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Gender Differences in Cognitive Structure: Preferred Levels of Taxonomic Abstraction

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Although past research has demonstrated that males and females vary in their allocation of attentional resources (Meyers-Levy 1986), only partial insight into gender differences associated with the multifaceted phenomenon of information processing has been obtained. Consequently, in order to advance the knowledge in this area, a more micro-analytic stance is assumed. Specifically, by attempting to assess the cognitive makeup of males and females, it is the intent of this research to ascertain if men and women differentially organize, structure, and store information in memory. Thus, this article investigates the dimension of category structure referred to as “taxonomic level of abstraction.”
Although there exists a host of studies that have investigated gender differences in information processing, there has been little attention directed to exploring differences in the cognitive makeup of men and women. Thus, this research seeks to move in that direction by investigating the dimension of category structure referred to as “taxonomic level of abstraction.”

GENDER DIFFERENCES IN COGNITIVE RESOURCE ALLOCATION

A plethora of studies from various disciplines have alluded to male/female differences in information processing. Specifically, the bulk of this research has focused primarily on gender differences in the allocation of attentional resources (Bem 1981; Hansen 1981; Meyers-Levy 1988). Although numerous researchers have endeavored to explore how and why the genders differ in their allocation of cognitive resources, the “Selectivity Hypothesis,” devised by Meyers-Levy (1986), attempts to parsimoniously synthesize the conclusions drawn from various studies into one unifying framework. Specifically, a major premise of this theory is the idea that males and females employ different strategies during the processing phase of attention. According to the tenets of this theory, males are considered to be highly selective in the information they chose for attention. Consequently, in apprehending cues from their environments, males tend to impose limits on both the amount and content of information considered. Thus, rather than comprehensively processing all cues at their disposal, males tend to consider only a subset of all available information.

According to Meyers-Levy (1986), the processing mechanisms utilized by males in performing a selective, gate-keeping function include a number of heuristic devices. For example, one heuristic device commonly employed by males is reliance on a singular piece of
information. Thus, instead of using multiple cues to piece together the elements of a stimulus and its surrounding context, only one focal cue is extracted from the environment and utilized in subsequent processing. Additional tactics employed by males include seeking out cues that coincide with well-entrenched memory structures or multiple cues that imply a conceptually singular theme.

In a manner opposite to males, females are thought to be comprehensive processors of information (Meyers-Levy 1986). Consequently, the “Selectivity Hypothesis” argues that women exert a tremendous amount of effort in attempting to assimilate all available cues in their environments. Thus, although the demands of a task may exceed human processing resources, (thereby preventing females from accomplishing such an objective), they are still thought to engage in a comprehensive, detailed analysis of all available information (Meyers-Levy 1986).

**GENDER DIFFERENCES IN COGNITIVE CONSTRUCTION**

Given that males and females vary in both the effort they expend during processing as well as the number and type of informational cues attended to, it seems logical to suggest that the organization of this information in memory should be quite different for males versus females. Thus, with respect to the current research agenda, the “Selectivity Hypothesis” provides a theoretical base for conceptually bridging the gap between processes of attention and those related to information storage. To illustrate, the “Selectivity Hypothesis” states that males, as selective processors, tend to direct attention to a limited number of cues that provide a maximal amount of information. This permits them to impose structure on a vast amount of seemingly unrelated information by enabling them to quickly identify and extract elements of commonality.
Consequently, it appears intuitive that the category structures responsible for guiding this type of processing should be constructed in a similar fashion. Stated differently, this research postulates that males possess loosely defined, broad-based category structures. As a result, the parameters by which categories are defined and how category membership is assessed is determined by a limited number of highly salient attributes.

In the opposite vein, the “Selectivity Hypothesis” states that females, as comprehensive processors, tend to direct attention to a wide assortment of environmental cues. Based on research that has shown the proclivity of women, (versus men), to internalize the various social structures they inhabit, comprehensive processing enables them to be highly attuned to slight changes in the state of the system as well as being able to adequately communicate with those individuals comprising the system (Meyers-Levy 1986). It appears intuitive, therefore, that information processing on the part of females should be guided by category structures that are narrowly defined according to a precise set of attribute standards. Thus, a large category system divided along subtle lines of distinction should be extremely beneficial in helping a female to recognize and identify new stimulus situations. Additionally, the ability to precisely communicate using language that conveys subtle shades of meaning would also seem better facilitated by a large, finely discriminated category system.

Thus, in order to delve further into the idea that males and females claim cognitive structures that look differently from one another, the following paragraphs are designed to explore a dimension of category construction that considers the relationship of categories to one another as part of a larger cognitive system (i.e., level of taxonomic abstraction.)
Categories Defined

According to Bruner (1957) and Cohen and Basu (1987), a category is defined as a memory structure that consists of those objects or events perceived to be similar to one another (i.e., they share similar attributes or achieve a similar goal), as well as links to any other relevant object-based or category-based knowledge. Using similar terminology, Pavelchak (1989) describes the process whereby a category, (conceptualized as a central node in a schema-like structure), becomes activated through the process of “identifying an object as a member of a class of objects at a particular level of specificity.” According to this author, category schemata consist of general nodes (i.e., category labels) at higher levels of abstraction and specific nodes (i.e., category attributes) at lower levels of abstraction. Operating on this premise, category labels are stimulus features utilized by a perceiver with the expectation that they will permit the remaining features of a target stimulus (i.e., a product, brand, or advertisement) to be properly organized.

In considering the usefulness of categories, Rosch (1978) argues that persons tend to process and react to new information in their environments by relying on past experiences (i.e., learning) and categorization. Consequently, in addition to enhanced information processing efficiency as well as increased cognitive stability, organized knowledge structures (i.e., categories) permit persons to ascribe meaning to new or novel products/brands, respond to them in terms of their designated category membership, (versus the features or attributes that make them unique), as well as draw inferences about product/brand features or performance (Cohen and Basu 1987; Smith and Medin 1981). Furthermore, one’s ability to furnish a judgment or evaluation about a new product or brand will depend not only on what category a target stimulus
is assigned to, but also the \textit{level} of category activation triggered. In this vein, the following paragraphs are intended to consider the different levels of abstraction in category construction. Following this exposition, male/female differences in preference for different levels of abstraction in processing will be postulated.

Level of Abstraction in Category Construction

According to Rosch (1978), categories can also be considered in their relation to one another. Specifically, this author defines a taxonomy as a system that permits one category to be related to another by means of class inclusion. Thus, the more a category accommodates many members (i.e., is more inclusive), the higher the level of abstraction. Furthermore, each category associated with a particular taxonomy is also believed to be entirely included within one other category, (with the exception of categories claiming the highest level of abstraction). Consequently, \textit{level of abstraction} refers to the inclusiveness a category accommodates.

In order to more adequately define inclusiveness, Rosch (1978) refers to the concepts of cue validity and category resemblance. Cue validity, which is considered probabilistic in nature, specifies that the “validity of a given cue “$x$” as a predictor of a given category “$y$” (i.e., the conditional probability $y/x$) increases as the frequency with which cue “$x$” is associated with category “$y$” increases, and decreases as the frequency with which cue “$x$” is associated with categories other than “$y$” increases” (Reed 1972). The cue validity for an entire category, therefore, can be conceived as the summation of cue validities on each attribute defining a given category. Thus, a category with high cue validity is seen as being more differentiated than one possessing low cue validity.
In addition to cue validity, category resemblance is an additional measure of inclusiveness. According to Tversky (1977), category resemblance is defined as “the weighted sum of the measures of all of the common features within a category minus the sum of the measures of all of the distinctive features.” In this scenario, distinctive features are those that belong to only some members of a given category as well as those belonging to members of contrast categories.

Thus, having defined each of these terms of inclusiveness, Rosch (1978) states that there exist objects in the perceived world that possess highly informative bundles of attributes. Consequently, a minimal amount of cognitive effort is involved in identifying these objects as distinct from other objects. According to Mervis and Rosch (1981), these entities are considered to subsist at the most basic level of categorization. This level is one in which cue validities and category resemblance are maximized. Stated differently, the basic level is the level within a taxonomy at which a category “maximizes within-category similarity relative to between-category similarity.” For example, suppose that the label “athletic shoes” is considered basic in that its category designation denotes a level of inclusion whereby there are some attributes that are common to all or most members associated with this category, and at the same time, these attributes are maximally different from contrast categories. Thus, by increasing this category’s level of abstraction, a move is made to a more “superordinate” level of the taxonomy. Using the above example, “footwear” would be considered a superordinate category to the category of “athletic shoes” to the extent that its members share only a few attributes with each other. Similarly, by decreasing the level of abstraction below the basic level, subordinate categories would form (e.g., running shoes, basketball shoes, tennis shoes, etc.). Categories designated by a subordinate label are believed to be highly comprehensive in the information that is used to
define category membership. However, cognitive efficiency at this level is minimized in that subordinate categories contain many attributes that overlap with members residing in alternate categories. Thus, the relationship of categories within a taxonomy can be captured by classification into one of three levels (i.e., superordinate, basic, and subordinate). Each of these levels represents a different degree of abstraction with categories at the basic level providing the most information while simultaneously minimizing cognitive effort. Movement from a basic level to a higher level of abstraction denotes a category situated at the superordinate level while movement below the basic level denotes a category situated at a subordinate level of abstraction.

It should be noted that although three levels of abstraction have been identified (i.e., superordinate, basic, and subordinate), the basic and subordinate levels are considered optimal in their ability to facilitate communication and precisely convey meaning. Thus, with respect to the present study, central focus is placed on evaluating gender differences at the basic and subordinate levels of abstraction.

Gender Differences in Preference for Level of Abstraction in a Marketing Context

Extending the idea that men and women would be better served by category structures that are constructed differently from one another, an important consideration with respect to the objectives of the present study is that marketers would stand to benefit considerably from being able to ascertain the degree to which male and female members of one’s target population differ in their preference for processing information at a certain level of taxonomic abstraction. For example, preliminary speculation coupled with the tenets of the “Selectivity Hypothesis” proposed by Meyers-Levy (1986), suggests that males will prefer the classification of products,
brands, advertisements, etc. at a more general (i.e., *basic*) level of abstraction than that preferred by females. Thus, this could have substantial ramifications for how new products are both positioned and promoted. For example, upon contact with a new product, a male may attempt to immediately relate salient product or brand features to a *basic-level* category stored in memory. Once this has been accomplished, the new product will likely lose a significant portion of its distinguishing features as its identity becomes more congruent with the defining characteristics that constitute membership in this basic-level category. In the opposite vein, females are argued to prefer a more *subordinate* level of abstraction as both common category characteristics and distinguishing product features are equally considered in classification tasks. Thus, the level of inclusiveness operated on by males versus females becomes an important consideration in the design of various marketing initiatives.

Therefore, assuming a marketing orientation, it is hypothesized that categorizing behavior along different levels of a specified taxonomy is likely to manifest itself in the number of subcategories generated by males versus females for a given set of items. Specifically, when presented with a set of brands that could potentially be classified into one of several product domains, it is hypothesized that males will prefer aggregation at a *basic* level of abstraction while females will prefer aggregation at a *subordinate* level of abstraction. The implication is that females will process information at the attribute level where they will focus on points of differentiation that separate one brand from another. As a result, this should manifest itself in brand groupings that are succinctly defined according to subtle attribute distinctions. Conversely, males will be more inclined to process information at a more general level of abstraction. Thus, rather than focusing on attribute distinctions, aggregation will be attempted by focusing on broad category labels. Consequently, this should manifest itself in brand groupings that are loosely
defined based on salient commonalities rather than subtle differences. Thus, given a set of brands that could potentially be classified into any one of several self-directed product domains, the following are hypothesized:

**H1:** Males are more likely to divide a given subset of brands into a smaller number of self-directed product subcategories than females.

**H2a:** Males are more likely to use basic-level descriptors over elaborate-level descriptors in developing category labels for self-directed product subcategories.

**H2b:** Females are less likely to use basic-level descriptors over elaborate-level descriptors in developing category labels for self-directed product subcategories.

**H2c:** Males are more likely to use a greater number of basic-level descriptors than females in developing category labels for self-directed product subcategories.

**H2d:** Females are more likely to use a greater number of elaborate-level descriptors than males in developing category labels for self-directed product subcategories.
METHOD

Design and Subjects

Participants to this study consisted of 119 college students (57 males and 62 females) enrolled in business courses at a Midwestern University. Respondents participating in this study were given the opportunity to sign up for one of 35 experimental sessions that spanned the course of two consecutive weeks. Sessions were offered each day of the week (excluding Sundays) and at multiple times during the day. A typical session averaged between four and six participants with roughly an equal number of males and females in each session. An individual session lasted approximately 25 minutes.

Stimuli Selection

Stimuli selection involved several different process steps. Enumerated below are the various procedures that were implemented in order to select target stimuli (i.e., brands) to be employed in the current study.

One of the first considerations made with respect to stimuli selection was the superordinate product domain from which category members (i.e., brands) would ultimately be selected. The primary objective in locating a suitable domain was to identify one where males and females had approximately equivalent (above average) levels of knowledge and experience. Pretest results (based on a 7-point scale) revealed that the “restaurant chain” product domain possessed the smallest mean difference in knowledge/familiarity between males and females ($M$(males) = 4.83 versus $M$(females) = 4.62, $t[72] = 1.14, p = n.s.$). Furthermore, this product
domain also yielded fairly similar (and small) standard deviations within the male and female portions of this sample ($SD$(males) = .766 versus $SD$(females) = .752).

Once the product domain was selected, stimuli were selected according to two criteria. First, category members (i.e., brands) were selected from a superordinate product domain (i.e., restaurant chains) based on the likelihood that a number of brands located in this domain (e.g., Pizza Hut®, Fazolis®, Olive Garden®, etc.) could potentially reside in more than one basic-level/subordinate-level product domain (e.g., fast-food restaurant chains, Italian-style eateries, casual dining establishments, dine-in/carry-out restaurants, etc.). In other words, brands that share commonalities with other category members on a variety of dimensions (e.g., product offerings, price, seating accommodations, theme, etc.) were considered. For example, Pizza Hut® may be perceived as sharing some attributes with Olive Garden® (e.g., American/Italian-style cuisine, moderate prices, booth-style seating, etc.) but other attributes with Fazoli’s® (e.g., authentic Italian-style cuisine, diverse menu offerings, self-service beverage station, etc.). Consequently, the research question becomes one that attempts to ascertain how variations in cognitive structure differentially influence perceptions of brand similarity. Thus, with respect to the present study, interest lies in determining if gender of the consumer can be linked to perceptions of Pizza Hut® as being more similar to Olive Garden® or Fazoli’s®; to both restaurant chains equally (i.e., all three chains should be included under the same category label); or to neither restaurant chain (i.e., each restaurant chain belongs to its own unique subcategory).

Thus, in order to systematically identify restaurant chains that share a number of important attributes with one another, but also differ on a host of other dimensions, several steps were taken. First, it was necessary to determine what global dimensions, in general, were important to influencing a consumer’s decision to dine at a various restaurant chain. To
accomplish this task, the March (2002) issue of *Restaurants and Institutions* was consulted. Contained in this publication was an article entitled “2002 Choice in Chains Scores By Attributes.” In this article, 97 qualifying restaurant chains were ranked individually on seven attributes that were considered to be *most* important in influencing a consumer’s decision to dine at a particular chain. These seven global dimensions included: food quality, menu variety, value, service, atmosphere, cleanliness and convenience.

Once these factors were identified, 12 basic-level attribute statements and 18 subordinate-level attribute statements were crafted to reflect each of the seven global dimensions. In total, this yielded three food quality items, four menu variety items, five value items, six service items, three cleanliness items, four atmosphere items, and five convenience items. The intent behind creating attribute statements that were derivations of the seven global dimensions identified above was three-fold. First, several pretests were conducted to confirm that the seven dimensions identified by *Restaurants and Institutions* (2002) were highly important to consumers’ decision-making processes. Second, pretesting was also done to insure that males and females did not differ in the importance that they accorded to specific attribute dimensions. In this vein, only the “cleanliness” dimension revealed a statistical difference between males and females ($M$(males) = 5.14 versus $M$(females) = 5.91, $t[73] = -3.95, p < .01$). Thus, several of these items were removed from consideration. Third, the attributes determined to be *most* important to a consumer’s choice to dine at a particular establishment were intended for use in developing the experimental stimuli.

Ultimately, 20 of the 30 attribute statements were used to select 30 restaurant chains (i.e., brands) that share *important* basic-level and subordinate-level attributes with one another, but also differ along subtle lines of distinction. Thus, in conjunction with the list of restaurant chains
published according to attribute ranking by *Restaurants and Institutions* (2002), the 20 attribute statements, (encompassing the seven global dimensions), provided a solid base from which to systematically choose 30 restaurant chains that could potentially be used to gauge male/female differences in preference for a specific level of abstraction in processing. Consequently, each of these 30 chains was subsequently pre-tested in order to insure that males and females did not significantly differ in their knowledge/familiarity of specific category exemplars.

**Dependent Measures**

*Number of categories and degree of category label elaboration.* Four measures were tabulated for each respondent. One measure included the number of subcategories generated by each individual for a given set of brands. A second measure, the “basic description,” was a record of the number of groups labeled using a *basic-level* descriptor implying a singular concept or theme (e.g., fast-food restaurants). A third measure, the “elaborate description,” was a record of the number of groups labeled with an *elaborate-level* descriptor denoting two or more concepts or themes (e.g., fast-food pizza restaurants, upscale Italian diners, etc.).

*Consumer knowledge/familiarity.* A final measure that was administered was an assessment of consumer knowledge/familiarity with the restaurant chain product domain. Subjective knowledge and familiarity of the restaurant chain product domain were assessed using the two-item, seven-point scale employed by Johnson and Russo (1984).
Procedure

After a brief introduction and an explanation of procedure, participants were presented with a survey booklet and 25 index cards. Each card contained the name of a single category member (i.e., brand) from the restaurant chain product domain. Respondents were instructed to sort all category members into piles based on an assessment of “perceived overall similarity.” In other words, participants were asked to group those brands that they believed were most like one another into the same pile. Thus, it was left to each individual respondent to determine the dimensions (e.g., price, cuisine, atmosphere, etc.) that would be employed as criteria for sorting. If a brand was not perceived as similar to any other category member, respondents were asked to place the brand into a group unto itself.

Upon completing the sorting task, participants were then instructed to develop a category label for each pile formed. No directions were provided for the level of elaboration that should be considered in creating a category descriptor. Procedural instructions adapted from Gardner (1953) were employed.

RESULTS

In testing the hypothesized effects, hypothesis H1 sought to ascertain male/female differences in category construction by measuring the number of self-directed categories that were formed. The primary objective was to assess if men and women exhibit varying degrees of preference for different levels of abstraction. By engaging males and females in a brand-sorting task, a one-to-one correspondence between the number of categories formed and the level of preferred abstraction was entertained.
Hypothesis H1 states that males are more likely to divide a given subset of brands into a smaller number of self-directed product subcategories than females. The basic premise underlying this hypothesis is that men and women exhibit preferences for different levels of abstraction when processing new market information. For example, men are more likely to prefer a basic level of abstraction when confronted with the task to aggregate/categorize multiple marketing stimuli. Thus, in order to simplify their environments, men will be inclined to seek out highly salient cues that are pertinent to all or most brands. Consequently, this will manifest itself in a limited number of brand groupings/categories that contain many varied members.

Conversely, females are likely to prefer a more subordinate level of abstraction when confronted with a task requiring them to classify various marketing stimuli. The implication is that females should be inclined to pursue careful analyses of the different attribute combinations that are inherent to each brand. As a result, it is expected that this will manifest itself in a large number of brand groupings that differ from one another along subtle lines of distinction. Furthermore, because membership into any category requires strict adherence to a rigid set of attribute criteria, it is also anticipated that the number of brands in each group will be relatively small.

Thus, as anticipated, results of testing confirm that males divided a given subset of brands into a significantly smaller number of self-directed product subcategories than females ($M = 4.28$ versus $6.34$, $t[117] = -7.33$, $p < .001$).

The second set of hypotheses, (H2a through H2d), addresses the dimensions used by males and females in creating category labels. In addition to the number of brand groupings formed, the content of the category label (i.e., basic vs. elaborate) provides additional insight into
the level of abstraction employed by men and women. Thus, both the sorting and labeling tasks were designed to measure this dimension of category structure.

**Hypothesis H2a** states that males are more likely to use basic-level descriptors over elaborate-level descriptors in developing category labels for self-generated product subcategories. The basic premise underlying this hypothesis is that gender differences in the level of preferred abstraction will not only manifest themselves in the number of brand groupings formed, but also in the composition of the category label. Stated differently, elements of the category label should provide insight into how individual consumers approached the process of brand aggregation. Thus, in order to decipher “how” discrete brand groupings were formed, it was necessary to obtain from participants the dimensions they extracted for use in establishing category boundaries. Specifically, with respect to levels of taxonomic abstraction in category construction, it was necessary to evaluate both the content of the category label as well as the level of detail that was employed in its creation.

Thus, based on earlier theorizing, it is speculated that males will be inclined to form category labels that are extremely broad and highly inclusive. Specifically, males are expected to approach the process of brand aggregation by identifying a subset of highly salient attributes that are common to all or most brands. In other words, because males tend to prefer a basic level of abstraction, it is posited that they will search for threads of commonality between brands versus elements of distinction. Thus, when determining a category’s boundaries, it is anticipated that males will select a few, highly prominent attributes that provide a maximal amount of information. The result of this process will be a small number of brand groupings that are marked by basic-level category delimiters.
As anticipated, results of testing indicate that males utilized significantly more basic-level descriptors over elaborate-level descriptors in assigning category labels to self-directed product subcategories ($M = 3.26$ versus $1.02$, $t[56] = 7.24$, $p < .001$).

In the opposite vein, **hypothesis H2b** states that females are less likely to use basic-level descriptors over elaborate-level descriptors in developing category labels for self-directed product subcategories. The premise behind this hypothesis is that females tend to operate at a more subordinate level of abstraction. Consequently, it is anticipated that they will approach brand aggregation by placing significant emphasis on attributes that differentiate one brand from another versus elements of similarity. Thus, in addition to producing a relatively large number of brand groupings, it is also posited that the dimensions on which these groups are formed will be highly detailed and multifaceted. As a result, it is anticipated that females will produce category labels that are extremely descriptive and succinctly defined.

Confirming hypothesis H2b, results of testing indicate that females utilized significantly fewer basic-level descriptors over elaborate-level descriptors in assigning category labels to self-directed product subcategories ($M = 2.58$ versus $3.76$, $t[61] = -3.17$, $p < .002$).

In drawing a comparison between the genders, **hypothesis H2c** states that males will use more basic-level descriptors than females in developing category labels for self-directed product subcategories. The premise for this hypothesis is based on the idea that males and females prefer to operate at different levels of taxonomic abstraction. Consequently, it is posited that males and females will approach the process of brand aggregation from different vantage points. Thus, while males are likely to seek out attributes that brands share in common, females are likely to group brands according to subtle attribute distinctions. The result of this disparity is that males should define and label brand groupings along more macro-level parameters than females.
Confirming hypothesis H2c, results of testing indicate that males used significantly more basic-level descriptors ($M = 3.26$) than females ($M = 2.58$) in developing category labels for self-directed product subcategories ($t[117] = 2.28, p = .024$).

Finally, hypothesis H2d states that females are likely to use more elaborate-level descriptors than males in developing category labels for self-directed product subcategories. In a manner that coincides with that presented above, it is also argued that females will demonstrate a tendency to employ more subordinate levels of processing than males. Thus, this inclination on the part of females should manifest itself in category labels that are multifaceted (i.e., describe multiple concepts or themes) and contain a number of subtle attribute distinctions.

Confirming hypothesis H2d, results of testing indicate that females used significantly more elaborate-level descriptors ($M = 3.76$) than their male counterparts ($M = 1.02$) in developing category labels for self-directed product subcategories ($t[117] = 10.39, p < .001$).

Therefore, in substantiating prior claims, males appeared to rely on very broad, overarching characteristics in determining category parameters. For example, one of the dimensions frequently employed by male subjects in this study was “type of cuisine.” Thus, regardless of the existence of other pertinent, information-laden dimensions that could have been selected (e.g., price points, décor, location, etc.), males typically chose a single, rudimentary dimension on which to segregate brands. Consequently, it was not unusual for males to group seemingly disparate brands together as long as they met a single criterion. To demonstrate, one subset of males used the dimension (or a variant of the dimension) of “Italian cuisine” to group Fazoli’s™, Chuck E Cheese’s™, Sbarros™, Dominos™, and Olive Garden™ into a single category. Thus, although these brands cumulatively span a wide range of price points, target markets, and
service offerings, many males chose a single, fundamental variable on which to base their segmentation decision.

At this juncture, it is interesting to point out that although not all males selected identical category-defining parameters, there was a high degree of consistency in the content of those variables chosen for segmentation. Specifically, males appeared to operate on highly obvious patterns found in the data attached to stimulus brands. Consequently, they tended to extract basic-level segmenting dimensions (i.e., cuisine type, ethnic orientation, etc.) that provided a maximal amount of information while simultaneously minimizing cognitive effort.

In a manner opposite to males, females appeared to display greater discrimination in forming brand groupings. Specifically, it was evident that multiple facets of each brand were considered before making final category assignments. For example, although many females, like males, employed the “Italian cuisine” dimension in brand segmentation, other variables such as “type of establishment” (i.e., dine-in versus take-out), “price points” (i.e., high-priced, moderately-priced, low-priced), “atmosphere” (i.e., formal, semi-casual, casual), etc., were also used in conjunction with one another. Thus, it was typical for a female to create a category label that contained multiple dimensions (e.g., “expensive, upper-class, Italian eateries,” “children’s-themed pizza place,” etc.). Hence, finer discrimination on the part of females manifested itself in both the formation of a large number of brand groupings as well as in category labels that were highly descriptive. The overall implication of these results is that in order to qualify for category membership, stimulus brands were subject to a strict standard of admittance. Thus, unlike males who loosely defined a category’s parameters according to a singular concept or theme, females were more apt to stipulate rigid adherence to multiple criteria in order to qualify for category membership.
To further substantiate this claim, examination of the data revealed that in addition to females’ category labels containing many attributes, the attributes themselves also appeared to consist of multiple layers. Hence, females were inclined to use verbiage that communicated a very precise level of meaning. Stated differently, depending on the level of an attribute employed, a very subtle, yet different, shade of meaning was conveyed. To offer an illustration, it is useful to make a comparison between the attributes utilized by males versus those used by females. For example, in describing the atmosphere of a dining establishment, males tended to use bipolar adjectives such as “formal” or “casual.” Females, on the other hand, resorted to a vast array of adjectives (e.g., formal, semi-formal, semi-casual, casual, etc.) to describe incremental variations in a restaurant’s atmosphere.

Upon closer scrutiny of the data, a few other points merit attention. First, it is interesting to note that among the females comprising this sample, approximately one third (i.e., 32% of women) formed one or more groups containing a single category member. This statistic is in sharp contrast to that calculated for the male portion of this sample in which less than 5% of all men formed brand groupings containing only one member. Furthermore, although the time required to sort brands into piles was not captured by respondent, it was observed that in 29 of 35 sessions (i.e., approximately 83% of all sessions), a female was the last individual in the group to complete the sorting and labeling task. Thus, this data offers additional support for the idea that females, in many instances, were willing to sacrifice cognitive efficiency for the sake of precision.

Additional analysis of the descriptive data also indicates pertinent gender differences in preference for a certain level of taxonomic abstraction. In evaluating the standard deviations, by gender, on each of the dependent measures of interest (i.e., number of self-directed product
categories, number of basic-level descriptors, and number of elaborate-level descriptors), it is interesting to note that on each of these three measures, there was nearly twice as much variation within the female portion of this sample than within the male portion. This was true for “number of self-directed product categories” ($SD = 1.94$ versus $1.01$), number of “basic-level” descriptors ($SD = 1.84$ versus $1.36$), and number of “elaborate-level” descriptors ($SD = 1.67$ versus $1.19$).

One explanation for this consistent pattern of gender differences in sample variation can be explained by differences in preferred level of abstraction. Specifically, because males tend to define categories according to overarching, highly salient, global cues, it seems intuitive that there would be little debate amongst males as to the validity of these parameters. In other words, it is expected that there would be a high level of consensus, by most males, on how a particular category should be defined and on the brands that should be included (or excluded) under the umbrella of the category label. Conversely, because females tend to prefer a more elemental level of abstraction where there may be numerous variations on a single attribute, it appears logical that there would be greater differences amongst individual women on the features constituting a particular category. Stated differently, less agreement and greater diversity on both the parameters of a category’s boundaries and its members would be expected amongst members of the female population. Consequently, gender differences in preferred level of abstraction can be captured both in the means of the dependent measures of interest as well as in the sample variance.
CONCLUSION

In summary, the cumulative results derived from hypothesis testing provide evidence to suggest that males and females prefer different levels of taxonomic abstraction. Specifically, because males tend to be selective processors of information, a category system that is defined according to broad-based, highly inclusive, basic-level parameters seems feasible. Conversely, because females are considerably more comprehensive in their processing style, a finely discriminated, highly exclusive categorical system seems better suited to this gender. Thus, based on this preliminary research, there is reason to speculate that the cognitive structures of men and women are organized differently. However, future research is needed to explore the many other dimensions associated with cognitive construction.
REFERENCES


