Preference Exploration and Learning: The Role of Intensiveness and Extensiveness of Experience

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In this article, the authors partition the construct of experience and examine the impact of two specific types of experience on preference learning. Findings from the first study demonstrate that experience affects preference learning. In the next two studies, the authors' theory that experience can be partitioned into intensiveness (i.e., amount) and extensiveness (i.e., breadth) of experience is supported; they suggest that the latter exerts a larger influence on preference learning. In the final three studies, the authors investigate three factors that lead to the selection of novel alternatives. They demonstrate that the availability of a quality signal that favors novel options (study 4), the similarity of an advocate of a novel option (study 5), and the favorability of the initial experience in a novel environment (study 6) greatly influence preference exploration.

"Not alone *age* matures one, but *breadth of experience* and *depth of reflection*."
—Ross (1948, p. 214)

People's preferences change dramatically over time. In most cases, the changes are too slow to draw attention, but when people look back at their past preferences, they sometimes find it shocking to realize how much they have changed. These changes cover the gamut from food to entertainment, and they occur in most consumption domains. In addition, they include aspects for which people both increased and decreased their liking over time. A few examples of such changes include realizing that grilled cheese sandwiches are not the culinary ideal anymore, developing a taste for beer, and looking forward to visiting a modern art museum. Often, such changes occur over a consumer's lifetime. Yet knowing that preferences change is different from understanding how and why they change.

The primary event that influences preference learning is experience. When examining research on this effect, we identify two classes of factors that influence preference learning. One class of factors (e.g., biology and exposure) has a direct influence, whereby preferences respond to lower-order forces such as biological adaptation and sensory feedback. The second class of factors (e.g., informational goals and social learning) has an indirect influence, whereby preferences are subject to higher-order forces such as cognitive representations of desirable end states.

We investigate the role of repeated experience with similar options versus the impact of experience with a greater variety of options. Depending on the level of standardization, even repeated experience with the same product includes some variability. Yet the selection and experience of novel options (or preference exploration) should lead to greater variability of experience in a domain. The key question we

investigate herein is the relative impact of each type of experience on preference learning. To do so, we refine the experience construct by partitioning it into intensiveness (i.e., amount) and extensiveness (i.e., breadth) of experience. In addition, we examine the relative ability of each type of experience to predict the amount of preference learning.

In the first study, we examine a case in which preferences for beer naturally change over long periods of time and with people's experiences. In the next two studies, we examine two particular aspects of experience (i.e., intensiveness and extensiveness) and find that extensiveness plays a larger role in preference learning. In the final three studies, we explore three factors that might affect a person's decision to experiment with novel consumption alternatives: (1) availability of a quality signal that favors novel options, (2) similarity of an advocate of a novel option, and (3) the favorability of the initial experience with a novel option.

EXPERIENCE AND PREFERENCE LEARNING

What is known about experience and preference learning? In the sections that follow, we examine the role of mere exposure and repeated experience on preference learning to determine the impact of both breadth and amount of experience. Again, experience with an option is believed to confer a direct impact on preference learning. In addition, we examine indirect factors that affect the selection of options for trial to determine factors that lead to the selection of novel alternatives, or preference exploration.

Role of Biology and Mere Exposure

Notably, there appear to be few biological predispositions that drive preferences. The two main biological primitives are an innate liking of sweet tastes, which, in nature, are normally correlated with calories, and an innate dislike of bitter tastes, which are correlated with the presence of toxins (Lawless 1985).

One aspect of experience that is known to affect preferences is simply exposure to new options. Classic research on mere-exposure effects demonstrates that exposure leads to an increase in liking, even when participants were not aware that they had been previously exposed to the stimuli (Zajonc 1980). Furthermore, Janiszewski (1993) shows that mere exposure to a brand name or product category leads to a more favorable attitude toward that brand even when participants were not aware of the initial exposure.

Research on the development of food preferences has produced valuable insights into the impact of mere exposure on preference. Torrance (1958) examined mere exposure as the key mechanism leading to enhanced liking for edible substances. An early study examined the use of Pemmican (dried beef and pork mixed with suet) as a staple during survival training for the U.S. Air Force (Torrance 1958). Prior experience with Pemmican led to more favorable reactions and a more favorable attitude toward future use. More important, those who had tried Pemmican previously and reported not liking it reacted even more favorably than those who had not tried it at all. In the next section, we examine additional food preference studies that are focused on the impact of repeated exposure.

Role of Repeated Exposure

Rozin and Schiller (1980) examined the development of a taste for chili peppers. Their goal was to examine the development of affect in the context of acquiring taste for chili peppers and, specifically, the irritation associated with chili peppers, which they dubbed the "chili burn." Rozin and Schiller studied how people in a rural village in the highlands of Mexico formed preferences for chili peppers versus North American participants. In general, they found that in the Mexico sample, there was a gradual increase in preferences for chili peppers over a period of two to eight years that began at around the age of three to five years. Beginning at about the age of three, mothers would expose their children to chili peppers in the form of salsa. In general, at about the age of five, children exposed themselves to chili peppers that were available (i.e., salsa).

Rozin and Schiller (1980) examined (and mostly discounted) a host of reasons for the learned preference for chili peppers (e.g., receptor desensitization, associative learning, opponent process, benign masochism). Ultimately, they contend that mere exposure and social factors are the most likely mechanisms leading to favorable attitudes toward chili peppers. Note that the social factor was not in the form of social pressure and was not believed to be the most important factor. Instead, they claim that exposure to gradually increasing amounts seemed to be the major factor.

Pliner (1982) used unfamiliar tropical fruit juices (e.g., guava, mango) and exposed participants zero, five, 10, or 20 times (without their knowledge of the specific number of exposures) to the juices. Increased exposure led to increased liking. In addition, Pliner found directional support for the notion that exposure led to increases in

liking after a week delay. Birch and Marlin (1982) tested the effect of exposure on food preferences for two-year-old children. As many parents would predict, children preferred sweeter foods and foods with which they were familiar. In addition, preference was shown to be an increasing function of exposure frequency. Crandall (1984) showed that exposure to a novel food (doughnuts to Alaska cannery workers) led to increased consumption over time.

Finally, Beauchamp, Bertino, and Engelman's (1983) study offers insights into the role of repeated exposure in altering preferences on a more basic level. The authors showed that preferences for salt could be altered by experience. They put participants on a low-sodium diet for several months while continually examining their preferred level of salt in foods (e.g., soup, crackers). Participants on a low-sodium diet came to prefer soup and crackers with less salt than they had originally preferred. Unlike the exposure studies mentioned previously, this study shows how experience can alter preferences at a more fundamental level (e.g., a spice that cuts across many types of food) and the key role of repeated exposure in preference learning.

Factors That Promote Preference Exploration

One account of how preferences are developed in a novel environment is found in the recent award winning work of Heilman, Bowman, and Wright (2000). Heilman et al. examined the evolution of preferences for parents who were new to the diaper market. In their work, initial choices in an environment are believed to be driven by two competing goals: (1) the desire to obtain information about the product category and (2) the desire to

avoid risky alternatives. Heilman et al. posit the existence of different stages of buying, in which information is collected and then consolidated into a stable preference for the product that provides the most utility for the consumer. Although the desire to learn about various options contributes to preference exploration, other social processes are also believed to drive learning about which options are worthy for trial.

One critical factor spawning experimentation is consumers' interaction with their social environment. Social learning theory focuses on observing and modeling behaviors, attitudes, and emotional reactions of others (Bandura 1977). According to Bandura (1977, p. 22), a key tenet of social learning theory is that "[l]earning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do." Thus, if an observer feels sufficiently close to a model that is observed to use a particular product, he or she may be inclined to experiment with the same product. Consistent with the idea that social learning theory can be applied to preferences, Bourdieu (1984) proposed that styles of consumption are means not only of deploying economic resources but also of exhibiting "cultural capital." In Bourdieu's conceptualization, the display of goods is part of a system of reputation involving judgments of good taste, which results in members of different social classes systematically preferring certain items over others. Social distinction is marked by tastes that were formed as part of "class habitus" and were recognizable between individuals and groups in society. These ideas are consistent with the notion that consumers can use products as a form of impression management and as a means of defining themselves (Belk 1988; Wood and Hoeffler 2005).

Finally, social learning does not always need to lead to assimilated preferences with the target or model group. While studying group behavior, Brewer (1991) put forth the notion of optimal distinctiveness, whereby one's social identity is the result of a tension between two goals: assimilation and differentiation. If individuals tend to avoid construal of their self that is either too personalized or too inclusive (Brewer 1991), they may be likely to try products that are similar or different from the groups with which they identify.

Comparing the Role of Intensiveness and Extensiveness of Experience

We reviewed the extent literature and identified two broad classes of factors that exert influence on preference learning. As mentioned previously, one class of factors (e.g., biology and exposure) has a direct influence, whereby preferences respond to lower-order forces such as biological adaptation and sensory feedback. The second class of factors (e.g., informational goals and social learning) has an indirect influence, whereby preferences are subject to higher-order forces such as cognitive representations of desirable end states. Both classes are important because they relate to the way a person learns about and constructs preferences. Despite the wide range of literature covered, however, we found a dearth of research on the role of breadth of experience in the preference formation process. Thus, we attempt to remedy this shortcoming by refining/partitioning the "experience" construct by introducing two new subconstructs: intensiveness and extensiveness of experience.

We define intensiveness of experience as the amount or frequency with which a person has been exposed to a product category. For example, a consumer who has been drinking Chardonnay for the past 20 years has accumulated a high intensiveness of experience within the wine category. Alternatively, we define extensiveness of experience as the breadth or the variety of exposure a person has accumulated in a product environment throughout his or her consumption history. For example, a consumer who completes a two-week tour of California's vineyards for his or her twenty-first birthday may have limited intensiveness of experience with wine, yet his or her extensiveness may be well developed. Indeed, it can be expected that during these two weeks, the consumer benefited from a wider spectrum of experiences with the category than many regular wine drinkers whose exposure to wine has been more frequent but more limited in breadth.

In essence, our conceptual effort focuses on refining the experience construct and partitioning different types of experience (intensiveness and extensiveness), whereby we try to disentangle the respective impact of each type on the preference learning process. The partitioning of the construct of experience is analogous to the partitioning that Alba and Hutchinson (1987) perform on the construct of consumer knowledge. In our conceptualization, intensiveness is akin to the familiarity dimension of "the number of product related experiences," whereas extensiveness is a precursor to the expertise dimension defined by "the ability to complete product-related tasks successfully" (Alba and Hutchinson 1987, p. 411).

Intensiveness and extensiveness of experience are likely to be positively correlated in the real world, yet they need not accrue simultaneously. As suggested

previously, it is possible to develop one aspect of experience without necessarily enriching the other. In light of this argument, we contend that a person's preference formation will be influenced by the nature of prior experience. More specifically, the goal of this research is to examine whether preference learning (as indicated by the ability to identify, predict, and appreciate higher-quality products) is afforded more readily by intensiveness or extensiveness of experience.

Empirical Approach

We explore these questions in six experiments that examine the respective roles of intensiveness and extensiveness of experience in preference learning. Note that because we expect that these two types of experience are correlated, we attempt to isolate the preexisting level of each type of experience. We then examine which type has the greater impact on preference learning. In the first three studies, we use the domain of beer to investigate the impact of preexisting levels and types of experience. Beer is an excellent environment to examine the impact of experience on learning because it allows for large contrasts among individual prior experiences and because it is rich in normative knowledge.

In study 1, we examine whether we can demonstrate and capture preference changes that accrue over long periods of time. In studies 2 and 3, we use more-refined measures of the experience construct and additional measures of preference learning to examine the relative impact of intensiveness and extensiveness of experience. In the final three studies, we focus our investigation on factors that lead to the selection of more

novel options in the real world. In these studies, we manipulate the environment rather than measure prior experience. Specifically, we examine the availability of a quality signal that favors novel options (study 4), the similarity of an advocate for a novel option (study 5), and the importance of a favorable initial experience in a novel environment (study 6) in promoting preference exploration.

STUDY 1

We conducted a field study to document the existence of preference learning in a naturalistic setting. We wanted to determine whether consumer preferences changed as people gained experience in a domain and whether more-experienced consumers would demonstrate signs of more-developed preferences.

Participants and Procedure

Participants were undergraduates (n = 38) at a large southeastern university who volunteered to participate in the study. The stimuli used were five beers that varied in quality and were available near the college campus. We manipulated differences in quality using price. The beers selected varied in price, from $7.99 per six-pack to $2.69 per six-pack. The prices per six-pack were as follows: Anchor Steam: $7.99; Samuel Adams: $5.99; Budweiser: $3.99; Miller Genuine Draft: $3.49; and Schlitz: $2.69.

Participants ranked the different beers according to their own preferences and on the basis of their prior knowledge about these beers. After ranking the beers, participants proceeded to engage in a blind taste test of all five beers. Participants were given five

Dixie cups labeled A through E, tasted each of the beers, and then spit out the beer into an empty glass. Between each beer taste, participants were instructed to rinse out their mouths with water to avoid cross-contamination among trials. After tasting all the beers, participants were asked to rank order the five beers on the basis of the quality of their taste. Finally, after the tasting, participants were asked to fill out a survey, indicating their age and length of experience drinking beer.

Results

We used three rankings in the analysis. The first ranking was that of the beers based on their prices (as a surrogate for quality). The second ranking was based on the beers' brand name (obtained for each subject). The third ranking was based on the blind taste test. We captured length of experience drinking beer as under 1 year, 2–3 years, 4–5 years, 6–7 years, and over 8 years. In our sample, no respondent reported drinking for under 1 year, and thus we were left with four levels of category experience.

Semantic knowledge of the category. The correlations between the quality ranking (with price as a surrogate) and the brand name ranking did not differ by level of experience (2–3 years = .77, 4–5 years = .84, 6–7 years = .85, and 8+ years = .74; $F(3, 34) < 1$, NS).

Identifying quality. For the different experience groups, there was a significant difference between the correlations of the quality ranking and the blind taste test ranking

($F(3, 34) = 3.43$, $p < .03$). Specifically, the students with the least experience (2–3 years) had a negative average correlation between the quality ranking and the blind taste test ranking (–.07). The group with the second-lowest level of experience (4–5 years) had the second-lowest correlation (.27), the group with the third-lowest experience (6–7 years) had the third-lowest correlation (.58), and the group with the most experience (8+ years) had the highest correlation (.64) between the quality ranking and the blind taste test ranking.

Predicting preference. The correlations between the brand name ranking and the blind taste test ranking mirrored the quality identification results. In general, students with less experience had lower correlations between their ranking of the brand names and the blind taste test ranking (2–3 years = .07, 4–5 years = .10, 6–7 years = .69, and 8+ years = .52; $F(3, 34) = 5.34$, $p < .01$).

Discussion

It is clear from the results that the study participants who had more experience showed a tremendous amount of actual preference learning. Participants with less experience could not discriminate quality in a blind taste test, whereas more-experienced participants showed a high level of discrimination. Perhaps more surprisingly is the performance of the low-experience participants on the ranking of brand names task. How did participants with little experience correctly rank the brand names on quality? We believe that a key reason for the high ranking on brand names was the role of quality

norms. Apparently, even participants with limited experience know which beers are supposed to be better.

Because our measure of prior experience (e.g., years drinking beer) did not differentiate between intensiveness and extensiveness of experience, we are unable to test the relative importance of each type of experience. In the next study, we partition the experience construct into intensiveness and extensiveness of experience and gauge the relative impact on preference learning in a variety of semantic tasks.

STUDY 2

As mentioned previously, we believe that experience is two-faceted. On the one hand, experience can be construed as *intensive*. For example, consumers may have been interacting for years with a certain product. Thus, their familiarity is considered high in terms of the amount of experience. On the other hand, experience can be construed as *extensive*. For example, a consumer may have enjoyed fewer consumption episodes in a given product category, whether in terms of frequency or quantity, but his or her spectrum of experience may be much broader. In this case, experience is considered high in terms of breadth. We investigate whether extensiveness of experience leads to greater preference learning than intensiveness of experience.

Participants and Procedure

A total of 106 MBA students participated voluntarily in a one-hour research session in exchange for $10 given to a charity of their choice. Upon arrival to the

laboratory, participants filled out a questionnaire that documented their prior experience with the beer category. Following this initial questionnaire, we tested participants' knowledge of the category in a series of three semantic tasks. From the performance exhibited on these tasks, we inferred that the amount of preference learning accrued over time.

Independent variables. We measured the two facets of experience as follows: We captured intensiveness of experience through two measures: (1) number of years drinking beer and (2) number of beers consumed in a typical week. We captured extensiveness of experience through three measures. The first measure consisted of the number of brands regularly consumed (0 = "I do not drink beer at all," 1 = "I tend to consume the same brand," 2 = "I tend to consume the same 2 brands," 3 = "I tend to consume the same 3 brands," 4 = "I tend to consume 4 brands or more"). The second measure consisted of the number of beer types experienced; we presented 16 types of beer (e.g., amber, brown ale, copper-colored, dark lager) in accordance with three beer encyclopedias (Harper and Oliver 1997; Protz 1995; Snyder 1996). The third measure of breadth consisted of the number of brands experienced. Participants were asked to list all the brands they remembered experiencing with a recall task.

Dependent variables. To test participants' knowledge of the product category (as a surrogate for the amount of preference learning), we set up three tasks. The first task consisted of ranking ten commercially available beers in terms of quality. Note that we tried to keep the differences in price between the beers as constant as possible and that we

chose beers that were widely available at grocery stores near the campus. The brands and their respective prices per six-pack were Anchor Steam ($8.49), Guinness Draught ($7.59), Heineken Lager ($6.89), Pete's Wicked Ale ($6.29), Tecate ($5.89), Molson Ice ($5.39), Rolling Rock ($4.89), Budweiser ($4.49), Busch ($3.69), and Schlitz ($3.19). To form our first dependent variable, we correlated each participant's ranking with an "objective" quality ranking formed by using price as a surrogate for quality. This objective ranking was further corroborated by product ratings available on Ratebeer.com, an online community that gathers testimonies of beer enthusiasts. The correlation between the two rankings (price vs. Ratebeer.com) was .9.

The second task consisted of naming countries that are famous for producing high-quality beer. We retained the number of countries cited as our second dependent variable. However, to avoid crediting participants for citing countries whose expertise for beer remains questionable, we devised a relevance/appropriateness scale. To construct this scale, we provided five experts (who were recruited with the help of a senior administrator at Ratebeer.com) with a list of the 12 countries most commonly cited by our study participants. The experts then ranked these 12 countries according to how famous they were for producing high-quality beer. The following ranking indicates the number of points participants received for each country cited: Belgium (12 points), United States (11 points), Germany (10 points), England (9 points), Czech Republic (8 points), Austria (7 points), Ireland (6 points), Holland (5 points), Canada (4 points), Japan (3 points), Australia (3 points), Mexico (1 point), and other (0 point). The sum of points that each participant accumulated constituted his or her relevance score and was retained as our third dependent variable.

The third task consisted of ranking five beers in terms of alcohol level. We selected these beers so as to occupy the full range of product space on the alcohol dimension. The five beers and their respective alcohol content were Schlitz (5.9%), Blue Moon (5.4%), Coors Original (5.0%), Corona Extra (4.6%), and Guinness Draught (4.1%). Again, we compared each participant's ranking with an objective ranking that was formed after we compiled the alcohol content of each brand represented in our sample. The resulting correlation constituted our last dependent variable.

Results

As mentioned previously, we captured intensiveness of experience through two questions. We standardized responses to both questions and then added them to yield an overall "intensiveness index." We followed the same procedure for the three questions that formed the "extensiveness index." We then retained the resulting two indexes and their interaction as independent variables in our regression analyses.

Intensiveness of experience. Regression analyses revealed that intensiveness of experience was not a significant predictor of preference learning. As intensiveness of experience increased, participants' accuracy at ranking beer brands in terms of quality did not improve ($B = -.007$, $t = -.28$, NS). Similarly, our analyses revealed no improvement on the number-of-countries variable ($B = -.071$, $t = -.58$, NS) or the relevance variable ($B = -.136$, $t = -.14$, NS); participants with greater intensiveness of experience were no better than their low-intensiveness counterparts at citing countries (legitimately) that are

famous for producing high-quality beer. Finally, intensiveness conferred no benefit in terms of participants' estimate of the alcohol content of the five target beers ($B = .046$, $t = 1.04$, NS).

Extensiveness of experience. However, our analyses yielded significant results on the role of extensiveness of experience. On the quality-accuracy measure, in general, participants who exhibited a greater index score outperformed those who exhibited a lower score ($B = .073$, $t = 5.09$, $p < .01$). Similarly, we found systematic differences on the number-of-countries variable; participants with greater extensiveness scores cited more countries on average than those with lower scores ($B = .187$, $t = 2.77$, $p < .01$). Our findings pertaining to the relevance variable mirrored these results ($B = 1.63$, $t = 2.98$, $p < .01$). Finally, participants' accuracy at estimating alcohol content also increased as a function of extensiveness of experience ($B = .055$, $t = 2.26$, $p < .03$). Note that the intensiveness × extensiveness interaction yielded no significant result on any of our dependent variables ($|t\text{s}| < 1.3$, NS).

Discussion

To examine the relationship between the type of experience and preference learning, we surveyed the amount and breadth of experience of our research participants. We operationalized preference learning as the semantic knowledge that participants exhibit about the product category. Intensiveness of experience did not predict preference learning, because none of the differences between participants with high and low

amounts of intensiveness of experience was shown to be significant in our analyses. In contrast, we found that extensiveness of experience was a more accurate predictor of preference learning. Indeed, participants with higher breadth were better able to discriminate quality, knew a greater number of countries (legitimately) that are famous for producing high-quality beer, and were better able to estimate the alcohol content of beers.

A limitation of study 2 is that the semantic measures used to gauge preference learning were associated with a variety of beers and thus might favor participants with a more extensive background. For this reason, we attempted to use popular beers in our semantic knowledge tasks. However, although it is difficult to imagine a semantic question that taps only the amount-of-experience dimension, in the next study we use a combination of semantic and sensory tasks to augment our preference learning measures.

STUDY 3

The purpose of study 3 is to examine the relative roles of intensiveness and extensiveness of experience with multiple measures of preference learning. In this study, we use the same types of self-reported questions to estimate prior intensiveness and extensiveness of experience as those in study 2. Furthermore, we examine the same mixture of semantic and sensory tasks as that in study 1.

Participants and Procedure

A total of 74 MBA students from a large southeastern university participated voluntarily in study 3. Upon arrival to the laboratory, participants filled out a questionnaire that documented their experience with the beer category. We measured intensiveness of experience by asking the same two questions as those in study 2 (i.e., number of years drinking beer and number of beers consumed in a week). We captured extensiveness of experience by counting the number of types of beers tried (of a total of seven) and the number of specific brands tried (of a total of 25). Note that we used a recognition task rather than the recall task used in study 2 to obtain a more consistent measure of the number of beers tried and to standardize the timing of the experiment.

Next, we asked participants to visually inspect and then rank eight brand labels of beer according to their preferences. Participants then went to the next room to complete the second part of the study, in which we asked them to blindly taste and then rank a set of five unidentifiable beers according to their preferences. We included eight beers in the first task and only five in the second test; we believed that if participants ranked and tasted the same number of beers in both tasks, they would try to cross-match the tastes of the beers, which might interfere with the tasting procedure. The five target beers we used in the blind taste test were as follows: Anchor Steam: $8.99; Samuel Adams: $6.99; Lowenbrau: $5.99; Miller Genuine Draft: $4.59; and Schlitz: $2.69.

Results

As mentioned previously, intensiveness (extensiveness) of experience was captured with two questions. We standardized each participant's answers and then added them up to create an intensiveness (extensiveness) index. We used the resulting two indexes and their interaction as continuous variables in our regression analyses. To devise our dependent variables, we used three rankings: (1) a quality ranking, which we formed by using price as a surrogate for quality; (2) a semantic ranking of preference, which we collected in the first task when participants ranked the eight beer brands; and (3) a sensory ranking of preference, which we collected in the second task when participants tasted and ranked the five unidentifiable beers. Our dependent measures were the correlations between these different rankings. We further describe each set of correlations next.

Semantic knowledge of the category. To test participants' category knowledge, we compared their semantic ranking of preference with the objective ranking of quality. Consistent with study 2, our analyses revealed no effect of intensiveness of experience ($B = –.006$, $t = –.175$, NS) but a significant effect of extensiveness ($B = .077$, $t = 2.736$, $p < .01$). The intensiveness × extensiveness interaction was also not significant ($B = –.023$, $t = –1.498$, NS).

Identifying quality. To test how well participants were able to identify and appreciate quality, we compared their sensory ranking of quality with the objective

ranking of quality. Again, our analyses revealed no effect of intensiveness of experience (B = .018, t = .399, NS) but a significant effect of extensiveness (B = .142, t = 4.132, p < .01). The intensiveness × extensiveness interaction was also not significant (B = .000, t = –.011, NS).

Predicting preference. To test how well participants predicted their own preferences, we compared their semantic ranking of preference with their sensory ranking of preference. Again, our analyses mirrored the pattern of results observed previously. Intensiveness of experience was not significant (B = .029, t = .757, NS), whereas extensiveness was significant (B = .096, t = 3.266, p < .01). In addition, the intensiveness × extensiveness interaction was not significant (B = .022, t = 1.387, NS).

Discussion

Study 3 further demonstrates the critical role of extensiveness of experience in preference learning. This was demonstrated by the result that high-extensiveness participants were better able to identify and appreciate high-quality products and accurately predict their preferences than low-extensiveness participants. To the extent that preferences are the product of both sensory and semantic knowledge, we can infer that participants' greater understanding of the product category further influenced preference learning. Note that the two indexes were correlated (r(intensiveness index, extensiveness index) = .366, p = .001). This is not totally unexpected and is consistent with the idea that intensiveness and extensiveness of experience can accrue

simultaneously in the real world. Yet extensiveness of experience more consistently identified the participants who demonstrated the most preference learning.

Now that we have identified the advantages associated with extensiveness of experience, we shift gears and examine some of the factors that influence people's decision to experiment with novel alternatives in the real world. The selection of novel alternatives is what increases a consumer's extensiveness of experience. Thus, we use the term "preference exploration" to describe the selection of novel options and the corresponding increase in people's extensiveness of experience. What are the factors that affect the selection of novel options? In study 4, we examine the availability of a quality signal that favors novel options.

Burnkrant and Cousineau (1975) demonstrate the importance of understanding the role of others' behavior in consumption decisions. They find that consumers use information about others' preferences from both an informational (i.e., indicator of quality) and a normative (i.e., indicator of group desirability) perspective. Drawing on this perspective, we propose that preference exploration is enhanced when participants are given a quality signal that favors novel options.

STUDY 4

In study 4, we experimentally manipulate participants' perceptions of foreign market shares (as a signal of quality) and observe their subsequent behavior. We predict that when participants see consumption alternatives (e.g., fruit juices) that are unfamiliar to them but are valued abroad, they will attempt to enrich their consumption repertoire.

Conversely, when they see no ostensible sign that these unfamiliar juices are appreciated, participants will be less likely to expand their extensiveness of experience and will exhibit less explorative consumption behavior.

Participants

A total of 129 undergraduate students from a large southeastern university participated in exchange for course credit in a one-hour research session in which the study occurred.

Stimuli

To measure preexisting levels of familiarity, we asked 20 participants from the same population in a pretest to indicate their level of familiarity with 17 fruit juices on a scale from 1 ("not at all") to 7 ("very"). The four juices that were most familiar to our sample were orange (M = 6.8), apple (M = 6.7), pineapple (M = 6.3), and cranberry (M = 5.6). The four juices that were most unfamiliar were passion fruit (M = 3.6), guava (M = 3.3), tamarind (M = 2.1), and guanabana (M = 1.4). Matched-sample t-tests revealed that each of the familiar products differed from each of the unfamiliar drinks. In addition, we renamed two of the low familiarity juices to ensure that participants would not be able to rely on their prior familiarity (passion fruit = maracuja, guava = vagua).

Design and Procedure

This study follows a two-group design in which we manipulated participants' perceptions of the quality through fictitious market shares. We exposed participants to a list of eight fruit juices that are allegedly popular in Puerto Rico (see table 1). Each juice was accompanied by its respective market share, and the data were said to have come from the Puerto Rican Department of Agriculture. After giving participants ample time to examine the list of juices and the associated market shares, we instructed them to select three juices for a taste test. To be consistent with a taste test cover story, we asked participants to report their liking for each juice on a scale ranging from –5 ("do not like at all") to +5 ("like a lot").

Independent variable. We used product popularity (i.e., market share) as our manipulation of a quality signal. Half of our participants were led to believe that the unfamiliar juices (e.g., maracuja, vagua, tamarind, and guanabana) tended to be popular in Puerto Rico. The other half were led to believe that the familiar juices were popular in Puerto Rico.

Dependent variable. To examine the extent a quality signal can influence the extensiveness with which a person experiments, we retained the number of unfamiliar juices selected as our dependent variable.

Results

As we predicted, participants who perceived that the unfamiliar juices were popular in Puerto Rico chose to taste, on average, 2.35 unknown juices, whereas participants who were shown that unfamiliar juices had low market shares selected only 1.89 unknown juices ($F(1, 127) = 6.89$, $p < .01$.

Discussion

In study 4, we were able to highlight the role of consumers' perceptions of a quality signal in their degree of preference exploration. We found that participants who were exposed to market shares that favored unfamiliar juices broadened their extensiveness of experience, whereas participants who were exposed to market shares that favored familiar juices exhibited less preference exploration.

We argue that participants who believed that the novel juices had a low market share had less incentive to augment their breadth of experience with products that were seemingly unpopular in both their country and Puerto Rico. However, participants who believed that the novel juices were favored in Puerto Rico had a real opportunity to explore their preferences by experiencing an unknown product that was mainstream elsewhere. Note that the market share data was construed as an informational factor, in the sense that high market share could be perceived as a signal of high quality. In the next study examine the role of a normative social factor (i.e., the perceived similarity of an advocate for a novel option).

STUDY 5

Earlier research demonstrates that consumers use others' preferences to extract both informational and normative information (Burnkrant and Cousineau 1975). Consistent with this account, we found in the previous study that the information conveyed by fictitious market shares significantly influenced participants' behavior. In the present study we examine how testimonials (i.e., normative information about group desirability) can further influence consumers' preferences. As mentioned earlier, social learning theory predicts that an observer is more likely to adopt a model's behavior as similarity between the two individuals increases (Bandura 1977). Research in sociology further accentuates the importance of social influences on the motivations underlying preference exploration. Indeed, consumption styles constitute means of not only deploying economic resources but also exhibiting "cultural capital" (Bourdieu 1984). As a result, belongings and consumption experiences provide opportunities to establish one's reputation through the exhibition of good taste. In this study we manipulate the origin of testimonials promoting either familiar or unfamiliar fruit juices. We predict that, when the author of a testimonial promoting a familiar (unfamiliar) juice is similar to our participants, they will choose to experience familiar (unfamiliar) juices.

Participants

A total of 182 undergraduate students from a large southeastern university participated in exchange for $5 in a half-hour research session in which the study occurred.

Stimuli

We exposed participants to four testimonials, each promoting either a familiar (e.g., orange and pineapple) or an unfamiliar (e.g., tamarind and maracuja) fruit juice. To the left of each testimonial, we added the picture of a smiling resident of Puerto Rico. In total, our participants saw two males (one young and one old) and two females (one young and one old) making claims such as "You have to try our tamarind juice… it is truly fabulous."

Design and Procedure

This study follows a two-group design in which we manipulated the similarity of the person providing the juice testimonial. Our stimulus in the first condition featured the testimonials of two young Puerto Ricans (one of each gender) promoting unfamiliar juices and the testimonials of two older Puerto Ricans (one of each gender) promoting familiar juices. In the second condition, we kept the testimonials constant but switched the associated pictures: The two photos of younger Puerto Ricans were now accompanying the testimonials promoting familiar juices while the two photos of older Puerto Ricans were associated with the testimonials promoting unfamiliar ones. After giving participants ample time to examine the list of juices and the associated testimonials, we instructed them to select which juice they would like to try.

Results

The overall chi-squared indicates that the difference in distributions between the two similarity conditions was significant ($\chi^2(1) = 3.85$, $p < .05$). Overall, there was a slight preference toward the unfamiliar juices (familiar = 45.6%, unfamiliar = 54.4%). More importantly, when the similar advocates (i.e., young people) provided testimonials for the unfamiliar juices, participants chose an unfamiliar juice 61.8% of the time and a familiar juice only 38.2%. Conversely, when the similar advocates provided testimonials for the familiar juices, participants showed a slight preference for trying a familiar juice (familiar = 52.7%, unfamiliar = 47.3%).

Discussion

In this study we demonstrate that a normative social factor (the similarity of an advocate of a novel juice) leads to increased desire to try a novel option. When the juice testimonials for the tamarind and maracuja juices were attributed to younger Puerto Ricans, participants were more likely to select one of these unfamiliar juices. Again, it is the experience with novel options (or preference exploration) that ultimately increases extensiveness of experience. In study 6, we move from normative and informational aspects to a more visceral factor, i.e., the affective reaction to a novel trial.

STUDY 6

The goal of study 6 is to examine the impact of the favorability of an initial experience on participants' decision to expand their extensiveness of experience. Again, the domain that we selected was fruit juices. We manipulated favorability by adding vinegar to the juices that some of the participants tried.

Participants and Procedure

Participants were 103 undergraduate business students at a large public university who participated in the experiment as part of a class participation requirement. We ran participants in small groups (between six and 12) in similar conditions to reduce the possibility that participants would observe others trying different juices. At the beginning of the session, all participants tasted one juice that was supplied by the experimenter and then were given a list of 12 additional juices that were available to try. Participants were asked to circle the four juices that they wanted to try, and then they proceeded to sample and rate each of their four chosen juices.

Design

The experiment was a 2 group design with favorability (low: juice with vinegar; high: regular juice) of the initial experience as the manipulated independent variable. We created the unfavorable condition by adding two tablespoons of vinegar to every cup (8

oz.) of juice. The main dependent variable was the number of familiar and unfamiliar juices participants chose to try. We selected the 12 juices available for trial because they varied on the level of familiarity during a pretest with a similar population of students. The low-familiarity juices were passion fruit, guava, apricot, and guanabana. The four medium-familiarity juices were pear, mango, peach, and strawberry. The four high-familiarity juices were tomato, grapefruit, apple, and orange.

Results

The first set of analyses is based on the familiarity level of the juices selected. As mentioned previously, each juice was identified as low, medium, or high familiarity on the basis of the pretest. We examined the number of juices selected from these three groups. There was a significant difference between the good and the bad initial experience groups for the selection of high-familiarity juices (high familiarity: good = .38, bad = .70; $F(1, 101) = 4.01$, $p < .05$; medium familiarity: good = 1.64, bad = 1.47; $F(1, 101) = 1.05$, $p < .30$; low familiarity: good = 1.98, bad = 1.83; $F(1, 101) = .59$, $p < .44$). When we examine the distribution of selected juices, the chi-square for the distribution of alternatives selected for trial was marginally significant ($\chi^2(3) = 5.91$, $p < .06$). These results indicate that the favorability of the initial experience affected the pattern of products that were selected for trial.

Further examination of participants' reactions revealed a bimodal distribution in which a certain number of participants in each condition rated their juices opposite the manipulated direction. For example, in the unfavorable tamarind condition, 22 of the 53

participants rated their trial above the midpoint of the rating scale. As an additional analysis, we examined only the respondents who had the most favorable or unfavorable reaction to the initial juice exposure. Again, the chi-square for the distribution of the favorable and unfavorable conditions was significant ($\chi^2(3) = 8.34$, $p < .025$; see table 2).

Discussion

Study 6 demonstrates that the impact of the initial experience had an effect on future trial when there was a negative experience with a novel option. When experiencing an unfamiliar juice, favorability affected the subsequent selection of alternatives. Specifically, an unfavorable initial experience led participants to be two to three times more likely to choose highly familiar juices for trial and thus reduce preference exploration.

GENERAL DISCUSSION

In this research, we demonstrated that preferences change with experience. This is an intuitive finding when we consider that there are things that people used to like but no longer do or things that they have come to like over time. Yet understanding that preferences change is very different from understanding how and why the changes occur. In the first study we demonstrated that preferences change over time. In studies 2 and 3, we measured two distinct types of experience: intensiveness (i.e., amount) and extensiveness (i.e., breadth) and showed that extensiveness of experience is a better

predictor of preference learning. In the final three studies, we examined three factors that influence preference exploration. We demonstrated that the availability of a quality signal that favors novel options, the similarity of an advocate of a novel option, and the favorability of initial experience in a novel environment all influence preference exploration. In the next section, we review these results in greater detail before expanding on the implications of our findings for preference exploration and learning.

In study 1, we demonstrated the impact of general experience (which we captured by the number of years drinking beer) on preference learning. We found that most participants were quite good at ranking brand names on the basis of quality. We conjecture that these high correlations were driven by quality norms about what constitutes quality for beer. Yet when we gave inexperienced consumers a blind taste test, they did not fare so well. Indeed, they were unable to distinguish the beers they had previously rated as higher quality but rather showed weak or negative correlations with an objective ranking of quality.

In study 2, we partitioned the construct of experience into two types of experience: intensiveness and extensiveness. We measured both dimensions of experience with more savvy consumers (i.e., MBA students) and demonstrated that extensiveness of experience was a better predictor of preference learning. Note that the measures of preference learning in this study were all semantic (i.e., knowledge of quality brands, countries famous for producing high-quality beer, and alcohol content).

In study 3, we switched to a mix of semantic (i.e., brand name ranking) and sensory (i.e., preference prediction and quality discrimination) measures of preference

learning while continuing to measure both intensiveness and extensiveness of experience. Extensiveness of experience was again the better predictor of preference learning.

In the final three studies, we shifted gears and examined three factors that influence preference exploration (i.e., the propensity to experiment with novel options). The first factor was the availability of a quality signal that favored novel options. Participants who were led to believe that novel juices were more popular in a foreign country were more likely to select those juices for trial. The second factor was the similarity of an advocate of a novel option. When the similar model promoted the selection of a novel option, participants were more likely to demonstrate a willingness to try the item. The third factor was the favorability of a novel experience. Participants who had a negative initial experience with a novel juice were more likely to stay with familiar options in future trials.

Relationship Between Intensiveness and Extensiveness of Experience

Far from construing intensiveness and extensiveness of exposure as ends of one continuum, we present these constructs as two correlated, but potentially separable, dimensions along which individual experiences vary. Furthermore, we believe that both constructs can sometimes interact to influence the preference formation process. To the extent that preferences are the product of both semantic and sensory knowledge, we conjecture that intensiveness can play a preference-solidifying role by strengthening the linkages between the knowledge acquired through sensory exploration and that acquired through semantic exploration. Research in neuroscience supports this conjecture.

According to Munakata and O'Reilly (2003), the ability to *generalize* (i.e., to abstract from prior experiences regularities that can be applied to new experiences) requires intensive experience and familiarity. For example, rather than treating new experiences (e.g., meeting new people, renting a car) as completely foreign, a person abstracts regularities from prior experiences (e.g., saying hello, using the key to start a car) and expects them to occur in similar instances. Munakata and O'Reilly argue that the human networks of neurons are naturally predisposed to encode information in a highly specific fashion that hinders generalization. Yet after enough reiterations, human networks can develop abstract representations that support good generalizations.

To the extent that preference development also relies on the ability to generalize, we conjecture that by strengthening the linkages between the knowledge acquired through sensory exploration and that acquired through semantic exploration, intensiveness of experience helps people abstract pertinent information from prior experiences to deal with the situation at hand (e.g., a choice task). Furthermore, we conjecture that the violation of a person's existing preferences (i.e., experimenting outside the comfort zone) may also contribute to the construction of new and more-refined preferences. Recent work by Hoeffler, Ariely, and West (2005) lends support to this conjecture: When consumers' initial exposure in a product category is favorable, they tend to engage in a biased search, whereby the experiences they subsequently select revolve around the initial experience. Unfortunately, this biased search process narrows the range of alternatives experienced and can hinder preference learning.

Additional Factors That Influence Preference Exploration and Learning

Hoeffler and Ariely (1999) examined the process of preference learning in a novel environment (aversive sounds) and the role of experience, effort, and the choice process in preference stabilization. A key factor that led to preference stabilization was exposure to trade-offs in the environment. In their studies, Hoeffler and Ariely focused on showing that preferences stabilize after specific types of experience in the environment. Note that in some environments, consumers learn their preferences quickly and then show remarkably stable preferences in those domains for a long period of time. For example, selection of a favored soft drink or the way of preparing coffee seems to fit this quick preference stabilizing pattern.

Note that several factors outside the scope of the current research project are known to influence preferences. Factors such as culture, income, and age affect the pattern of exposure and availability of options to experience. For example, aging has been associated with physiological changes such as a loss of sensitivity in sensory organs (e.g., taste buds), which in turn may influence preferences for certain foods and spices. Goals, such as avoiding risk, seeking variety, or defining self-identity, are also often at play (Brewer 1991; Ratner, Kahn, and Kahneman 1999; Read and Loewenstein 1995; Simonson 1990). Finally, language (e.g., consumption vocabulary) has been shown to influence preference formation by enabling consumers to identify and evaluate product features and their interrelations. This refined understanding then allows for the more consistent extraction of utility from consumption experiences (West, Brown, and Hoch 1996).

Future Directions

In studies 1–3, we examined the roles of intensiveness and extensiveness of experience in preference exploration by measuring the patterns of experience that our participants had naturally developed over time. Although the choice of beer as the product environment greatly served our purpose, ideally, each factor should be experimentally manipulated. To do so, however, a completely novel environment for which research participants have no prior experience would be required. Manipulating intensiveness and extensiveness of experience independently poses serious experimental challenges but would be the natural progression of this research program. Furthermore, another avenue for future research would be to identify which environments favor (hinder) the development of learning through intensive and/or extensive experience.

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TABLE 1: STUDY 4 MARKET SHARE MANIPULATIONS

Unfamiliar Juices High Familiarity		Familiar Juices High Familiarity	
Juice Name	**Market Share (%)**	**Juice Name**	**Market Share (%)**
Tamarind	29	Cranberry	29
Maracuja	22	Orange	22
Guanabana	17	Apple	17
Vagua	16	Pineapple	16
Pineapple	4	Vagua	4
Apple	3	Guanabana	3
Orange	3	Maracuja	3
Cranberry	2	Tamarind	2

TABLE 2: STUDY 6: NUMBER OF JUICES SELECTED FOR TRIAL

	(Tamarind Juice)	
	Initial Experience	
Juice Familiarity Level	Unfavorable	Favorable
All Participants	(n = 53)	(n = 50)
High Familiarity	37	19
Medium Familiarity	78	82
Low Familiarity	97	103
Participants with Predicted Reaction	(n = 31)	(n = 29)
High Familiarity	29	11
Medium Familiarity	46	51
Low Familiarity	49	54