookies, and others (Cross, 2000). Some studies that have looked at choice architecture have used over 15 options. Using more options can induce a more realistic view of the choice set in supermarkets. Additionally, there is a higher probability of facing choice overload when there are a large number of choices. While this study tried to replicate the choice sets in coffee menus, future studies may wish to expand to other domains that allow for greater product variety.

Strengths

Novelty: This study's primary strength is how novel and relevant it is in today's consumer-driven world. Previous studies have looked at using maximizing strategies and satisficing strategies (Long & Curtis, 2015; Mogilner et al., 2008). However, this is the first study, to my knowledge,

that includes a combination strategy that incorporates parts of the maximizing strategy and the satisficing strategy. Additionally, previous studies have tried incorporating strategies that reduce the number of options or change how much prior knowledge is required. None of the strategies in this study require any prior knowledge of the items. This strategy may be a novel way to mitigate consumer choice overload without having to reduce the number of choices.

Future Direction

As mentioned earlier, the participation pool and the choice set are some limitations to this study. Future studies can extend the participation pool to include more geographic, socioeconomics, and age diversity. This could provide insight on whether there are cultural differences between which strategy results in the lowest levels of regret and difficulty of decision-making. Additionally, it may be interesting to see whether age factors into a strategy preference. A study showed that older adults prefer satisficing strategies (Bruine de Bruin et al., 2016). Hence, with a more diverse age range, there may be interesting insights into whether older adults prefer the satisficing strategy over the combination or maximization strategy.

Additionally, future studies could look at offering products in a different domain. One of the reasons that coffee was chosen for this study is because it mimics the relatively low stake options that are usually found in grocery stores or cafes. However, it may be interesting to see if there are similar trends between low stake and high-stakes decisions. Usually, for high stake decisions, individuals prefer maximizing strategies because it is more important to make a high-quality informed decision than a low-quality but a quicker decision. Hence, I would imagine that for high stake decisions, the maximizing strategy would yield the greatest satisfaction.

Lastly, it may be interesting to look at online consumer behavior. This study was conducted in-person to mimic transactions that occur in cafes. However, with the rise of e-commerce and online retail stores (like Amazon and eBay), having a virtual version of this study could be fruitful. It can highlight what choice overload during online shopping looks like and the best strategy to mitigate choice overload for e-commerce.

Conclusion

Consumer choice overload is a growing problem with the rapid increase of options in a consumer-driven culture. Behavioral economics research in this area has shown that choice overload drastically reduces satisfaction.

The aim of this study was to find a strategy that best mitigates consumer choice overload without reducing the number of options. By introducing a combination strategy that looked at incorporating sections of both the maximizing and satisficing strategy, I hoped to find a strategy that allows consumers to make an informed decision without expending too much mental energy. The results showed that the combination strategy reduced the difficulty of decision making and regret as well as increased satisfaction compared to the other menu types. Additionally, there is a positive relationship between the maximizer score and regret for the combination strategy. There is also a negative relationship between the maximizer score and assortment perception for the combination strategy.

Overall, it is important to acknowledge that a large part of mitigating consumer choice overload must be taken upon by the consumers. If we are able to employ strategies that help with choice overload, it can increase satisfaction and decision utility. The results of this study can motivate consumers to choose the strategy that best fits their decision-making preferences. And hopefully, this can help us skillfully navigate through large choice sets in menus and understand the value of studying choice architecture from a consumer's perspective.

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Appendix

Item A1
Demographic Survey

To which gender identity do you most identify? *

○ Male

○ Female

○ Non-binary

○ Other

○ Prefer not to specify

Age

Your answer

What is/are your major(s)?

Your answer

What year are you in?

○ First-year

○ Second-year

○ Third-year

○ Fourth-year

Which menu did you get? *

○ Menu 1

○ Menu 2

○ Menu 3

○ Menu 4

What coffee flavor did you choose? *

	1	2	3	4	5	6	7	8	9
	○	○	○	○	○	○	○	○	○

Item A2

Consumer Satisfaction Survey

Please evaluate the following statements on a scale of 1-7 (1= "strongly disagree," 7= "strongly agree").

There is a wide variety of products to choose from. *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

The products are different from each other *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

There are enough options for me to choose from. *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

There are too many options to choose from *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

I feel overwhelmed when reviewing the choices *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

Item A2 Continued…

I feel overwhelmed when reviewing the choices *

	1	2	3	4	5	6	7
	O	O	O	O	O	O	O

I feel frustrated when making the decision *

	1	2	3	4	5	6	7
	O	O	O	O	O	O	O

I enjoyed making this choice *

	1	2	3	4	5	6	7
	O	O	O	O	O	O	O

Choosing the right one is difficult. *

	1	2	3	4	5	6	7
	O	O	O	O	O	O	O

I am satisfied with my choice *

	1	2	3	4	5	6	7
	O	O	O	O	O	O	O

Item A2 Continued…

If I had to make the decision again, I would choose the same thing *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

I regret my choice *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

I am unsure if I made the best choice *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

During the decision-making process, I changed my mind a few times *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

If I had to pay 25% extra in order to make the product returnable, I would choose to do so *

1	2	3	4	5	6	7
O	O	O	O	O	O	O

Item A3

Domain Familiarity Survey

Please evaluate statements 2 and 3 on a scale of 1-7 (1= "not at all", 7= "very much")

How frequently do you drink coffee? *

○ Daily

○ Weekly

○ Monthly

○ Never

○ Other: _____

How often do you purchase coffee beans/grounds? *

	1	2	3	4	5	6	7	
Not at all	○	○	○	○	○	○	○	Very much

To what extent do you consider yourself a coffee drinker? *

	1	2	3	4	5	6	7	
Not at all	○	○	○	○	○	○	○	Very much

To what extent do you consider yourself a coffee expert? *

	1	2	3	4	5	6	7	
Not at all	○	○	○	○	○	○	○	Very much

How busy were you when you made this decision?

	1	2	3	4	5	6	7	
Not at all	○	○	○	○	○	○	○	Very much

How important was this decision to you?

	1	2	3	4	5	6	7	
Not at all	○	○	○	○	○	○	○	Very much

Item A4

Maximizing Survey

Please evaluate the following statements on a scale of 1-7 (1= "strongly disagree," 7= "strongly agree").

When I am in the car listening to the radio, I often check other stations to see if something better is playing, even if I am relatively satisfied with what I'm listening to *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

Choosing movies on Netflix is really difficult. I'm always struggling to pick the best one *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

I'm a big fan of lists that attempt to rank things (the best movies, the best singers, the best athletes, the best novels, etc) *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

Whenever I'm faced with a choice, I try to imagine what all the other possibilities are, even ones that aren't present at the moment *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

I rarely settle for second best. *

1	2	3	4	5	6	7
○	○	○	○	○	○	○

Item A5

Additional Compensation

Oppurtunity for Additional Compensation

Would you rather receive $9 or 1 pound of the coffee you chose? *

◯ $9

◯ 1 pound of coffee

---

1 in 10 participants will be randomly selected to receive the additional compensation mentioned above. If you're interested, please enter your email address:

Your answer

Item 2A

Maximizing Strategy (MS) Menu

Coffee Menu 1

1. **Top Blend**
   This coffee blend is a popular blend of medium-roasted robusta and Arabica coffee beans. These beans are 'Mountain Grown' and beautifully combine uncomplicated and unassertive flavors.

2. **Caraboo Blend**
   This coffee blend is a medium roast with a smooth, balanced character and good acidity. It is enhanced by the pleasant fruity wine notes and silky, sophisticated finish.

3. **Black Satin Blend**
   This coffee blend is made from high-quality Arabica coffee grown at high altitudes. With notes of floral top and salted caramel, this coffee is balanced with smooth and rich flavors.

4. **La Arulita Blend**
   This coffee flavor is made from ground Arabica coffee. Its sweet caramel, citrus notes and brown sugar finish create a well-rounded body of delicious flavor.

5. **Yukon Blend**
   This coffee blend made from roasted Arabica beans has a smooth and delicious flavor. With its sweet aroma with nut and chocolate notes, it is a perfect balance of strength and flavor.

6. **Siene Blend**
   This coffee blend is made from roasted and ground beans for a rich aroma and robust coffee flavor. It's dark, delicious, and smooth.

7. **Café Clestar Blend**
   This coffee blend is sweet and balanced with notes of milk chocolate and roasted nuts. This coffee is simple, balanced has a tart aroma with hints of fruit and nut.

8. **Kami Blend**
   This coffee blend is ground with high-quality coffee beans and delivers a bold and intense flavor. It has a rich flavor profile, including notes of chocolate and nuts.

9. **Social Blend**
   This coffee is roasted with Arabica beans and is vibrant, full flavor, boldly original, smooth with a tropical fruit flavor profile.

Item 2A

Satisficing strategy (SS) Menu

Coffee Menu 2

BRAZIL

1. Top Blend
2. Caraboo Blend
3. Black Satin Blend

ETHIOPIA

4. La Arulita Blend
5. Yukon Blend
6. Siene Blend

COLOMBIA

7. Café Clestar Blend
8. Kami Blend
9. Social Blend

Item 2C

Combination Strategy (CS) Menu

Part A: Participants are asked to choose one of these categories

Coffee Menu 3

1. BRAZIL

2. ETHIOPIA

3. COLOMBIA

Item 2C Continued…

Part B: If the participant chooses Brazil, they will see this menu:

Coffee Menu 3

BRAZIL

1. **Top Blend**
   This coffee blend is a popular blend of medium-roasted robusta and Arabica coffee beans. These beans are 'Mountain Grown' and beautifully combine uncomplicated and unassertive flavors.

2. **Caraboo Blend**
   This coffee blend is a medium roast with a smooth balanced character and good acidity. It is enhanced by the pleasant fruity wine notes and silky sophisticated finish.

3. **Black Satin Blend**
   This coffee blend is made from high-quality Arabica coffee grown at high altitudes. With notes of floral top and salted caramel, this coffee is balanced with smooth and rich flavors.

ETHIOPIA

4. ~~La Arabia Blend~~
   ~~This coffee flavor is made from ground arabica coffee. It's sweet caramel, citrus notes and brown sugar finish create a well rounded body of delicious flavor.~~

5. ~~Yuban Blend~~
   ~~This coffee blend made from roasted arabica beans has a smooth and delicious flavor. With its sweet aroma with nut and chocolate notes, it is a perfect balance of strength and flavor.~~

6. ~~Siena Blend~~
   ~~This coffee blend is made from roasted and ground beans for rich aroma and robust coffee flavor. It's dark, delicious and smooth.~~

COLOMBIA

7. ~~Café Cluster Blend~~
   ~~This coffee blend is sweet and balanced with notes of milk chocolate and roasted nuts. This coffee is simple, balanced has a bost aroma with hints of fruit and nut.~~

8. ~~Kani Blend~~
   ~~This coffee blend is ground with high quality coffee beans and delivers a bold and intense flavor. It has rich flavor profile including notes of chocolate and nuts.~~

9. ~~Social Blend~~
   ~~This coffee is roasted with arabica beans and its flavors, full flavor, boldly original, smooth with a tropical fruit flavor profile.~~

Item 2C Continued…

Part B: If the participant chooses Ethiopia, they will see this menu:

Coffee Menu 3

BRAZIL

1. ~~Top Blend~~
   ~~This coffee blend is a popular blend of medium roasted robusta and arabica coffee beans. These beans~~ ~~and Mountain Grown? and are beautifully combine an complicated and aromatic flavor.~~

2. ~~Cocina Blend~~
   ~~This coffee blend is a medium roast smooth balanced aromatic and sophisticated. It is enhanced by~~ ~~the pleasant fruity wine notes and silky sophisticated finish.~~

3. ~~Black Satin Blend~~
   ~~This coffee blend is made from high quality arabica coffee grown at high altitudes. With notes of flavor top~~ ~~and melted caramely this coffee is balanced with smooth and dark flavors.~~

ETHIOPIA

4. **La Arulita Blend**
   This coffee flavor is made from ground arabica coffee. Its sweet caramel, citrus notes and brown sugar finish create a well-rounded body of delicious flavor.

5. **Yukon Blend**
   This coffee blend made from roasted Arabica beans has a smooth and delicious flavor. With its sweet aroma with nut and chocolate notes, it is a perfect balance of strength and flavor.

6. **Siene Blend**
   This coffee blend is made from roasted and ground beans for a rich aroma and robust coffee flavor. It's dark, delicious, and smooth.

COLUMBIA

7. ~~Cold Cluster Blend~~
   ~~This coffee blend is roast and balanced with notes of milk chocolate and roasted nuts. This coffee is~~ ~~simple, balanced has a nut aroma with hints of fruit and nut.~~

8. ~~Kavi Blend~~
   ~~This coffee blend is ground with high quality coffee beans and delivers a bold and intense flavor. It has~~ ~~rich flavor profile including notes of chocolate and nuts.~~

9. ~~Sohii Blend~~
   ~~This coffee is roasted with arabica beans and is dense, delicious, bold, and has a smooth with a tropical dark flavor profile.~~

Item 2C Continued…

Part B: If the participant chooses Colombia, they will this menu:

Coffee Menu 3

BRAZIL

1. [redacted]

2. [redacted]

3. [redacted]

ETHIOPIA

4. [redacted]

5. [redacted]

6. [redacted]

COLUMBIA

7. Café Clestar Blend
   This coffee blend is sweet and balanced with notes of milk chocolate and roasted nuts. This coffee is simple, balanced has a tart aroma with hints of fruit and nut.

8. Kami Blend
   This coffee blend is ground with high-quality coffee beans and delivers a bold and intense flavor. It has a rich flavor profile, including notes of chocolate and nuts.

9. Social Blend
   This coffee is roasted with Arabica beans and is vibrant, full flavor, boldly original, smooth with a tropical fruit flavor profile.

Item 2D

Control Menu

Coffee Menu 4

1. Top Blend

2. Caraboo Blend

3. Black Satin Blend

4. La Arulita Blend

5. Yukon Blend

6. Siene Blend

7. Café Clestar Blend

8. Kami Blend

9. Social Blend