

## **Influence of individual difference on choice decisions**

### **Abstract**

Individual differences explain why individuals assign different weights to options when confronted with multiple choices in the pre-choice decision phase. The present research study attempts to investigate the association between individual differences regarding the need for cognition and risk-taking behaviour on choice decisions; namely, choice option and assortment size. The study was conducted in India on youth respondents. The results indicate that consumers with a different need for cognition scores displayed a significant difference in their preferences regarding choice decisions. Moreover, the study found an interaction effect of an individual's need for cognition and risk-taking behaviour on the choice option and assortment size. The finding of the study provides useful insights to brand managers on youth choice decisions.

**Keywords:** need for cognition, risk-taking behaviour, preference, choice decision, choice option, assortments size.

**Paper type:** Research paper

### **Introduction**

The literature on decision-making has focused on how people make choices when confronted with a set of available options. According to the classical choice theory, consumer prefers to select an alternative that provides them maximum utility or value. However, behavioural decision theory provides an understanding of actual choice behaviour that differs from the principle of value maximization (Bettman et al., 1998). It is a known fact that the characteristics of the decision maker highly influence their preferences. Individual differences explain why individuals assign different weights to options when confronted with multiple choices in the pre-choice decision phase. There has been much interest among marketers to learn about consumer's pre-choice behaviour. The decision framework involves a trade-off between a premium and average choice options in the choice set and exerts a strong influence on what and how people choose. A consumer visiting a supermarket today is confronted with varieties of product and brands alternative (Schwartz, 2004). Although consumers seem to be attracted by large assortments (Broniarczyk et al., 1998), however, they experience greater discomfort, remorse, and frustration when confronted with greater assortments (Botti and Sheena, 2004; Iyengar and Mark, 2000). People defer choice because of decisional conflict or difficulty experienced to trade-off between important attributes to select the best option (Mehdi et al., 2018).

Freedom and autonomy are essential for making people feel happy and satisfied as a greater variety of choice give individual a sense of self-determination and freedom (Barry & Nathan, 2017; Bone et al., 2014, Schwartz, 2016). Though it is true that people desire more choice options, when confronted with an actual choice decision, they prefer fewer options (Ackerman et al., 2014).

Little empirical study has been carried out to support the influence of individual differences on youths' choice decisions. The complex interplay of the need for cognition, risk-taking and

choice-making has received limited systematic attention in empirical research. Most of the decision research has demonstrated the effect of assortment size on the choice decision without factoring in the influence of moderating variables. Traditional economics literature and findings in behavioural decision literature have identified factors that influence consumer preferences for product assortments. Decision-making studied carried out in isolation without considering individual cognitive abilities and risk-taking behaviour has provided a limited understanding of choice decisions. Scholars have realized the significance of considering the behaviour pattern of Generation Y (Belleau et al., 2007; Grohmann et al., 2013) to influence their choice behaviour. It would be worthwhile for the researcher to explore individual characteristics that influence their choice behaviour. An understanding of choice behaviour of a young adult who displays novelty-seeking behaviour would help marketers to connect and engage with them better (Bakker, 2005). Novelty-seeking behaviour is common among youth (Manning et al., 1995) as at this stage the personality traits become concrete driving adolescents to prepare for adulthood (Grant and Waite, 2003). It is at this stage they love to explore and experiment with a different category of products or services. Previous findings identified demographic, situational and personal factors as the determinant of impulse-buying behaviour (Bashar et al. 2013; Amos et al., 2014). Additionally, Bolton et al. (2013) disclosed that most of the investigation of youth populations attract interest as their behaviour undergoes a considerable amount of change in different phases of their life cycle. By the age of 15, a person develops the logical-reasoning and psychosocial capabilities that improves his/her decision making and risk-taking ability (Steinberg, 2004). Compared to an adult, youth prefer a variety of options when confronted with an actual choice decision (Patall et al., 2014). According to Nakajima and Hotta (1989), adults have a contrasting decision-making style.

India has the world's largest youth population with approximate 356 million youth in the age bracket of 10-24 years (PTI, 2014). This group often referred to as "demographic dividend," makes them a potential target market. The major challenge for marketer's targeting this age group is how to reach out and attract them towards their product/brand. Today's youth is ambitious, techno-savvy, brand lovers, optimistic, and open to embrace change and passionate about Hollywood and western lifestyle. The present study aims to examine how individual differences affect decision choice among young adults. The present research aims to address the following research questions:

R1: Does an individual's need for cognition and risk-taking capacity influences their choice regarding average versus premium choice option.

R2: Does an individual's need for cognition and risk-taking capacity influence their preference regarding small versus large assortment size.

The study is structured as follows. First, the literature review is presented in which the individual differences and its impact on choice decisions are discussed. Then the methodology outlined, followed by a summary of the key findings. Then the conclusion is highlighted with the managerial implications. Finally, the limitations and future research study are discussed.

## **Literature Review and Hypotheses Development**

Rational choice theory based on the principle of value maximization neglects the importance of psychological principles and mechanisms that drive the choice decision. Researchers have identified two frameworks to explain how consumer develops preferences. The first approach effort–accuracy, proposes that consumers choice decision strategies based on a trade-off between decision accuracy and desire for least effort. The second approach is heuristic or simple decision rule. However, the consumer may select careful and systematic processing to simplification based on the number of alternatives and attributes available that might affecting the choice outcome.

Previous studies have emphasised on consumer’s response to multifunctional products with unique and complex features (Hamilton et al., 2007; Thompson et al., 2005). Earlier research focused on the antecedents and consequences of product assortment on the choice decision. Research studies found positive correlations between cognitive ability and overconfidence and choice biases (Stanovich and West, 2000), inefficient use of decision rules (Broder, 2003), statistical reasoning errors (Stanovich and West, 1998), violation of "cost-benefit rules" (Larrick et al., 1993), and framing errors (Stanovich and West, 1998). The choice paradox indicates a positive outcome as well as decision paralysis and unhappiness due to more choice options (Yun-Chia Tang et al., 2017, Alexander, 2015). Too many choices result in consumers avoiding making the choice decision (Banwari, 2016). Studies have shown the relationship between too many choices on information overload, cognitive stress, confusion, and non-decision or poor decision (Consumer Reports, 2014). The effects of increased choice sets can have distinct negative consequences (Chernev et al., 2015; Schwartz, 2016).

Subjective expected utility theory (Savage, 1954) and prospect theory (Kahneman and Tversky, 1979), have ignored individual differences in choice preferences. The judgment and decision-making theories have focused on decision features and situational factors as a determinant of individual preferences (Weber and Johnson, 2009; Lichtenstein and Slovic, 2006), ignoring the influence of the individual, group, or cultural factors (Weber and Morris, 2010). People do not always exercise a careful cost-benefit analysis for making choice decisions (Mousavi and Gigerenzer, 2014). Studies on decision-making have concentrated on situational factor neglecting the influence of individual characteristics. Researchers have established decision-making strategies as contingent on consumer demographic characteristics and personality traits (Sheth et al., 2001).

The need for cognition (NFC) is defined as ‘a person’s tendency to engage and enjoy higher cognitive activities’ (Cacioppo and Petty, 1982). The NFC refers to the satisfaction that individual derives by engaging in a task that demands cognitive effort (Luis & Jose, 2016). The NFC differentiates individuals based on their tendencies to engage in thinking (Cacioppo and Petty, 1982). Petty et al. (1983) suggested that individuals exhibiting a high NFC enjoy deriving inferences through the elaboration of information. An individual with a higher NFC intrinsically enjoys complex tasks, while individuals with a lower NFC prefer tasks that require fewer cognitive resources (Cacioppo et al., 1996). Individuals with high NFC are drawn towards challenging and difficult problems (Cacioppo and Petty, 1982). The NFC is a multidimensional (Lord and Putrevu, 2006), challenging intellectual activity. Individual differences in NFC

moderates consumer's likelihood to elaborate the choice options (Cacioppo et al., 1984). Consumers with a high NFG are inclined towards greater elaboration for making accurate choice decisions (Levin et al., 2000). Consumers with a low NFG use heuristics, as they are cognitive misers for elaboration, and hence would prefer a product with few features over a multi-featured product (Cacioppo et al., 1986); and hence due to cognitive costs process a limited amount of information (Gourville and Soman, 2005; Shugan, 1980; Simon, 1955). Research has supported the fact that associated learning costs hinder consumer choice for premium products (Meyer et al., 2008; Thompson et al., 2005).

Theories from behavioural economics provide a link between individual cognitive ability and willingness to take risks. High cognition mitigates risk aversion (Heckman, 2006). Individuals with different NFG differ in their desire to attain positive outcomes and to avoid negative consequences. Research has supported the influence of perceived risk on a choice decision (Steinhart et al., 2013). Most studies have found a high correlation between people with low cognitive ability and risk-taking capacity (Frisell et al., 2012; Goto et al., 2009). Psychological development literature (Boyer, 2006, p. 334) concludes that "the probability of risk-taking behaviours decreases as cognitive capacities skills improve". According to Grinblatt et al. (2011) individuals having high cognitive ability prefer less risky options; however, while participants with low cognitive ability participated less in the stock market (Angrisani and Maria, 2011; Christelis et al., 2010; van Rooij et al., 2011). Booth and Pamela (2013) found no relationship between cognitive ability and risk appetite in Australian birth-cohort data. Any decision choice involves uncertainty regarding the outcome and uncertainty regarding the consequences. Uncertainty regarding the outcome is handled by acquiring and processing information, and uncertainty about the consequences is handled by evaluating a range of choice options. Before a purchase decision, many consumers experience "uncertainty regarding information about alternatives", and "uncertainty about what alternative to choose" (Urbany, Peter and William, 1989). Individuals seem to be attracted to all options particularly when they are uncertain about the best alternative while making detailed comparison across options. Hence, lack of choice clarity compels individual for a safer option to resolve conflict, regret and dissonance. Finalising the best alternative from the existing set of alternatives involves the risk of forgoing the attractive features of non-chosen alternatives (Bettman et al., 1998). Selecting an alternative from the available involves a trade-off and willingness of the individual to take a risk. In case the selected alternative results in disappointment, the consumer may end up with a feeling of regret. Simonson and Stephen (2000) were of the opinion that option with all average features usually seems to be a safer choice. Based on this it is hypothesized that:

H1: Consumers with a high NFG will choose premium-feature (enriched) options than consumers with a low NFG.

H2: Consumers' risk-taking behaviour moderates the relation between NFG and choice options.

The paradox that choice variety is detrimental challenges conventional wisdom that supports more choice options (Iyengar and Mark, 2000; Reibstein et al., 1975). Eugene and Yitong (2018) argues that too many choices leads to choice difficult resulting in dissatisfaction. The main argument according to the choice overload effect is that offering more choice may be detrimental

for satisfaction. Ali and Michel (2017) judgments of product and consumption choices are often based on how consumers feel about available alternatives. While large assortment leads to choice overload, the question remains unanswered as to who and what determines large assortments. The present research focused on a type of choice overload that causes decision complexity, due to a large number of available choice options (Iyengar and Mark, 2000).

Bauer's proposed that "consumer behaviour involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate anything with certainty, and some of which at least are likely to be unpleasant" (1960, p. 24). Assortment research does not attribute assortment size to choice overload but views it as a function of how consumers process information (Scheibehenne et al., 2010). The research study has established the influence of individual characteristics on the relation between assortment size and choices preferences (Chernev, 2003b; Mogilner et al., 2008). Classic economic theories have also advocated larger assortments, as they benefit consumers regarding better fit between consumers' preferences and the product offered. Consumers opt for larger assortment as variety provides greater choice options and value (Chernev, 2003b). Larger assortment creates a perception of choice freedom (Reibstein et al., 1975), choice flexibility (Kahn, 1998). A larger assortment of results in consumer satisfaction, as it provides greater flexibility (Kahn and Donald, 1991) and increases the probability of finding the preferred alternative (Lancaster, 1990).

Human beings have constrained to process information due to cognitive capacity (Simon, 1955). The assortment size increases the demand on individual's cognitive resources required to evaluate the attractiveness of alternatives (Iyengar and Mark, 2000; Shugan, 1980), are difficult to manage and also time-consuming (Fasolo et al., 2009; Sloot et al., 2005). Individuals with limited capacity to process information do not appreciate search elaboration (Sloot et al., 2006). Researcher have established a link between large assortment with decision difficulty (Berger et al., 2007) and confusion, thereby increasing the probability of delaying action or non-action (Iyengar and Mark, 2000; Iyengar et al., 2004; White and Ulrich, 2009), dissatisfaction, and repent (Botti and Sheena, 2004; Gourville and Dilip, 2005; Iyengar and Mark, 2000; Sagi and Nehemia, 2007). Larger choice set demands cognitive skill for a trade-off between various benefits and costs (Chernev, 2003b) resulting in conflict (Timmermans, 1993) and confusion when consumers are uncertain of their preferences (Sood et al., 2004). Similarly, larger assortments can influence consumers' post-decision experience, leading to weaker preferences and regret arising from the selected option (Schwartz, 2004; Chernev, 2003b; Iyengar and Mark, 2000). Large assortments may lead to choice deferred due to choice difficulty (Kim et al., 2013). However, few research studies indicate consumer indifference to the costs associated with large assortments (Gao and Simonson, 2016; Tang et al., 2017) as they experience pleasure in processing them (Aydinli et al., 2017). Grocers that traditionally emphasised variety have implemented narrow assortments that reduce shoppers' tyranny of choice (Paraskevas et al., 2018).

H3a: Consumers with a high NFG prefer larger assortments for more accurate and high-quality decision.

H3b: Consumers with a low NFG resort to heuristic and hence, would prefer to choose from small assortments.

H4: Consumers' risk-taking moderates the influence of need for cognition on assortment size.

## **Research Methodology**

### *Sampling and Data collection*

The present study aims to identify the important individual characteristics that influence choice decisions among youth. A field-based survey was administered in the northern region of India. The questionnaire was administered in English and was pre-tested with fifty respondents to test the comprehensibility. Based on the feedback from pretest few items were modified for better clarity. Convenience sampling technique was used to collect data from 200 graduate students for a period of two months (from May to June 2017). Respondents were asked to fill a qualifier question as filter criteria to ensure that the respondents were Indian, above 18 years of age, must have exercised their decision choice for product categories used in the present study. Each respondent was briefed by the researcher regarding the objectives of the survey. Respondents who volunteered and qualified the above-mentioned criteria filled the questionnaire. Out of 200 respondents, 137 responses were valid resulting in a response rate of 68.5%. The questionnaire that was not properly filled were discarded from data analysis.

### *Measures*

The questionnaire contained two parts along with a qualifier question to gauge the respondents experience with the product category used in the present study. Part A contained items that measured NFC using an 18-item scale (Petty and John, 1984) and personal risk inventory (PRI) using a 13-item scenario (Hockey et al., 2000) to assess the risk-taking behaviour of the respondents. The response was captured on a five-point Likert scale (strongly agree to strongly disagree). Part B contained two sub-sections. The first sub-section involved the choice option (premium and average) and the second sub-section involved assortment size (few versus many). For the choice option, respondents were requested to select any one alternative from the choice options. The average option consisted of a standard set of features at an average price (henceforth referred to as option A "average-feature option"), and the premium option consisted of high-end features at a premium price (henceforth referred to as Option B, "premium-feature option"). Respondents were asked to express their preference for either Option A or Option B for three product categories. Assortment size was categorised as A or B (henceforth referred to as Category A "small assortment size", Category B "large assortment size"). Category A consisted of a product with fewer assortment options while category B consisted of a product with a large assortment of options. Respondents were asked to express their preference for either Category A or B for three product categories. The product categories selected for this study were a laptop, cell phone and career coaching institute. A youth is actively involved in exercising his preference in the final selection and choice of these product categories. Hence these product categories were considered most suitable for the present study. The questionnaire was carefully designed, and the

questions were arranged appropriately to address common method bias (MacKenzie and Podsakoff, 2012).

## **Findings**

The sample was balanced regarding gender (51.9% male and 48.1% female). Respondents were between 16 to 20 years ages bracket. The independent variables measured in the questionnaire were NFC and PRI and the dependent variable used in the present study were choice options. Respondents were categorized into "Low NFC" or "High NFC" based on the NFC score and "Low PRI" or "High PRI" based on the PRI score, using median split. NFG was calculated for each respondent. The decision for choice options was categorised into "average-feature option" versus "premium-feature option". The choice options were captured across three categories of product namely laptop, cell phone and career coaching institute.

H1 states that consumers with a high NFG will be more inclined to choose the premium-feature option. Respondents (N = 137) were asked to indicate their preferences between an average option and a premium option for each of three product categories. The average option was given a score of 1, and the premium option a score of 2. The choices were added up to obtain a choice sum score ranging from 3 to 6, with higher choice option sum scores indicating a preference for premium options. Their NFC scores were calculated through the NFC scale as per procedure outlined in Cacioppo et al. (1984). A median split of NFC score was taken to separate respondents into high-NFC and low-NFC categories. A t-test between high-NFC and low-NFC respondents indicated that their preference for premium option was significantly different ( $t = 3.03$ ;  $p = 0.003$ ; mean [(NFC\_Low)] = 4.43; mean [(NFC\_High)] = 4.81). This provides substantive support for H1, as shown in Table-1 with group statistics and Table-2 with t-test results.

Table-1  
Group Statistics for NFC and Choice Option

Table-2  
t-test between NFC and Choice Option

H2 states that consumers' risk-taking will moderate the relationship between NFG and choice option. Risk-taking was measured using the PRI scale (Hockey et al., 2000). Respondents (N = 137) were categorized as either low PRI or high PRI based on a median split. Two-way ANOVA with NFC level (low/high) and PRI level (low/high) indicated a significant interaction effect of NFG and PRI on choice option (for average product or premium product) ( $F [1, 133] = 4.87$ ;  $p = 0.029$ ) as indicated in Table-3. The main effect of NFC is also significant ( $F [1, 133] = 10.59$ ;  $p = 0.001$ ), as indicated in Table-3. The above results provide substantive support for H2. The plot of the moderating effect of PRI on the effect of NFC on choice is shown in Figure-1.

Table-3  
Between-subjects effect of NFC and PRI on Choice Option

Figure-1  
Interaction effect of NFC and PRI on Choice Option

H3a states that consumers with a high NFG would prefer larger assortments for more accurate and high-quality choice decision; while H3b states that consumers with a low NFG resort to heuristic, and hence prefer to choose from small assortments. Respondents (N = 137) were asked to indicate their preference between a small assortment and a large assortment option for each of the three product categories. Their responses were added up, resulting in an option score ranging from 3 to 9 for each respondent, with the higher option scores indicating a preference for larger assortments. Respondents were categorized into high NFC and low NFC as before based on a median split of their NFC scores. A t-test indicated that the option scores were significantly different for the two NFC categories ( $t = 2.52$ ;  $p = 0.013$ ; mean [NFC\_Low] = 5.29; mean [NFC\_High] = 5.79) as indicated in Table-4 (Group Statistics) and Table-5 (t-test). The above results provide substantive support for H3a and H3b.

Table-4  
Group Statistics for NFC and Assortment Size

Table-5  
t-test between NFC and Assortment Size

H4 stated that consumers' risk-taking moderates the influence of need for cognition on assortment size. The hypothesis was evaluated by asking respondents (N = 137) to choose the assortments size in three product categories. Respondents were categorized as either low PRI or high PRI based on a median split of PRI score. Two-way ANOVA with NFC level (low/high) and PRI level (low/high) indicated a significant interaction effect of NFG and PRI on assortment sum (for small assortment or large assortment) ( $F [1, 133] = 4.27$ ;  $p = 0.041$ ). The main effect of NFG is also significant ( $F [1, 133] = 9.38$ ;  $p = 0.008$ ), as indicated in Table-6. The results provide substantive support for H4. The plot of the moderating effect of PRI on the effect of NFC on assortment size is shown in Figure-2 and Table-7 (assortment \_size).

Table-6  
Between-subjects effect of NFC and PRI on Consumer Assortment Size

Figure-2  
Interaction effect of NFC and PRI on Assortment Size

Table-7  
Assortment\_Size Cross-tabulation: NFC versus PRI

### **Conclusion**

The results of t-test indicated that respondents with high NFG were inclined towards the premium-feature option. Respondents with a high NFG score preferred larger assortments for a more accurate and high-quality decision, while respondents with a low NFG score resorted to heuristic, and hence preferred small assortments. The findings of the study confirmed with the previous study that indicated consumers with high NFC score strongly preferred large assortments (Lin and Wu, 2006). This may be because individuals with high NFG tend to allocate more cognitive resources to trade-offs for arriving at a rational decision. The result of two-way ANOVA carried out for NFG, and risk-taking score indicated a significant interaction effect of these two variables on assortment size. That is consumers' risk-taking moderated the influence of NFG on assortment size. The result of two-way ANOVA indicated a significant interaction effect of NFG and risk-taking score on choice option (for average or premium option) indicating that respondents' risk-taking moderated the relation between NFG and choice option. The individual with a high NFG enjoys thinking, are open to imagination, curiosity, engage in innovation behaviours (Madjar, 2008); hence they like to try a premium featured product. These individuals are effective in cognitive elaboration (Briñol and Petty, 2005); acquiring new information, linking new and existing knowledge (Evans et al., 2003); and are quick in processing information for solving complex problems (Nair and Ramnarayan, 2000). The findings confirmed that NFG and risk-taking behaviour influence consumer preferences for choice option and assortment size. The study finding contradicts the neoclassical maximization theory that predicts consumer will not resort to choice avoidance when confronted with more choice options. The findings present study counters the previous study that advocated assortment size not affect choice overload (Scheibehenne et al., 2010) by excluding the influence of individual differences.

### **Theoretical and Managerial Implications**

This study provides insights into the influence of individual differences on youths' choice decisions. The results confirm the influence of individual differences, suggesting that researchers should begin to include individual differences in research on choice theories and decision-making. The study by incorporating the need for cognition as individual differences have contributed to the theory of decision choice. This research is relevant for both marketer and academics since it enhances understanding of Generation Y, which represents potential future consumers. Young consumers' needs, desires, and expectations are constantly changing. Hence, it is important for organisations to be cognizant of the younger generation's choice decisions

when they are confronted with different choice options and assortment sizes and accordingly frame their communication message that will be most stimulating and engaging for the youth market.

As marketplaces become increasingly competitive, with products sharing identical features and attributes, managers need to obtain insights into how various features can be articulated to influence consumer preferences. Organizations can persuade consumers by framing message fitting to individual cognition skill and risk-taking capacity. For example, to facilitate comprehension, consumers with low NFC can be educated on the product advantage, rather than emphasizing on the complex and technical product attributes and features. The valence of features becomes significant, as each feature might have varying influence for a different segment of consumers. A marketer needs to appreciate the fact that features that might attract some consumers may be perceived as unattractive by others. For example, a consumer with high NFG would prefer larger assortments, which may be less attractive for the consumer with low NFG. An individual with different risk-taking level may find premium features less attractive; while too many features offered by websites might be a desirable feature for consumers with high risk. Assortment size and choice option are fundamental drivers of any decision strategy; however, this is guided by individual characteristics. Hence an insight on the impact of assortment size on choice preference would help in designing assortment presentation and display to handle choice difficulty associated with it. Currently, retailers face the dilemma between the benefits as well as the negative consequences of presenting large assortments in a particular product category. Sales representatives can be trained to understand individual differences and pitching his sale accordingly. Marketers can display assortments in specific ways to facilitate concrete categorisation and mental representation of products/brands in the aisle. Marketers should resort for effective display of assortments and web search engines via technology applications that would lessen consumer cognitive effort. For example, decision support systems that reduce the number of options, based on consumer's preference would facilitate choice decision (2016; Botti and Sheena, 2006) by allowing individuals to filter out non-attractive options particularly in case of a complex choice situation. To reduce regret and anxiety, marketers may deploy programs like extended warranty period, easy product return policy, money back guarantee and product trials (Chernev, 2003).

### **Limitation and Future Research**

First, the study was carried on a small single cohort that would certainly limit the generalizability of the findings. Hence, the result obtained might be a reflection of only a specific population of India. Future research can be conducted by expanding the sample size, involving the whole state of India. Second, a comparative study including other cohorts would provide a more comprehensive framework which provides a scope for future study. Earlier research has supported age to moderate decision strategies; particularly older age group those who rely more on schema-based processing (Lambert-Pandraud et al., 2005) or use heuristic strategies in choice decision compared to younger age group (Kim et al., 2005) due to aversion to change (Lambert-Pandraud et al., 2010). Third, the present study used a survey method to collect data hence

causality cannot be established. Future work should consider adopting experimental or quasi-experimental methods to provide evidence regarding the causal directions of the hypothesized relationships. Fourth, researchers have also noted influences of transient affective states (Forgas and Ciarrochi, 2001; Kuvaas and Kaufmann, 2004) on choice difference. Haynes (2009) pointed time constraint moderates relation between the depth of choice options and choice overload. Meta-analysis study (Alexander et al., 2016) found influence assortment size has on choice overload due to individual's affective state and assortments presentation format (Townsend and Kahn, 2014). Specifically, future study should explore the possible influence of affective states on consumer choice decision. In this context, an experimental design would be more appropriate to capture the interaction effect of consumer affective or emotional state along with assortment presentation on preference for assortment size and choice options. Fifth, Eugene and Yitong (2018) have acknowledged a crucial difference between selection and rejection decisions with large choice options. Future research study should explore relation between decision rejection and assortment size. Finally, a future research study may explore presentation format as moderator influencing the relation between the magnitude of assortment and choice overload (Townsend and Kahn (2014).

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**Table-1**  
Group Statistics for NFC and Choice Option

| Group Statistics |    |      |                |
|------------------|----|------|----------------|
| NFC_L1_H2        | N  | Mean | Std. Deviation |
| Low              | 70 | 4.43 | 0.60           |
| High             | 67 | 4.81 | 0.84           |

**Table-2**  
t-test between NFC and Choice Option

| Independent Samples Test     |      |     |                 |
|------------------------------|------|-----|-----------------|
| t-test for Equality of Means |      |     |                 |
|                              | T    | Df  | Sig. (2-tailed) |
| Choice_Option_Sum            | 3.03 | 135 | 0.003           |

**Table-3**  
Between-subjects effect of NFC and PRI on Choice Option

| Tests of Between-Subjects Effects               |                         |     |             |         |       |
|---|-------------------------|-----|-------------|---------|-------|
| Dependent Variable:<br>Choice_Option_Sum        |                         |     |             |         |       |
| Source  | Type III Sum of Squares | Df  | Mean Square | F       | Sig.  |
| Corrected Model                                 | 11.23                   | 3   | 3.74        | 7.63    | 0.000 |
| Intercept                                       | 2924.55                 | 1   | 2924.55     | 5959.41 | 0.000 |
| NFC_L1_H2                                       | 5.20                    | 1   | 5.20        | 10.59   | 0.001 |
| PRI_L1_H2                                       | 4.10                    | 1   | 4.10        | 8.35    | 0.005 |
| NFC_L1_H2 * PRI_L1_H2                           | 2.39                    | 1   | 2.39        | 4.87    | 0.029 |
| Error   | 65.27                   | 133 | 0.49        |         |       |
| Total   | 2992.00                 | 137 |             |         |       |
| Corrected Total                                 | 76.50                   | 136 |             |         |       |
| a. R Squared = .147 (Adjusted R Squared = .128) |                         |     |             |         |       |
| b. Computed using alpha = .05                   |                         |     |             |         |       |

Figure-1  
Interaction effect of NFC and PRI on Choice Option

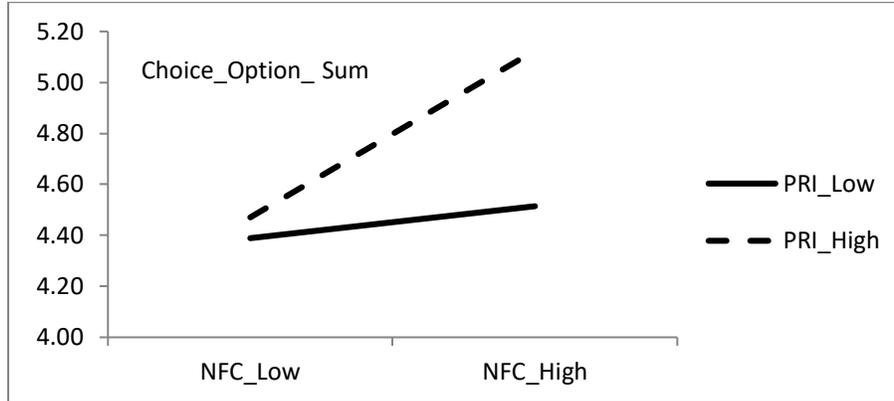


Table-4  
Group Statistics for NFC and Assortment Size

| Group Statistics |    |      |                |
|------------------|----|------|----------------|
| NFC_L1_H2        | N  | Mean | Std. Deviation |
| Low              | 70 | 5.29 | 1.22           |
| High             | 67 | 5.79 | 1.12           |

Table-5  
t-test between NFC and Assortment Size

| Independent Samples Test     |      |     |                 |
|------------------------------|------|-----|-----------------|
| t-test for Equality of Means |      |     |                 |
|                              | T    | df  | Sig. (2-tailed) |
| Assortment_Size_Sum          | 2.52 | 135 | 0.013           |

**Table-6**  
Between-subjects effect of NFC and PRI on Consumer Assortment Size

| Tests of Between-Subjects Effects               |                         |     |             |         |       |
|---|-------------------------|-----|-------------|---------|-------|
| Dependent Variable:<br>Assortment_Size_Sum      |                         |     |             |         |       |
| Source  | Type III Sum of Squares | df  | Mean Square | F       | Sig.  |
| Corrected Model                                 | 21.74                   | 3   | 7.25        | 5.59    | 0.001 |
| Intercept                                       | 4210.00                 | 1   | 4210.00     | 3248.56 | 0.000 |
| NFC_L1_H2                                       | 9.38                    | 1   | 9.38        | 7.24    | 0.008 |
| PRI_L1_H2                                       | 7.75                    | 1   | 7.75        | 5.98    | 0.016 |
| NFC_L1_H2 * PRI_L1_H2                           | 5.54                    | 1   | 5.54        | 4.27    | 0.041 |
| Error   | 172.36                  | 133 | 1.30        |         |       |
| Total   | 4388.00                 | 137 |             |         |       |
| Corrected Total                                 | 194.10                  | 136 |             |         |       |
| a. R Squared = .112 (Adjusted R Squared = .092) |                         |     |             |         |       |
| b. Computed using alpha = .05                   |                         |     |             |         |       |

**Figure-2**  
Interaction effect of NFC and PRI on Assortment Size

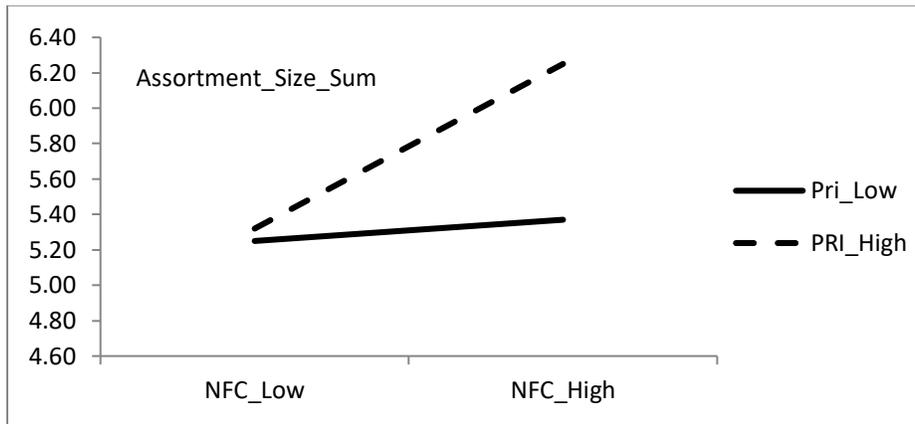


Table-7  
Assortment\_Size Cross-tabulation: NFC versus PRI

| Option Sum |         |          |
|------------|---------|----------|
|            | PRI_Low | PRI_High |
| NFC_Low    | 5.25    | 5.32     |
| NFC_High   | 5.37    | 6.25     |