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The Influence of Product Variety on Brand Perception and Choice

ABSTRACT

We propose that the variety a brand offers can influence brand quality perceptions, and consequently, affect brand choice, even when the available option set is held constant. Specifically, brands that offer greater variety of compatible (i.e., focused and internally consistent) options are expected to be perceived as having greater commitment and expertise in the category, which, in turn, enhances their perceived quality and purchase likelihood. The results of six studies support this proposition and demonstrate that (a) brands offering increased compatible variety were perceived as having higher quality; (b) this effect was mediated by product variety's impact on perceived expertise-commitment; (c) the higher perceived quality led to a higher choice share of brands offering greater product variety, even amongst options identical options offered by multiple brands; and (d) product variety also impacted post-experience perceptions of taste.

Key words: Variety, Consumer Choice, Quality Cues, Sensory Experience

A basic assumption concerning the depth of a brand's product assortment is that offering consumers more options is superior to offering fewer options, for the simple reason that a greater variety of options can cater to a wider range of tastes (e.g., Lancaster 1990). This basic assumption has been challenged by recent research that has raised doubts about the wisdom of offering consumers many options to choose from (e.g., Iyengar and Lepper 2000; Schwartz 2004). For example, Iyengar and Lepper demonstrated that consumers who were presented with a set of 24 jams were significantly less likely to purchase one of these options compared to consumers presented with just six jams. Other researchers (e.g., Dhar 1996, 1997; Greenleaf and Lehmann 1995; Tversky and Shafir 1992) have shown that offering more options can generate decision conflict and preference uncertainty, leading to decision deferral.

Although these studies have provided important, sometimes surprising insights, we propose that, even if one holds the effective option set (or product assortment) constant, the variety a brand offers can have a positive effect on brand choice through its influence on perceived brand quality. Specifically, we suggest that a brand offering greater variety of compatible options, i.e., more internally consistent options that are focused on a certain area or type, may be perceived as having greater expertise and commitment to the category. These aspects are associated with higher quality, which, in turn, should enhance that brand's choice share. Furthermore, since true quality is often ambiguous, an initial belief that a brand offering more options is associated with higher quality may influence subsequent (perceived) experience with the chosen product.

Next, we discuss how our research relates to prior work regarding the effect of the number of considered options on choice, followed by an analysis of the role of variety in

brand evaluation and choice. We then describe six studies that were designed to test our predictions and the conditions under which greater product variety is expected to enhance brand perception. We conclude with a discussion of the theoretical and practical implications of this research.

THE IMPACT OF SET SIZE ON CONSUMER CHOICE

Because product variety increases consumers' likelihood of finding a good match with their preferences, research in economics, psychology, and marketing has typically assumed that, other things equal (e.g., costs, shelf space), offering more options is better (see, e.g., Bordley 2003; Kekre and Srinivasan 1990; Lancaster 1990; Payne, Bettman, and Johnson 1993). Economists have also proposed that offering broader product lines may create entry barriers (Schmalensee 1978) and allow the firm to charge higher prices (Benson 1990).

At the same time, offering greater product variety is often associated with higher costs (e.g., Draganska and Jain 2005; Lancaster 1979). Furthermore, recent research has shown that more options can generate decision conflict, confusion, and frustration, leading to choice deferral or even no choice at all (e.g., Chernev 2003a, 2003b; Dhar 1996, 1997; Greenleaf and Lehmann 1995; Iyengar and Lepper 2000). Iyengar and Lepper (2000), for example, gave participants the opportunity to select and taste a chocolate from a set containing either 24 (extensive choice) or six (limited choice) options. Paradoxically, while people choosing from larger variety enjoyed the decision-making process more, they felt greater frustration and difficulty with choice and were less likely to make a purchase.

In many situations, however, the relevant question is not whether a choice will be made, but which brand consumers will select. When we go to the store in search of yogurt or need to buy a chocolate for a friend's birthday, we have already decided to make a choice but may be uncertain about which brand to purchase. How would the variety a brand offers influence which brand consumers choose? The literature on "too much choice" might indicate that consumers would avoid high variety brands in anticipation of the difficulty of choosing from a large set of options. However, typical studies pertaining to the role of decision conflict (e.g., Dhar 1997; Tversky and Shafir 1992) and "too much choice" (e.g., Iyengar and Lepper 2000) have not addressed that question directly and have focused instead on whether a choice is made. In fact, in the jam study of Iyengar and Lepper cited above, more shoppers approached the jam demonstration when the number of presented options was 24 rather than just six. In any case, our focus is on a common situation in which the relevant issue is not whether a choice will be made, but which brand will be selected (given that the decision to buy has already been made). In this context, we propose that consumers may use the variety a brand offers as a cue to quality, which may then influence which brand they end up selecting.

PRODUCT VARIETY, BRAND EVALUATION, AND BRAND CHOICE

We propose that the variety a brand offers can act as an important quality cue, affecting the inferences consumers make about the brand and thus influencing which brand consumers choose. This quality cue may play a key role particularly when detailed attribute information is unavailable or under low involvement (see, e.g., Kassarjian

1978). Further, it may play a role both when consumers evaluate each brand separately, such as when consumers consider a brand's end-of-aisle display or a brand that is sold through exclusive distributors, and when two or more brands' offerings are directly compared (see, e.g., Nowlis and Simonson 1997).

The notion that consumers rely on cues to assess quality is well-established and has been relied upon in both marketing (e.g., Allison and Uhl 1964; Olson 1977; Purohit and Srivastava 2001) and economics (e.g., Klein and Leffler 1981; Nelson 1974). For example, in the absence of other diagnostic information, consumers tend to rely on price as an indicator of quality, particularly for experience goods. The reasons for using quality cues such as price, brand name, and manufacturer's reputation as proxies for quality appear rather straightforward. In contrast, the notion that consumers infer quality from the number of options offered by a brand is less obvious.

We propose that offering greater variety with finer distinctions among items in the product line (e.g., chocolates with different cocoa content levels, or yogurts representing both standard and more unusual yogurt flavors) is likely to convey expertise and commitment to the category. That is, a firm that offers finer distinctions within a product line, as indicated by its wider variety, communicates that it has invested in learning the details of the category and the dimensions on which consumers' tastes vary. Given the investment involved in developing such category expertise and the additional costs associated with offering greater variety, the firm has more to lose if buyers are subsequently disappointed by actual product quality.[1] Therefore, as long as the

[1] This analysis suggests that perceptions of a brand's investment and expertise in the category are closely linked, because the development of expertise requires an investment in and commitment to the category. Accordingly, we expect perceptions of the brand's category expertise and commitment to be highly correlated.

composition of the brand's product line sends a consistent message (e.g., variations of gourmet chocolates as opposed to both gourmet chocolates and cheap chocolate bars), we expect greater variety within the specific category to convey higher quality and, correspondingly, affect brand choice.

As noted earlier, a positive effect of greater variety on brand choice may simply reflect the fact that more options can satisfy more varied tastes. Such a parsimonious account does not require the assumption that variety serves as a quality cue. If variety influence quality perceptions, however, consumers may even be more likely to select brands with greater product variety even when the available set of options is held constant. Thus, we expect that, even when the set of available options associated with a narrow variety brand and a wide variety brand are the same, the latter brand tends to have an advantage in terms of perceived quality and choice likelihood. This prediction is expected to hold when the product variety applies to a compatible, that is, internally consistent set of options, such as variations of dark chocolate, mountain bicycles, or bird-watching binoculars.[2] It is not expected to hold, and might even be reversed when the broader variety contains options of different types, such as a product assortment that contains both mountain bikes and city cruisers.

Product perceptions influenced by compatible product variety are also expected to influence actual product experience, particularly when the experience is more ambiguous. That is, consistent with work regarding influences on perceived sensory experiences (e.g.,

[2] Compatibility differs from assortment alignability (Gourville and Soman 2005) because it focuses on the inferences made from the consistency of the set rather than the difficulty of choice. Alignability suggests that consumers may be less likely to choose brands whose options vary simultaneously along multiple non-compensatory dimensions (e.g. a car with a sunroof versus a car with a leather interior) because it makes choice between the options more difficult. But regardless of whether the act of choice is easy or difficult, we suggest that if the offered option set is compatible, consumers may perceive the brand more favorably and be more likely to choose it relative to other brands.

Levin and Gaeth 1988; Nowlis and Shiv 2005), we can expect that the higher perceived quality of brands offering greater variety might lead consumers to believe that the high variety brand actually tastes or performs better. If such an effect occurs, it would imply that offering high brand variety can have a long-term effect by generating not only higher trial rates, but also a higher likelihood of repeat purchase.

Our predictions regarding the effect of product variety on brand perception and choice were tested in six studies. The first study focuses on the effect of product set size on brand choice, holding the effective choice set constant. The next two studies employ a between-subjects design to test more directly the effect of product variety on perceived brand quality (Study 2) and taste (Study 3). Study 4 examines our proposed causal path, investigating whether (a) variety's influence on brand choice is mediated by quality perceptions and (b) variety's effect on perceived quality is mediated by the influence of variety on perceived expertise and commitment to the category. The last two studies investigate key boundary conditions. Study 5 tests whether the impact of product variety is still observed when the (same) option set represents only part of the brand's product line. Study 6 examines the moderating role of the option set compatibility.

STUDY 1: THE INFLUENCE OF PRODUCT VARIETY ON BRAND CHOICE

Participants selected a chocolate from one of two chocolate brands that differed in the total number of options they offered. They then tasted the selected chocolate and rated the quality of both brands. Importantly, a subset of the options (the most popular chocolates based on a pilot study) were offered by both brands ("shared options"). We

expected that participants would be more likely to select the shared options from the high variety brand, even though the same chocolates were offered by the small-variety brand.

Method

A table was set up in front of the university bookstore, offering a "Free Chocolate Tasting." The thirty-three participants were presented with two chocolate brands side-by-side and asked to select and taste a chocolate from the display. They were given a description of each brand and told that "the entire set of chocolates offered by each brand appears on the table in front of you." Brand names (Au Duc de Praslin and Arnaud Soubeyran) and descriptions were adopted from Chernev (2003a) and were rotated across participants to control for name/description-specific effects. Since no brand-name effects were found, the data reported below were pooled across brand presentations.

Chocolates were arranged in rows of five chocolate items. One brand offered 30 chocolates (larger variety) while the other offered ten chocolates (smaller variety). The smaller variety brand offered the ten most popular chocolates, whereas the larger variety included 20 additional, less popular items. Thus, participants who selected one of the ten popular chocolates tasted the same chocolate regardless of which brand they selected it from.

Participants were asked to "write down the option you would be most likely to buy and the name of the brand offering this option." After tasting their selected option, they turned over the page and completed the dependent measures. Specifically, they were told the experimenter was "interested in your perceptions of both brands of chocolates (not the specific chocolate you tasted)." For each brand, they rated quality (1 = Low Quality, 7 = High Quality), as well as likelihood of purchase ("If you were

purchasing chocolates, how likely would you be to buy each of the brands", 1 = Not Likely, 7 = Very Likely).

Results

Not surprisingly, participants were more likely to select an option from the brand offering more variety (79%) than the brand offering smaller variety (21%), χ^2 (1, N = 33) = 10.94, $p < .01$. The key test, however, focused on the 73% of all participants who chose one of the shared options. As expected, more participants selected shared options from the brand that offered greater variety, 71% vs. 29% (χ^2 (1, N = 24) = 4.17, $p < .04$). Finally, quality ratings were higher for the brand offering greater variety ($M_{\text{larger variety}}$ = 6.50 vs. $M_{\text{smaller variety}}$ = 5.56; $t(33) = 3.01$, $p < .01$), and participants reported being more likely to purchase the larger variety brand ($M_{\text{larger variety}}$ = 6.03 vs. $M_{\text{smaller variety}}$ = 4.85; $t(33) = 3.74$, $p < .001$).

Discussion

The results of Study 1 demonstrate the impact of product variety on brand choice. Specifically, even when focusing on identical options offered by both brands, participants were more likely to choose a chocolate when it was offered by the high-variety brand. The results also provide a preliminary indication that greater product variety is associated with higher perceived quality. However, this finding of Study 1 might have rival explanations. In particular, the measured differences in quality perceptions could have been due to dissonance reduction and preference for consistency: participants tended to choose from the brand offering greater variety and justified their selection by rating their choice as having higher quality. This finding might also be explained based on research regarding focus-of-comparison effects (e.g. Dhar and Simonson 1992). Further, although

we had no reason to believe that Study 1 suffered from demand effects, the use of a within-subject test does raise that possibility. Study 2 uses a between-subjects design where participants see only one brand, offering either a smaller or larger set of options.

STUDY 2: THE IMPACT OF VARIETY ON QUALITY PERCEPTIONS

Study 2 examines whether the variety a brand offers can influence brand quality perceptions. The design of the study replicates the key characteristics of studies that have been used to support the notion of "too much choice" (e.g., Iyengar and Lepper 2000). This is an important test because one could suggest that variety would only increase brand quality perceptions up until the point where the increased options made the act of choice more difficult. Thus, this study examines whether offering more variety can enhance quality perceptions even though a larger set makes choosing from the set more difficult and frustrating. Using a between-subjects design, participants in Study 2 selected and tasted an option from a chocolate brand, which included either 10 (smaller variety) or 30 (larger variety) options.

Method

The study was conducted in front of the university bookstore. Respondents (N=50) were invited to participate in a "Free Chocolate Tasting" and were randomly assigned to one of two conditions. In the smaller variety condition, the brand offered 10 chocolates arranged on a table in two rows of five, whereas the larger variety group saw 30 chocolates arranged in six rows of five. Each item was labelled (e.g., "English Walnut Cluster"). In the smaller-variety condition, three groups of ten chocolates were rotated

such that every chocolate in the larger variety also appeared in the smaller variety condition.

Participants were informed that researchers were interested in consumer perceptions of the chocolate brand, and that the set of chocolates on the table represented all the chocolates that a particular brand offered. They were told that they could taste any chocolate, after which they were asked to complete a short survey regarding their evaluations of the brand.

Participants were first asked to "look at the names of the chocolates and the chocolates themselves and write down which one you would buy for yourself." After selecting the chocolate, they were invited to taste that chocolate and were then asked to turn the page and complete a number of dependent measures. The first two measures referred to product quality, including (a) "quality of this chocolate brand" (1 = Low Quality, 7 = High Quality), and (b) the positivity of their brand perceptions (1 = Not At All Positive, 7 = Very Positive). The two brand perceptions measures were highly correlated (r = .72) and were averaged to form a Brand Perception index.

Next, participants answered questions regarding the choice process itself (adopted from Iyengar and Lepper 2000). Specifically, participants rated the degree to which the choice process was difficult ("Did you find it difficult to make your selection of which chocolate to pick?") and frustrating ("How frustrated did you feel when making the choice?") on 7-point scales (1 = Not At All, 7 = Extremely).

Results

Consistent with prior research, choosing from the larger set was rated as more difficult ($M_{\text{larger variety}} = 4.16$ vs. $M_{\text{smaller variety}} = 3.08$, $t(48) = 2.05$, $p < .05$) and more

frustrating ($M_{\text{larger variety}} = 3.16$ vs. $M_{\text{smaller variety}} = 2.20$, $t(48) = 2.18$ $p < .05$). However, as predicted, when the brand offered greater variety it was perceived as having higher-quality chocolates ($M_{\text{larger variety}} = 5.72$ vs. $M_{\text{smaller variety}} = 4.80$, $t(48) = 3.04$ $p < .05$).

Discussion

The finding that the variety a brand offers positively influences quality perceptions, even in a case where it makes actual choice more difficult, underscores the effect of product variety on perceived brand quality. Furthermore, increasing the variety a brand offered enhanced quality evaluations of that brand even after participants were given the opportunity to actually experience quality. Thus, the demotivating impact of large choice sets notwithstanding, it seems that offering increased variety can enhance brand perceptions.

This conclusion, however, does not address the possibility that participants perceived the large-variety brand as offering higher quality because they were more likely to identify a chocolate that matched their specific taste from the larger set of options. We examine this rival account in Study 3 by isolating the effect of perceived product variety, such that the effective set of options from which participants can make a selection is held constant across conditions. In addition, Study 3 tests whether greater variety can affect not just perceived quality, but also purchase likelihood and post-consumption perceptions of taste (as opposed to the more abstract dimension of quality).

STUDY 3: THE IMPACT OF PRODUCT VARIETY ON SENSORY EXPERIENCE

Brand quality can be a somewhat ambiguous term, whereas the taste of a food product has a more concrete meaning that involves one of the basic senses. It is thus interesting to examine whether greater variety can also impact perceived taste after consumers get an actual taste of the product. It is also noteworthy that real-world sensory experiences typically involve separate ("between-subjects") evaluations. For example, although consumers may consider different brands at the store or different entrees on a restaurant menu, they often select just one and do not have the benefit of simultaneously experiencing multiple options. We therefore examine, using a between-subjects design, whether selecting an option from a brand that offers a large product assortment produces more positive (perceived) sensory experiences.

In addition, while we controlled for brand quality in Study 2 and rotated the actual stimuli used, one could argue that the observed effect of variety was due to the greater likelihood that the high variety brand offered participants a more preferred option. To control for this rival explanation, Study 3 used a design which ensured that the available option set was identical in the "larger" and "smaller" set. That is, in a between-subjects design we restricted the options participants could select, such that both those shown the small set and those exposed to the large set had the same effective choice set. Specifically, the two groups were shown either 30 chocolates or 13 chocolates, but only (the same) ten items were actually available for choice. Thus the variety the brand offered differed between conditions, but the actual options they could select from did not.

Method

Participants were 90 university staff and students, who were paid $20 for completing a "Chocolate Tasting survey" and additional studies. They were told that the experimenters were "doing a market research study for a brand of chocolates that is considering expanding into the U.S. market" and shown a display containing the set of options offered by that brand. Participants were randomly assigned to one of two chocolate display conditions. In the smaller variety condition, the brand display included 13 chocolates, arranged in two rows of five and one row of three.[3] In the larger variety condition, the brand offered 30 chocolates, arranged in six rows of five chocolates. Chocolate were labelled, and a sign indicated that participants could "select from the top 2 rows only." Thus participants in both groups had the same effective choice set of ten options.

Participants received the chocolate they selected, and after eating that chocolate, completed the dependent measures. Specifically, they rated the taste of their selected option ("How tasty was the chocolate you sampled", 1 = Not at all, 7 = Extremely) and their purchase likelihood ("How likely would you be to purchase this brand", 1 = Not at all, 7 = Extremely).

Results

As predicted, despite the fact that participants chose from the same effective set in both conditions, the presented product variety offered by the brand positively affected the chocolate's taste ratings, $t(88) = 2.45$, $p < .01$. Participants rated the tasted chocolate as more tasty when the brand offered larger variety ($M_{\text{larger variety}} = 6.28$ vs. $M_{\text{smaller variety}} =$

[3] The inclusion of 13 rather than just 10 options in the smaller variety display was designed to have a restricted sub-set of choices in both conditions.

5.78). Furthermore, consistent with the earlier studies, participants who tasted one of the available ten items indicated a higher purchase likelihood when these chocolates were part of the larger chocolate assortment ($M_{\text{larger variety}} = 5.87$ vs. $M_{\text{smaller variety}} = 4.72$, $t(88) = 3.43$, $p < .01$).

Discussion

The results of Study 3 are noteworthy in two respects. First, the positive effect of the brand's product variety was observed even though participants chose from the exact same option set in both the "smaller" and "larger" variety conditions. Second, participants found the same chocolates to be tastier when the brand offered more variety and indicated a higher likelihood of purchasing that brand. These results suggest that a brand offering a larger variety is more likely to be sampled and, after actual experience, consumers are likely to perceive it as superior even on a concrete dimension such as taste.

The finding that variety affected brand perceptions after tasting the chocolate is also important because the impact of quality cues tends to be weaker in the presence of other cues. For example, the significance of price as a quality cue has been shown to be greatly diminished when additional information (e.g., brand name) about the product is available (e.g., Olson 1977). Conversely, the variety cue "withstood" a source of quality information that is likely to be more meaningful than extrinsic cues such as a brand name – the actual taste of the product.

STUDY 4: THE IMPACT OF VARIETY ON PERCEIVED EXPERTISE, COMMITMENT, AND QUALITY

The first three studies provide converging evidence that the product variety offered by a brand can influence quality perceptions and brand choice. However, none of these studies have allowed us to directly investigate the causal path by which these effects occur. In particular, our earlier analysis indicates that (a) the impact of variety on brand choice is due to the effect of variety on quality perceptions, and (b) the influence of variety on perceived quality is mediated by the effect of variety on perceived expertise and commitment to the category. Accordingly, Study 4 tests the effect of product variety (in two categories), focusing on the mechanisms underlying these effects.

Participants received information about a few brands (first binoculars and then chocolates) and were asked to evaluate each brand on a number of dimensions, including product quality and the brand's commitment and expertise in the category. The only difference between conditions was the amount of variety offered by the brand. We expected that (a) brands would be seen as having higher expertise and commitment to the category when they offered greater variety, and (b) expertise and commitment would mediate the influence of variety offered on quality perceptions. To test for a possible halo effect, we included items (price and exclusivity) that were not expected to be influenced by product variety.

Method

Respondents (N = 76) completed a "Brand Perception Study" over the web in exchange for a $5 Amazon.com gift certificate. They were randomly assigned to either the smaller or larger variety condition in each category. They were told that the

experimenters were “interested in how consumers evaluate companies and their brands,” and that they would be shown “the entire product line offered by an existing company or a foreign company that is getting ready to enter the U.S. market with one of their product lines.” Participants first received information about the assortment offered by a brand of binoculars (Bushnell), and after completing the dependent measures, were given information about a chocolate brand (Au Duc de Praslin). In the smaller (larger) variety condition, the binocular brand offered 4 (16) pairs of binoculars and the chocolate brand offered 10 (30) chocolates.

Brand descriptions were adapted from websites of actual products in the category, and the two conditions differed only in the amount of variety the brand offered. For the binoculars brand, participants read that “Bushnell offers durable and affordable binoculars, in compact to full-sized, with fully coated optics. InstaFocus® system for fast focus on moving targets. Non-slip rubbergrip pads for secure grip in all weather conditions. Available in 4 (16) different models, it’s easy to see why Bushnell is a good choice.” For the chocolate brand, participants read “Created in the 17th century, this chocolate confectionary was named after the Duc De Praslin. Since then Duc De Praslin chocolates have been a legendary symbol of "art de vivre". These delectable chocolates are a mixture of distinction, frivolity, and improvisation. Available in 10 (30) different varieties, these chocolates are the true taste of a historic creative culture” (adapted from Chernev 2003a). Participants were then presented with an array filled with images of the brand’s product offerings (rows of four options in the binocular category and rows of five options in the chocolate category).

After reading the description and viewing the assortment, participants rated the brand on a number of dimensions with question order randomized to control for order effects. They rated product quality: "the likely quality of the company's binoculars/chocolates" (1 = Very low quality, 7 = Very high quality). Participants also rated the category expertise of the brand: "How much expertise do you think the company has in the product category" and "How much knowledge do you think the company has regarding the product category" (1 = Very little, 7 = A great deal) and perceived commitment to the category: "How committed do you think the company is to success in the US binoculars/chocolates market," "How committed do you think the company is to the product category," and "How invested do you think the company is in the product category" (1 = Not at all, 7 = Very highly). As expected, the five expertise and commitment items were highly correlated ($\alpha > .83$) and were averaged to form an expertise-commitment index.

As indicated, two additional measures were included to test whether ratings were driven by a halo effect, whereby the larger variety brand was rated more favorably on all dimensions, including those not implied by our theoretical analysis. Specifically, although it is conceivable that a brand offering a greater variety would be assumed to be more exclusive and/or cost more than a brand offering fewer items, that relation is likely to be weaker. Accordingly, respondents also rated the larger/smaller variety brand in terms of price ("What do you think the price of the brand is relative to other binoculars/chocolates on the market," 1 = Much cheaper, 7 = Much more expensive) and exclusivity ("How exclusive is the brand relative to the typical US binocular/chocolate brand," 1 = Much less exclusive, 7 = Much more exclusive). Finally, in each category,

respondents were told to imagine that they were looking to buy a certain type of binoculars/chocolate that was offered by both the target brand (Bushnell/Au Duc de Praslin) and another brand (Minolta/See's), and asked which brand they would choose.

Results

Assortment Effects on Choice, Quality Perceptions, and Expertise/Commitment. Table 1 summarizes the results. As predicted, the product variety offered influenced brand choice; participants were more likely to choose the target brand over the alternative brand when the former offered greater variety. Specifically, 65% of the respondents indicated they would purchase the target binocular brand when it offered larger variety, compared to 46% when it offered smaller variety, χ^2 (1, N = 76) = 2.69, $p < .10$. Similarly, 72% chose the target chocolate brand when it offered larger variety, compared to 49% who chose it when it offered smaller variety, χ^2 (1, N = 76) = 4.26, $p < .04$.

As expected, product variety influenced quality perceptions and perceived expertise/commitment whereas it did not influence price or exclusivity. In both categories, brand quality perceptions were higher when the brand offered greater variety (binoculars, $t(74) = 2.56$, $p < .01$; chocolates, $t(74) = 2.93$, $p < .01$). Variety also impacted positively perceived expertise and commitment to the category: when the brand offered larger variety, it was perceived as having greater expertise-commitment ($t(74) = 4.34$, $p < .001$ and $t(74) = 3.37$, $p < .001$). Finally, product variety did not affect either perceived price (p's > .14) or perceived exclusivity (chocolates, p > .25)[4], indicating that a halo effect did not play a significant role.

[4] Variety did have a marginally significant effect on perceived exclusivity in the binocular category, $t(74) = 1.83$, $p = .07$, but the effect was actually in the opposite direction; perceived exclusivity was higher in the low variety condition (M = 4.81 vs. 4.31).

Mediational Analyses. We next performed two mediational analyses (Baron and Kenney 1986) to test our hypothesized causal path. Specifically, we tested (a) whether quality perceptions mediated the influence of variety on brand choice, and (b) whether perceived brand expertise and commitment to the category mediated the impact of variety on quality perceptions.

In our first set of analyses, all four conditions for mediation were met in both categories, suggesting that quality perceptions fully mediated the influence of product variety on brand choice (see Figure 1). Variety offered was correlated with brand choice (binoculars $\beta = .19$, $p < .10$ and chocolates, $\beta = .24$, $p < .05$, step 1) and was also correlated with quality perceptions ($\beta = .29$, $p < .01$ and $\beta = .32$, $p < .01$). However, when both variety offered and quality perceptions were simultaneously included in a regression predicting brand choice, quality perceptions were a significant predictor ($\beta = .43$, $p < .001$ and $\beta = .25$, $p < .05$) but variety offered was not significant ($\beta = .07$ and $\beta = .16$, *ns*). Finally Sobel tests (Sobel 1982) revealed significant effects for both categories (binoculars $z = 2.68$, chocolates $z = 4.39$, p's $< .01$), indicating that the effect of variety offered on brand choice was fully mediated by quality perceptions.

All four requirements were also met in our second set of analyses, indicating that perceived expertise-commitment did in fact fully mediate the relationship between variety and quality perceptions (see Figure 1). Variety offered was correlated with quality perceptions (binoculars, $\beta = .29$ and chocolates, $\beta = .32$, p's $< .01$, step 1) and was also correlated with perceived expertise-commitment ($\beta = .45$ and $\beta = .37$, p's $< .001$, step 2). However, when both variety offered and perceived expertise-commitment were simultaneously included in a regression predicting quality perceptions, perceived

expertise-commitment was a significant predictor ($\beta = .77$ and $\beta = .61$, *p's* < .001, step 3), whereas product variety was not ($\beta = .08$ and $\beta = .10$, *ns*, step 4). Both Sobel tests also revealed significant effects (z's > 2.97, *p*'s < .01), indicating that the effect of variety offered on quality perceptions was significantly decreased by the introduction of the mediator (i.e., expertise-commitment).

Discussion

Study 4 again demonstrated that offering greater variety positively influences brand choice share and perceived brand quality. There was also no corresponding effect of variety on measures we did not expect it to influence, price and exclusivity. Furthermore, the results support our analysis regarding the mechanism underlying these effects, showing that the impact of brand variety on choice is mediated by quality perceptions, and that the impact of variety on quality perceptions is mediated by brand expertise-commitment.

STUDY 5: THE ABILITY TO INFER QUALITY AS A MODERATOR OF THE EFFECT OF PRODUCT VARIETY ON BRAND CHOICE

Although Studies 1-4 demonstrate a robust positive effect of product variety on brand choice and perceived quality, one would not expect this effect to hold under all conditions, and it might even reverse in some situations. It is thus important to examine some of the boundary conditions for this effect, which is the goal of Studies 5 and 6.

The proposition that variety influences choice through its impact on perceived implies that the ability to infer quality differences from the variety offered should moderate the effect of product variety on perceived quality. Accordingly, if the presented

product variety is less informative about quality, then the impact of variety on brand choice share should be reduced or eliminated. Study 5 examines this prediction.

Similar to Study 1, participants were shown chocolates sold by two chocolate brands, offering smaller or larger variety, and asked to select a chocolate from one of the brands. We also manipulated the ability to infer brand quality differences from variety: half the participants were informed that the chocolates displayed were the complete product assortment each brand offered ("complete" assortment condition), while the other half were told the displayed products were the chocolates that were available at the time ("partial" assortment condition). We expected that the ability to infer quality differences from variety would be greater in the former condition, leading to stronger effect of assortment size on brand choice.

Method

Respondents (N = 70) were paid three dollars to participate in a Choice Study. They sat next to a round table on which the product offerings of two chocolate brands were displayed. Brand names, descriptions, and counterbalancing were identical to those used in Study 1.

Participants were randomly assigned to condition. In complete assortment (partial assortment) condition they were told:

> "All [*Some*] of the chocolates offered by each brand appear on the table in front of you. For each brand, the selection provided is the full range [*some*] of chocolates they offer, that is, all the different options they make [*the particular options shown are those that happened to be available in the box size we could purchase*]." (italics added)

They were then asked to "write down which chocolate you would buy for yourself." After tasting the selected chocolate, they turned the page and rated the quality of both brands (1 = Low Quality, 9 = High Quality).

After completing the study, participants were thanked for their participation and offered the following gift options: "As a compensation for participating in the study, you can choose to receive either three dollars or a box containing four pre-selected chocolates from Au Duc de Praslin or a box containing four pre-selected chocolates from Arnaud Soubeyran. Which would you prefer?" Boxes of chocolates were visible behind the chocolate display for each brand, and participants indicated their decision.

Results

Assortment Effects on Quality Perceptions and Choice. We expected that participants would perceive smaller quality differences between the high and low variety brands in the "partial" than in the "complete" assortment condition. A 2 (Perceived Assortment: "Complete" vs. "Partial") x 2 (Variety Offered: Smaller vs. Larger) repeated measures ANOVA was performed on brand quality perceptions. Consistent with the earlier studies, there was a main effect of Variety Offered ($F(1, 67) = 5.44$, $p < .05$), indicating that participants rated the chocolate brand offering greater variety as having higher quality ($M_{\text{larger variety}} = 6.96$ vs. $M_{\text{smaller variety}} = 6.48$). This effect, however, was qualified by a significant Perceived Assortment x Variety Offered interaction ($F(1, 67) = 6.14$, $p < .05$). As expected, participants perceived a significant quality difference between the brands in the "complete" assortment condition ($M_{\text{larger variety}} = 7.11$ vs. $M_{\text{smaller variety}} = 6.11$ $F(1, 67) = 12.58$, $p < .001$) but not in the "partial" assortment condition, ($M_{\text{larger variety}} = 6.84$ vs. $M_{\text{smaller variety}} = 6.84$, $F < 1$).

We next examined whether the reduced ability to infer quality differences affected brand choice. As expected, participants were more likely to select the brand that offered more options (χ^2 (1, N = 70) = 14.63, p < .01) but this effect was moderated by perceived assortment (χ^2 (1, N = 70) = 4.50, p < .05). Specifically, while participants in the "complete" assortment condition were significantly more likely to select an option from the brand that offered greater variety (84%) than the brand that offered less variety (26%, χ^2 (1, N = 37) = 16.89, p < .01), the effect was less pronounced and not statistically significant in the "partial" assortment condition (61% vs. 39%, χ^2 (1, N = 33) = 1.48, p >.2; see Figure 2).

Mediational Analysis. The influence of perceived assortment on brand choice was fully mediated by difference in quality perceptions between the brands. Participants were more likely to choose the greater variety brand in the "complete assortment" condition, but we examine whether, as we hypothesized, this differences was driven by changes in the difference between quality perceptions of the two brands. Perceived assortment was correlated with brand choice (β = .26, p < .03, step 1) and was also correlated with difference in quality perceptions between the brands (β = .28, p < .02, step 2). However, when both perceived assortment and difference in quality perceptions between the brands were simultaneously included in a regression predicting brand choice, difference in quality perceptions was a significant predictor (β = .40 p < .001, step 3), whereas perceived assortment was not (β = .15, p > .20, step 4). The Sobel test also revealed a significant effect, z = 1.99, p < .05, indicating that the effect of perceived assortment on brand choice was fully mediated by the difference in quality perceptions.

Actual Purchase. We also tested the effect of brand variety in the "partial" and "complete" conditions. Since most participants (76%) preferred the three dollars to chocolates, the effective sample sizes were small. However, selections of those who did choose chocolates paralleled the above brand choice results. That is, participants who selected chocolates over money tended to purchase chocolates from the brand offering greater variety (χ^2 (1, N = 14) = 4.57, $p < .05$). All of the chocolate "purchasers" in the "complete" assortment condition chose the brand offering greater variety, compared to only 57% of those in the "partial" assortment condition (χ^2 (1, N = 14) = 3.82, $p = .05$).

Discussion

Consistent with our prediction that the effect of variety on brand choice is in part driven by quality inferences, the results of Study 5 demonstrate the moderating impact of the ability to infer quality differences on the variety – brand choice link. The product variety offered only influenced which brand participants chose when they could make brand quality inferences based on the variety offered. Further, difference in quality perceptions between the brands fully mediated the relationship between perceived assortment and brand choice. Finally, the results suggest that inferences based on the product variety offered by a brand can affect actual purchase behavior with real consequences.

STUDY 6: THE MODERATING ROLE OF OPTION SET COMPATIBILITY

Study 5 identified one boundary condition regarding the positive effect of product variety on brand perception, indicating that this effect applies only when the observed set of options is informative with respect to the entire variety offered by the brand. Study 6

examines a second boundary condition that relates to the composition of the product variety. Specifically, offering greater product variety of compatible options that reflect a particular area of expertise (e.g., dark chocolate, mountain bicycles) is expected to have a positive effect on perceived quality. Conversely, offering a wide variety of what might be seen as incompatible options, such as very expensive and very cheap wines, may signal lack of focus and raise doubts about the quality of the brand's product line. That is, the basic notion of specialization and expertise implies doing a few things very well, without trying to cover the entire spectrum. Although a company may excel in a wide range of related product types (e.g., road and mountain bikes, Japanese and Chinese food, or ice skates and running shoes), consumers are likely to employ a heuristic whereby breadth tends to come at the expense depth, especially when there is limited information about quality.

To test whether the positive effect of product variety on perceived brand quality is eliminated when the variety is less focused, we gave participants information about the product offerings of different bicycle brands and asked them to rate each brand's quality, expertise, and commitment. The brands differed in both the number of options they offered, and whether the variety was compatible. We expect that greater product variety will enhance perceived quality, expertise, and commitment only when the set of options offered by the brand are compatible.

Method

Sixty-four consumers, who are members of a web-based subject pool, completed a "Brand Perception Study" in exchange for a chance to win a $20 online gift certificate. They were given information about different bicycle brands and rated each one.

Respondents were told that a number of bike brands had recently been rated by a cycling magazine and that the experimenters were interested in whether they could predict the overall quality rating given to these brands.

The brands differed in both the number of options they offered and whether the variety was compatible. Specifically, one brand offered two road bikes (made with different frame materials); a second brand offered the same two road bikes as well as five additional road bikes (compatible high variety); a third brand (incompatible high variety) the same two road bikes plus five bikes for different use types, including mountain bikes and city cruisers. Respondents were then asked to guess how the magazine rated the quality of each brand using a 1 (Low Quality) to 7 (High Quality) scale. On the next page, they also rated each brand on the same expertise and commitment items used in Study 4 (α = .88, averaged to form an index).

Results

Responses were analyzed using a 3 (Variety Offered: Low vs. High Compatible vs. High Incompatible) repeated measures ANOVA. As expected, the variety offered influenced perceptions of expertise and commitment ($F(2,20) = 12.98$, $p < .001$); however, offering greater variety increased perceptions of expertise and commitment only when it was compatible (M = 6.15 vs. 4.62, $F(1,21) = 10.98$, $p < .005$). When the variety was incompatible, it slightly decreased brand perceptions (M = 4.29 vs. 4.62, $F < .5$; $p > .2$).

Offering increased variety only increased perceptions of expertise and commitment when it was compatible, so we expect offering more options should only increase quality perceptions under those conditions. Consistent with this prediction, there

was a main effect of product variety positively on quality perceptions ($F(2, 20) = 15.78$, $p < .001$), but greater variety only enhanced quality perceptions when the set of options was focused (M = 6.27 vs. 4.82, $F(1,21) = 13.31$, $p < .005$). When the options offered were unfocused, offering more variety slightly decreased quality perceptions (M = 4.05 vs. 4.82, $F(1,21) = 3.21$, $p = .09$).

Discussion

Results of Study 6 demonstrate an important boundary condition; the positive effect of greater product variety is observed only when the options are compatible, representing expertise in and commitment to the category.

A follow-up study also extended these findings using a between-subject design. Participants in that study rated the quality of a restaurant that offered either low variety (i.e. a few Thai food options), greater compatible variety (the same options plus five other Thai food options), or greater incompatible variety (i.e., a few Thai options plus a five non-Thai options, such as egg rolls). Replicating the results of Study 6, participants perceived the brand more favorably (both in terms of expertise/commitment and quality) only when the options included in the expanded set were compatible.

GENERAL DISCUSSION

The number of product variants offered by a firm in a category is a key marketing mix variable. Recent research has provided evidence for both the benefits and downsides of offering greater product variety. On the one hand, more options could allow the firm to offer a better match to varied customer tastes and segments. However, offering more options can also be frustrating and demotivating (e.g., Chernev 2003a; 2003b; Iyengar

and Lepper 2000), leading to decision deferral. The present research suggests a separate route through which the variety offered may influence which brand consumers choose. The present research is particularly relevant to common situations in which the relevant question is which brand a consumer chooses, rather than whether a choice from a given set of options will be made. In this section, we review the key findings and discuss their theoretical and practical implications.

Summary of Findings and Theoretical Implications

The present research demonstrates a robust effect of compatible product variety on brand quality perceptions and brand choice, even when the effective option set is held constant. The evidence indicates that product variety influences perceived brand quality both when evaluating a single brand (Studies 2 – 4) and when choosing between brands (Study 1 and 5), and this effect is observed even when variety makes the act of choice itself more difficult and frustrating (Study 2). In addition, the effect of product variety on perceived quality and on a concrete dimension such as taste persists even after consumers experience the product (Studies 1-3 and 5), suggesting that product variety can also enhance repeat purchase rate. The influence of product variety on brand choice mirrors its effect on quality perceptions, which, in turn, is mediated by the effect of variety on perceived brand expertise and commitment to the category (Study 4).

We identified two boundary conditions regarding the effects of product variety. First, consistent with our analysis, the positive effects of variety occur only when the observed set of options is informative with respect to the entire variety offered by the brand (Study 5). Second, as shown in Study 6, the composition of the product variety, in

particular, the degree to which it is seen as compatible and reflecting specialization is a key moderator of the impact on variety on perceived quality. In fact, unfocused variety may sometimes backfire and negatively affect perceptions of commitment to excellence in a well-defined product category.

Other aspects of the composition of the set of options a brand offers might also moderate the effect of product variety. For example, unique, exotic flavors, or a particularly high cocoa content chocolate, are likely to have greater impact on perceived quality than more mundane product variants. Even if few consumers actually choose such items, their presence can create a certain aura and enhance the perceived expertise of the brand and its commitment to the category.

The finding that variety is used as a cue to quality suggests that offering greater product variety might serve as a heuristic that helps simplify the very choice difficulty it creates. Especially in categories where consumers have little prior knowledge, they may use the variety brands offer as a heuristic to resolve brand choice. Thus, although larger product variety may enhance choice difficultly, the reliance on such simple heuristics, such as "choose the brand offering the greatest variety of options," is likely to increase as well, consistent with the concept of effort-accuracy tradeoffs (e.g., Bettman et al. 1998). Consequently, a brand's decision to offer greater product variety may have the dual impact of both increasing the effort necessary to choose and providing a heuristic cue that simplifies that choice.

Future research might investigate additional ways in which the variety of options from which an individual makes a selection affects the perception of the chosen option. In particular, in addition to influencing perceived quality, the variety offered might affect

the perceived fit between the option consumers select and their tastes. Specifically, holding the "true" fit between an option and an individual's (often malleable) tastes constant, the mere fact that an option was selected from a large set of varied options may enhance the perceived match between that option and the consumer's preferences. For example, a strawberry-banana yogurt might be seen as providing a better fit to one's ideal yogurt preference when that option is selected from a set of 60 yogurts than when it is selected from a set of just three yogurts.

Future research might also examine the implications of the present findings with respect to recent research that has emphasized the disadvantages of offering large choice sets. This issue can be viewed as reflecting processes that arise at different stages in the decision process (e.g., Kahn and Lehmann 1991; Sood, Rottenstreich, and Brenner 2004). Consumers often decide both which brand to choose as well as which option to select from that brand, and these decisions can be made sequentially or simultaneously.[5] Too many options can lead to choice deferral at either stage of the process, and while the variety offered may not reduce the difficulty of option choice, it can often help consumers choose between brands.

Thus, although there are many cases in which consumers are unwilling to defer choice, for the cases in which deferral is an option, it would be interesting to examine the conditions under which offering more variety has a positive overall effect. The present research did not force consumers to make a choice, but it also did not explicitly provide the option to defer choice. Future research might examine how the variety a brand offers

[5] Of course, one can decompose the decision process based on other dimensions as well. For example, consumers may first select a sub-type (e.g., plasma HDTV) and then make a specific choice based on other attributes. However, in the context of this and many other consumer studies, the brand cue is particularly important, because it is reasonable to make inferences about a brand based on its offerings, and it thus provides an effective way to decompose the decision process.

influences the overall choice likelihood. One might expect that offering variety may be like a commons dilemma, where it is better for each individual brand to offer more options, but each additional offering hurts overall customer satisfaction with their choice from the category and increase the likelihood of choice deferral.

In summary, the present research adds to the existing evidence regarding the impact of product assortments on consumer preferences (see, e.g., Simonson 1999), but going beyond prior research, it indicates that the size of a brand's assortment can be a potent quality cue. Thus, marketers will be well-advised to consider and try to measure both the direct and indirect contribution of individual products to consumers' perception of the product line and likelihood of brand choice.

TABLE 1

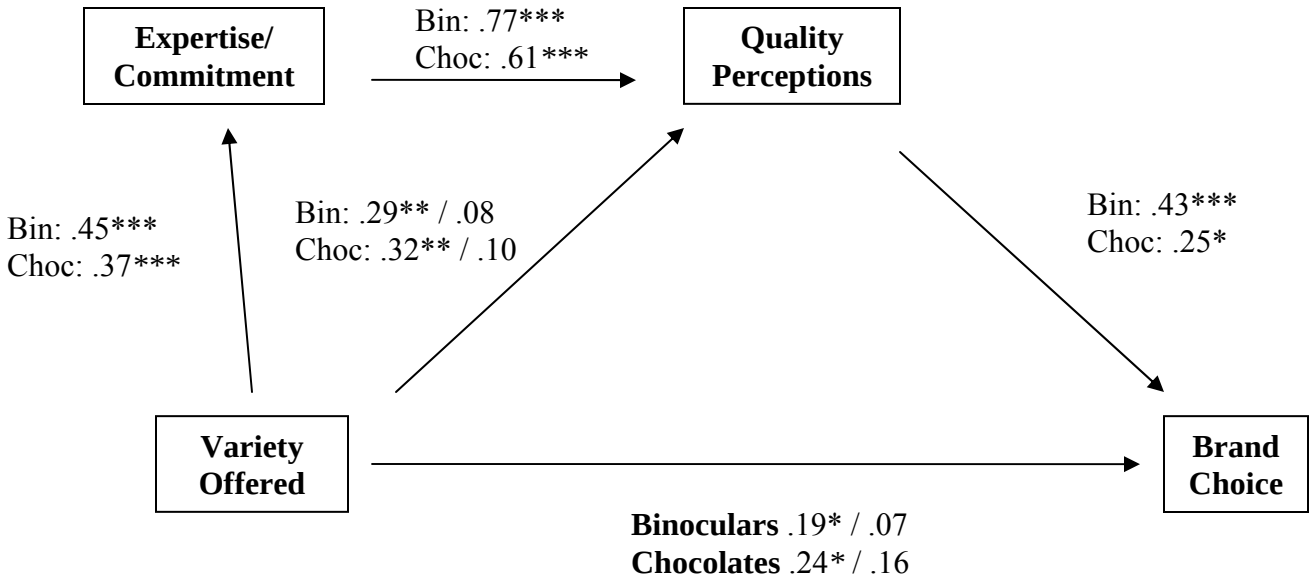
Study 4: Influence of Variety Offered on Choice Share, Perceptions of Quality, and Category Expertise / Commitment

		Choice Share	Quality Perceptions	Commitment/ Expertise
Binoculars	**Larger Variety**	65%	5.62 (0.98)	6.09 (0.78)
	Smaller Variety	46%	5.00 (1.12)	5.16 (1.04)
Chocolates	**Larger Variety**	72%	5.85 (0.81)	5.90 (0.62)
	Smaller Variety	49%	5.08 (1.40)	5.26 (1.00)

Note: Cell values reflect choice share and means (standard deviations) on the other dependent variables.

FIGURE 1:

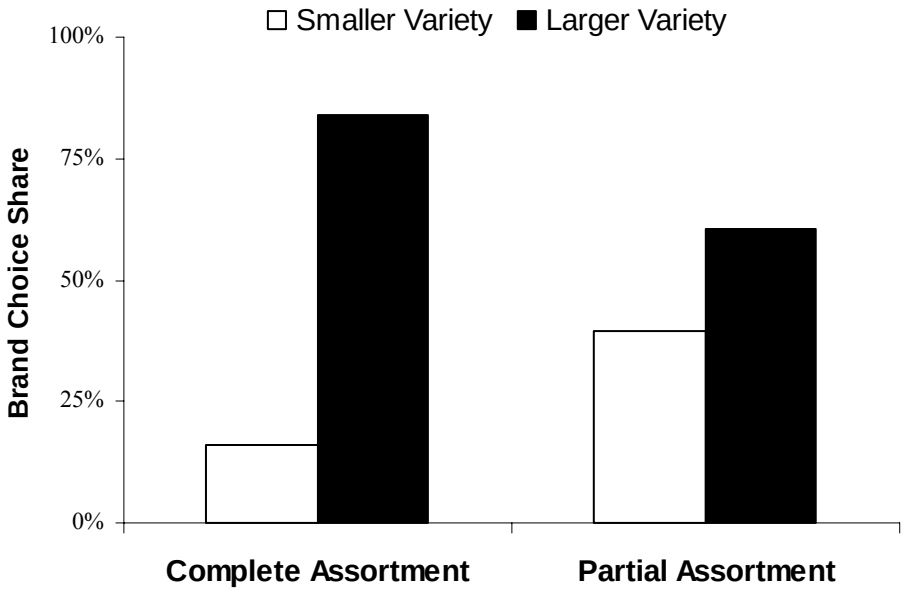
Study 4: Mediational Analyses



Note: The first coefficient on given path represents the direct effect without the mediator in the model. The second coefficient represents the direct effect when the mediator is included in the model.*, $p < .05$, ** $p < .01$, *** $p < .001$, one-tailed.

FIGURE 2

Study 4: Influence of Perceived Assortment on Brand Choice



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