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Brand Equity Perceptual Mapping: Competitive Landscapes and Consumer Segments in Brand Equity Space

Brian Parker
Florida State University, bparker@fsu.edu

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Brian T. Parker

AUTHOR INFORMATION

Brian Parker
Florida State University
bparker@fsu.edu

ABSTRACT

This study advanced a technique to map brand metrics and theoretically derived diagnostics that depict the relative positions of competitive brand sets and audience segments in a perceptual consumer-based brand equity space. Survey research collected brand equity ratings for two sets of competitive brands (Nike, Converse, Reebok and Toyota, Nissan, Pontiac), used to construct a pair of two-dimensional maps that illustrate the brands' position on brand equity dimensions relative to competitors and demographic-based segments. Paired brand equity indicators resulted in eight map quadrant areas that characterize a brand positioned in that space. The mapping techniques facilitate the strategic application of multidimensional brand equity constructs and their use as brand valuation tools.

INTRODUCTION

The notion that brands add value to products or services is central to marketing. When consumers pay a premium price because of the value associated with owning a particular brand, not the product it represents, that brand name and everything associated with it generates a market advantage that is highly coveted, and protected by the range of marketing resources. While competitors can quickly copy a successful product, a strong, well-liked brand withstands duplication. Brand equity refers to this value instilled by well-cultivated brands, defined as "a set of brand assets and liabilities linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers" (Aaker 1991, p. 15).

Ultimately, brands are successful because they can manage and leverage the brand equity that consumers hold. High equity brands, among other functions, maintain loyal customers, are resistant to competitive offerings, and have a predictable influence on all components of customer lifetime value (CLV) including acquisition, retention, and profitability (Aaker, 1991; Keller, 1993; Yoo and Donthu, 2001; Stahl, Heitmann, Lehmann, and Neslin, 2012). Because of the importance placed on managing brand equity, its assessment has been one of the most studied aspects in marketing research (Marketing Science Institute, 2002).

Academics and marketing practitioners have developed numerous different brand equity evaluation techniques including financial (e.g., Simon and Sullivan, 1993) and consumer-based approaches (Keller, 1993). The latter has received the most research attention given the emphasis on consumer centric marketing and value delivery. The prevailing theoretical framework is a multidimensional, customer-based brand equity (CBBE) model that includes four brand metrics: brand name awareness, brand associations, perceived brand quality, and brand loyalty (Aaker, 1996). This construct is a composite measure of three important consumer behavior domains including memory

(brand awareness and associations), perception (quality valuation), and an attitudinal (loyalty) domain, each primarily an outcome of marketing efforts (Ross, 2006).

This study put forth a set of perceptual maps and diagnostics that facilitate the transition from CBBE theory and measurement to strategic marketing actions. Brand equity, as an assessment of brand strength, is most useful when viewed relative to competitors and the consumers that evaluate the brands. Evaluating brand equity in relational terms will enhance assessment and diagnostic capabilities, particularly with multidimensional models where brands can have unique combinations of equity drivers relative to competitive brands and across audience segments. This conception of brand equity relativity has implications for brand positioning and market segmentation, two central domains of applied marketing.

A brand position is the place a brand occupies in consumer memory in relation to competitive brands – a relative competitive comparison by a given target (Ries and Trout, 1981). Brands can also hold unique positions in brand equity space driven by consumer brand perceptions. The idea behind market segmentation is that there are different groups of consumers who are motivated by different combinations of brand dynamics, and that there can be diverse levels of CBBE across audience segments for a brand. Identifying unique combinations of equity drivers could provide new insights that allow brands to identify their own unique sources of brand equity, or lack thereof, facilitating strategic thinking that alleviates the effects of competition. Toward this end, the present study advanced a technique to map brand metrics and theoretically derived diagnostics that depict the relative positions of competitive brand sets and audience segments in a perceptual CBBE space.

REVIEW OF RELEVANT LITERATURE

Literature reports several conceptualizations of brand equity (MacKay, 2001) and operational approaches (Agarwal and Rao, 1996; Severi and Choon Ling, 2013; Y&R, 2010). Three major perspectives in the literature are the financial, customer, and combined perspectives. Financial brand equity evaluation uses the market value of a company's assets to determine the monetary value added by the brand to the product (Farquhar, 1991; Simon and Sullivan, 1990). In the customer perspective, researchers determine brand equity by gauging consumers' reactions to a brand name (Keller, 1993). The combined model includes both financial and customer evaluations (Shamma and Hassan, 2011).

Aside from the major perspectives, others have looked at additional variables to determine a brand's equity, such as emotional connection (Christodoulides, De Chernatony, Furrer, Shiu and Abimbola, 2006), purchase consideration (Rego, Billett, and Morgan, 2009), brand distinctiveness (Netemeyer et al., 2004), and trust (Christodoulides et al., 2006). In addition, there are a number of well-regarded proprietary brand equity models. For example, Harris Interactive's EquiTrend[®] (Harris, 2014) determines a brand's equity based on consumer familiarity, quality perceptions, and consideration, while Young & Rubicam's BrandAsset[®] Valuator (Y&R, 2014) focuses on brand strength and brand involvement.

One commonality across viewpoints, however, is that brand equity results in gained benefits, financial and intangible, derived from strong branding efforts versus a comparable new brand or non-branded products. Nonetheless, applying Aaker's (1996) four-factor CBBE model has a number of advantages. Mainly, the model is theoretical, validated in numerous studies (Keller, 1993; Abela, 2003; Park and Srinivasan, 1994; Washburn and Plank, 2002; Zeithaml, 1988), there are valid, reliable measures of the CBBE dimensions (Yoo and Donthu, 2001), and the model remains a cornerstone of brand equity research (e.g., Severi and Choon Ling, 2013; Tong and Hawley, 2009).

Customer-Based Brand Equity (CBBE)

Keller (1993) originated the concept of customer-based brand equity (CBBE) as a theory of understanding brand equity at the individual consumer level, rather than using financial or market share indicators of brand strength. A customer-based conceptual approach indicates brand equity facets that affect customer behavior, assessed with survey research to measure responses toward the brand name. CBBE is a multidimensional construct, traditionally conceptualized with the aforementioned four-factor approach (i.e., brand awareness, brand associations, perceived brand quality, and brand loyalty) suggested by Aaker (1996).

Brand name awareness and brand associations are both memory constructs, though theoretically distinct. Name awareness is the strength of a brand's presence in consumer memory ranging on a continuum from completely unaware to top-of-mind awareness. Konecnik and Gartner (2007) suggest brand awareness primarily influences the cognitive component of brand perceptions, and a brand will not develop equity without it. Not only is brand awareness essential for equity development, but also consumers are more likely to choose familiar brands that are readily accessible in short-term memory (i.e., the evoked set). According to Young & Rubicam (Y&R, 2014), consumer awareness is the "key" to brand value. However, it is important to note that strong brand awareness does not always denote high brand equity; poor performance brands can also have high recognition and recall.

Brand associations are pieces of positive and negative information related to a brand in consumer memory. Associations develop in memory by the entirety of ways a brand's name and symbol makes contact with consumers (Shultz and Barnes, 1999). The combination of positive and negative associations helps establish consumer brand knowledge and image. Keller (1993) theorizes that brand equity is a function of the differentiating effect of brand knowledge, and suggests that firms should establish strong, unique, and favorable associations to build brand equity.

Evidence indicates that both perceived brand quality and brand loyalty are strong drivers of brand equity. Perceived brand quality is the consumer's subjective judgment about a brand's overall excellence (Aaker, 1996; Zeithaml, 1988). Perceived quality is a major point of brand differentiation, and the only brand equity dimension demonstrated to drive sales performance, statistically shown to predict both return on investment (ROI) and stock returns. Importantly, perceived quality influences the formation of other brand perceptions. As perceptions of brand quality improve, other brand evaluations also improve (Zeithaml, 1988). The aforementioned EquiTrend survey rates the world's top brands based on brand quality and familiarity (i.e., awareness) ratings – two of the CBBE dimensions. Industry experts consider the top fourteen brands rated highest on the quality measure "world class" brands (Hein, 2002).

Brand loyalty is the level of attachment that a customer has to a brand, considered the single most reliable assessment of brand strength (Reichheld, 2001). Loyal consumers provide companies a clear competitive advantage that helps establish barriers of entry, gives firms time to respond to competitive offerings, and the ability to demand premium prices (Aaker, 1991). There is a strong association between the level of brand loyalty and market share, mainly because loyal consumers buy more, are willing to pay a higher price, and generate positive word of mouth (Wright and Sparks, 1999; Zeithaml et al., 1996). In short, brand loyal consumers represent a disproportionate amount of value added to a company's brand equity.

It is important to note a divergence in the brand equity literature regarding loyalty. Aaker (1991, 1996) conceptualized brand loyalty as an element of brand equity (i.e., an asset provided by the brand name). On the other hand, Keller (1993) argues that brand loyalty is an outcome of brand knowledge, specifically related to favorable, unique, and strong brand associations. The present study adapts the latter conceptualization, regarding loyalty as part of brand equity, an occurrence that adds to the intangible value generated by strong brands, rather than a result.

Recent CBBE Research

Aaker's (1991, 1996) four-factor model permeates current literature as the theoretical framework for the vast majority of brand equity research (e.g., see Allaway, Huddleston, Whipple, and Ellinger, 2011; Boo, Busser, and Baloglu, 2009; Chen and Tseng, 2010; Parker, 2012; Tong and Hawley, 2009; Yasin and Zahari, 2011). Researchers have applied the model in a variety of different marketing contexts outside of traditional product marketing, and have directly examined the inter-relationships amongst the CBBE dimensions, exemplifying the usefulness of each brand metric in overall equity formation.

For example, Allaway et al., 2011 applied the four-factor CBBE model toward supermarket brands, isolating brand loyalty and quality as significant drivers of high brand equity. This study made evident that different brand equity dimensions drive higher scores for national (i.e., high brand name awareness), regional (brand loyalty), and specialty supermarkets (brand loyalty and perceived quality). Rios and Riquelme (2008) illustrated CBBE's application for online brands using structural equation models which showed brand loyalty and brand associations establish online brand equity, while brand awareness had an indirect influence on online brand loyalty. Parker (2012), in a study of

presidential candidate brand name strength, showed name awareness and image associations impact voting intentions in early campaign phases, while perceived brand name quality and candidate loyalty were significant factors in later campaign phases.

Juntunen, et al., 2010 demonstrated a strong relationship between CBBE and corporate brand equity in a B2B context. Study findings suggest that corporate brand associations (i.e., corporate image and reputation) are the primary driver of corporate brand equity. Evidence indicated that loyalty, rather than being a part of brand equity, is an outcome of a strong, favorable corporate image, emphasizing the importance of managing brand associations for corporate branding. In a similar research stream, Shamma and Hassan (2011) proposed a holistic brand equity construct that combines CBBE and corporate brand equity, incorporating both customer and other stakeholders' (e.g., employees, regulators, shareholders, etc.) brand orientations to determine overall brand value, as well as market, social, and financial performance measures.

Relationships among CBBE Dimensions

A study of airline CBBE, directly examined the inter-relationships between the reviewed four factors and their individual contribution to overall brand equity using path analyses (Chen and Tseng, 2010). Findings indicated that brand awareness, brand image, and perceived brand quality have indirect relationships with overall brand equity, while brand loyalty demonstrated the only significant, direct path with overall CBBE. Furthermore, brand awareness related strongest with perceived brand quality and image (i.e., brand associations), quality valuation with brand image and brand image with brand loyalty.

Severi and Choon Ling (2013) also examined the inter-relationships amongst the four CBBE dimensions and their mediating role on overall CBBE ratings. In short, the findings showed that brand associations mediate the relationship between brand awareness and brand equity, brand loyalty mediates the relationship between brand associations and brand equity, brand image mediates the relationship between brand loyalty and brand equity, and perceived brand quality mediates the relationship between brand image and brand equity. Whilst these studies are not conclusive, they do indicate a complex relationship between the four CBBE dimensions that researchers need to address in each marketing situation.

Multidimensional Brand Equity (MBE) Scale

The research community has not developed a universally accepted measure of brand equity. Rather, this study employed a measure deduced from CBBE theory and empirically validated. Yoo and Donthu (2001) developed reliable, psychometric scales to measure the reviewed brand equity factors. The authors defined CBBE as the "measurement of cognitive and behavioral brand equity at the individual consumer level through a consumer survey" (Yoo and Donthu, 2001, p.2). The primary empirical goal was to develop CBBE scales as an alternative to other priority techniques (e.g., see Park and Srinivasan 1994; Simon and Sullivan 1993) and financial-based valuations of brand strength.

Yoo and Donthu (2001) derived scale indicators using a factor analysis of items from a wide range of validated measures of each dimension, eventually reduced to ten-items that comprise the "multidimensional brand equity" (MBE) scale (Yoo and Donthu 2001, 10). The four dimensional scale items capture attitudinal loyalty, brand recognition awareness, perceived brand quality, and the "perceptual strength" of brand associations. Studies demonstrate the MBE scales to be parsimonious in brand survey research and highly reliable across product categories, brands, and free of cultural bias. The forthcoming research method overview presents the individual MBE scale items.

RESEARCH AGENDA

The purpose of this study was to advance the practical application of CBBE theory. The four CBBE factors (i.e., brand awareness, image associations, perceived brand quality, and brand loyalty) are fundamental brand metrics, grounded in decades of accessible research to support analysis and data interpretation, facilitating the application of theory and analytics to marketing practice. Specifically, this study combined relevant literature and empirical data to

develop a perceptual mapping system to portray and theoretically characterize the position of brands within brand equity space defined by the four CBBE factors.

Perceptual mapping is an illustrative technique employed by marketers to display perceptions of consumers. Generally, the position of a brand or product is displayed relative to competitors. Mapping techniques provide simple visual presentations of data structure and facilitate its interpretation. They aid marketers in the development of brand differentiation and positioning strategies by depicting the competitive or audience landscape and isolating unique or preferable positions.

Standard perceptual maps use two dimensions for plotting stimuli in space defined by the intersection of two axes, each representing variable scale parameters. Researchers plot stimuli (e.g., brands) within the space created by the combined variable scales, representing unique locations defined by the scale parameters. Because visual mapping provides insights not easily recognized with other methods, their use can foster the identification of opportunities and new strategic directions, as well as help track perceptual changes overtime.

As contended, brand equity is relative to competitors and the audience that evaluates the brand, particularly when using a CBBE approach that is dependent on individuals' brand perceptions. CBBE perceptual maps will enhance the usefulness of the brand equity construct by illustrating the relative strength of a brand amongst competitors and within key consumer groups. Additionally, depicting brands on each of the four equity factors enables further diagnostics to illustrate factors that drive overall brand equity, providing actionable insights that an aggregate score alone does not provide. Such insights will help hone brand strategies for different valued segments and help counter competitive positioning strategies.

In addition to developing CBBE visual diagnostics, the second major goal of this study was to synthesize relevant literature on each brand equity factor to provide descriptive analytics of different positions (i.e., map quadrants) that brands can occupy when CBBE factors merge on perceptual maps. Combining illustrative techniques with research insights elevates the capabilities of brand equity visual mapping, and increases the actionable intelligence generated by this technique for marketing strategists.

METHOD

This study employed survey research to gather CBBE ratings for two different competitive brand sets used to develop and illustrate the proposed brand equity perceptual maps and associated diagnostics. To select brands for analysis, preliminary research described below generated an extensive list of brands from which the researcher selected six that target respondents would likely be familiar with, were in the same product category to enable competitor comparisons, and potentially would have different levels of brand equity.

Questionnaires included an initial IRB consent form that explained the study purpose and ensured confidentiality of responses. After agreeing to participate by signing the consent form, the questionnaire presented each brand individually followed by a single item familiarity scale to allow for the exclusion of subjects not familiar with any of the brands. The questionnaire instructed respondents before rating each brand to answer the question "Are you familiar with (brand X)?" If a respondent answered "no", they were instructed to skip to the next brand on the questionnaire. For respondents familiar with a brand, the questionnaire next presented a three-item brand attitude scale, followed by the MBE scale, each further described in the forthcoming section. The final questionnaire section gathered basic demographic information including respondent ethnicity, gender, and age.

Questionnaire refinement occurred via two pre-tests on sub samples of the target population. Pre-test results showed the questionnaire required an average of fifteen minutes to complete, the measures were straightforward to all participants, and reliability scores were above .70 for each measure indicating the MBE scale generated consistent responses. Three versions of the questionnaire were randomly distributed; each presented the six brands in different sequences to reduce the potential of order bias effects.

A convenience sample of undergraduate college students participated in the primary survey, recruited from diverse courses at a large U.S. urban university. Research assistants administered questionnaires in classroom settings during regular hours. Participation was voluntary and course instructors offered extra credit as an incentive for

participation. Given the diverse student population at the institution, it was possible to gather questionnaires from three broadly defined ethnic groups (i.e., Black, Hispanic, and White) to illustrate audience segment comparisons on the CBBE perceptual maps.

While ethnicity alone is a basic segmentation scheme, there are advantages of employing it to address the present research agenda. Ethnicity is known to moderate consumption patterns and a number of consumer behaviors such as brand loyalty and brand engagement (Valdez, Korzenny, and McGavock, 2010), and therefore potentially brand equity as well. Ethnicity has become an important segmentation variable with firms shifting toward tailored multicultural marketing and branding. Firms have paid particular attention to the Hispanic segment, which is the fastest growing ethnic group in the U.S., with a purchasing power exceeding 1.3 trillion dollars in 2014, a market larger than most countries in the world (Humphreys, 2009).

Brand Selection Procedure

Preliminary research using a subsample of respondents (N = 46, female = 29 and male = 17) from the same population sampled for the primary survey (though excluded from the primary sampling units) identified brands that were (1) well-known to target respondents, (2) both liked and disliked, and (3) readily available and consumable by both female and male respondents from each demographic segment. By doing so, the goal was to increase response likelihood for each brand in the primary survey in order to gather usable data, rather than having unfamiliar brands, where brand equity ratings would not exist except for low brand awareness. Selecting brands consumers liked and disliked provided a list of brands that likely range on equity to allow for illustrative comparisons.

In a classroom setting, the researcher gave respondents verbal instructions to write down two brands they were familiar with and like, and two brands they were familiar with, but do not like. Participation was voluntary and responses were anonymous. This task took approximately ten minutes to complete and generated a list of over two-hundred brands, from which the researchers selected brands with high frequency of mention that belong to the same product category for the survey. Selected from this list were three automotive sedan brands (i.e., Toyota, Pontiac, and Nissan) and three athletic shoe brands (i.e., Nike, Reebok, and Converse) to serve as the units of analysis.

Four of the selected brands (i.e., Toyota, Nissan, Nike, and Converse) respondents mentioned most often as "liked". The other two brands (i.e., Pontiac and Reebok) selected were frequently mentioned as "do not like" and fit into the product categories of the other four brands. Further, six brands were sufficient to achieve the research agenda and not be overly cumbersome to respondents, allowing enough time to complete the questionnaire. Brand names, rather than logos or other insignia, were the focal point of examination because the name, apart from other symbols, is the primary indictor of brand value (Cobb-Walgreen et al., 1995).

Brand Equity Measurement

CBBE was operationalized with the reviewed ten-item multidimensional brand equity scale (Yoo and Donthu, 2001). The MBE scale is a valid and reliable measure, free of cultural bias, and applicable across product categories. Table 1 displays the MBE scale indicators consisting of two items for brand awareness, three items for brand association strength, two items for perceived brand quality, and three items for brand loyalty. Factor analysis demonstrated these items are robust indictors of the CBBE factors, and not excessively burdensome to respondents in survey research, allowing for the examination of multiple brands, and the ability to easily track brand equity.

Respondents indicated their agreement to each item statement using five-point Likert-scales anchored at 1 = "strongly disagree" and 5 = "strongly agree". Total brand equity ratings and scores for each dimension are the focal point of analysis. Averaged items for each scale dimension produced a brand awareness score, an association strength score, a perceived brand quality score, and a brand loyalty score for each evaluated brand. Total brand equity rating is an average of the dimension scores across all scaled items.

Table 1
Multidimensional Brand Equity Scale Items

Brand equity factor	Scale items
Brand awareness	I am aware of brand X. I can recognize brand X among other competing brands.
Brand associations Strength	Some characteristics of brand X come to my mind quickly. I can quickly recall the symbol or logo of brand X. I have difficulty in imagining brand X in my mind.
Perceived quality	The likely quality of brand X is extremely high. The likelihood that brand X would be functional is very high.
Brand loyalty	I consider myself loyal to brand X. Brand X would be my first choice. I will not buy other brands if brand X is available at the store.

Note. Multidimensional brand equity (MBE) (Yoo and Donthu, 2001) is an average of ten items. Substitute research brand for "brand X".

As a measure of comparison and to validate preliminary research that suggested the selected brands were either liked or disliked, the survey gathered brand attitude ratings, measured with a three-item, five-point attitude scale (favorable/unfavorable, good/bad, and likeable/unlikable), commonly used in brand research and operationalized as an index of three semantic differential scales (MacKenzie, Lutz, and Park, 1989).

RESULTS

Two-hundred forty eight (N = 248) completed questionnaires were collected for analysis. The majority (71 percent) of respondents were females (n = 176) and 29 percent male (n = 72). Fifty four percent of respondents were Hispanic (n = 134), 22 percent White (n = 54) and 19 percent Black (n = 46). The remainder of respondents were Asian (n = 12) and American Indian (n = 2). Sixty nine percent of respondents were between the ages 18 and 24 (n = 170), 24 percent were 25-29 (n = 60), and 7 percent of the sample were 30 and older (n = 18).

Each brand had high levels of familiarity. Of the six brands, Pontiac received the lowest familiarity with 10 of the 248 sampled respondents reporting they were unfamiliar with the brand. For the athletic shoe brands, Nike ranked highest on the five-point attitude index ($\mu = 4.36$, SD = 0.78, n = 248), Converse second ($\mu = 3.87$, SD = 1.16, n = 248), and Reebok displayed the lowest rating ($\mu = 2.97$, SD = 0.96, n = 246). For the automotive sedan brands, Toyota ranked highest ($\mu = 4.23$, SD = 0.86, n = 248), Nissan second ($\mu = 4.13$, SD = 0.92, n = 246), and Pontiac rated lowest ($\mu = 2.41$, SD = 1.02, n = 238).

Brand Equity

Multidimensional brand equity (MBE) scores are sample means of the averaged brand awareness, brand association (strength), perceived quality, and brand loyalty scores based on five-point scales. For the shoe brands, Nike ($\mu = 4.19$, SD = 0.53, N = 248) ranked highest, followed by Converse ($\mu = 3.72$, SD = 0.81, N = 247), and Reebok ($\mu = 3.20$, SD = 0.63, N = 244) with the lowest MBE rating. Toyota ($\mu = 3.98$, SD = 0.65, N = 248) ranked highest for the car brands, followed by Nissan ($\mu = 3.79$, SD = 0.75, N = 246) and Pontiac ($\mu = 2.61$, SD = 0.78, N = 238) lowest.

For all sampled respondents, the ranking of brands by equity scores follows the pattern found with the attitude measure. Table 2 displays the correlations between the MBE aggregate totals and the composite brand attitude scores, illustrating positive associations between the two constructs for each brand, significant at the .01 level. Correlation coefficients were above .70 for Nike ($r = .72$), Converse ($r = .76$), Toyota ($r = .73$), and Nissan ($r = .79$), indicative of strong relationships between the constructs. While significant, correlations between brand equity and

attitude were only moderately strong for Reebok ($r = .52$) and Pontiac ($r = .49$), the two brands with the lowest brand equity within their product category.

Table 2
MBE and Brand Attitude Correlations / Reliability Statistics

| Brand | N | MBE Total | | | Brand Attitude | | | (r) |
		Mean	SD[a]	Cronbach's α	Mean	SD[a]	Cronbach's α	
Nike	248	4.19	0.53	.785	4.36	0.78	.937	.72**
Converse	248	3.72	0.81	.867	3.87	1.16	.954	.76**
Reebok	244	3.20	0.63	.773	2.97	0.96	.869	.52**
Toyota	248	3.98	0.65	.856	4.23	0.86	.938	.73**
Nissan	246	3.79	0.75	.757	4.13	0.92	.962	.79**
Pontiac	238	2.61	0.78	.679	2.41	1.02	.949	.49**

Note. MBE Total mean is an aggregate of 10 MBE items rated on 5-point scales where 1 = low MBE and 5 = high MBE. Brand Attitude (BA) is an aggregate of three items rated on 5-point scales where 1 = low BA and 5 = high BA. Pearson correlations (r) report the association between MBE total and BA for each brand.
** $p < .05$.
[a]Standard deviation.

In addition, Table 2 reports Cronbach's Alpha (α) reliability statistics for both the MBE and brand attitude composite scales recorded for each brand. Internal consistency of the MBE scale demonstrated reliability across brands with statistics all above the .70 threshold, except for the brand Pontiac, that was slightly below this threshold (.679). Examination of the internal consistency of the brand attitude indices showed high reliability across all brands with Cronbach's Alphas that ranged between .869 and .962.

Brand Equity Dimension Scores

Table 3 displays the rating for each brand on the four brand equity dimensions. All brands have moderately high brand awareness ratings, expect for Pontiac, the only brand rated below four (μ = 3.38, SD = 1.25), illustrating a slightly weaker presence in consumer memory. In fact, Pontiac rated below three on each dimension except for brand awareness, evident of the brand's lower overall MBE rating. Brand association strength varied slightly between brands, with Nike (μ = 4.70, SD = 0.53) and Toyota (μ = 4.41, SD = 0.74) rated highest in their product category. Similarly, perceived quality ratings show Nike (μ = 4.44, SD = 0.65) and Toyota (μ = 4.32, SD = 0.83) rated highest. Overall, brand loyalty scores were lower than the other three dimension ratings for each brand, with Nike (μ = 2.95, SD = 1.20) and Nissan (μ = 2.69, SD = 1.17) rated highest, though remaining below three.

Table 3
CBBE Factor Scores

| Brand | N | Brand Awareness | | Association Strength | | Perceived Quality | | Brand Loyalty | |
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Nike	248	4.64	0.58	4.70	0.53	4.44	0.65	2.95	1.20
Converse	248	4.45	0.88	4.16	1.06	3.67	0.96	2.57	1.29
Reebok	244	4.14	0.83	3.44	1.16	3.49	0.93	1.74	0.83
Toyota	248	4.62	0.56	4.41	0.74	4.32	0.83	2.56	1.27
Nissan	246	4.41	0.73	3.88	1.04	4.18	0.81	2.69	1.17
Pontiac	238	3.38	1.25	2.71	1.25	2.89	1.01	1.46	0.81

Note. Brand awareness, association strength, perceived quality, and brand loyalty score values are the sample mean of the combined MBE scale items for each dimension reported on 5-point scales.
[a]Standard deviation.

Reliability analysis of the individual CBBE factor measures showed stability across examined brands for each scale. Cronbach's Alpha statistics for the brand awareness scale ranged between .732 and .887 for the six brands, the brand association strength scale ranged between .697 and .750, perceived brand quality ranged between .732 and .929, and the brand loyalty scaled ranged between .803 and .887 across brands. Of the four factor measures, brand association strength showed slightly lower internal consistency, with the only statistic below the .70 threshold for the brand Nike (.697).

Correlation coefficients, displayed in Tables 6-11 in Appendix A for each brand, show the degree of relationship between the four brand equity dimensions. Of the four variables, awareness and association strength had the strongest relationship across brands, with a range (r = .51 to .76) of moderately strong coefficients. Perceived quality and brand loyalty were significantly related across brands with a range (r = .23 to .54) of low to moderately strong positive coefficients. For three of the six brands, i.e., Nike, Reebok, and Pontiac, there was not a significant relationship between perceived quality and / or loyalty with awareness and association strength. As a point of reference, correlations also illustrate the relationship between brand attitude and each of the four CBBE factors. For two of the brands (i.e., Nike and Converse) brand loyalty had the strongest relationship with brand attitude, while perceived quality had the strongest relationship with brand attitude for the remaining brands: Reebok, Toyota, Nissan, and Pontiac.

Brand Equity Perceptual Maps

Two two-dimensional perceptual maps visually represent the four-factor CBBE construct. Each map depicts two construct dimensions (see Figures 1-8), where the axes represent the MBE five-point scale range (1 = low and 5 = high). Brand placement occurs on each map where CBBE factor mean scores intersect on their corresponding axis, occupying a position in the combined two-factor space.

Theoretically, brand awareness and brand association strength are related memory constructs, and therefore provide a natural pairing for CBBE map development. Of the four CBBE factors, brand awareness and association strength displayed the strongest correlations between factors in the current dataset (see correlation Tables 6-11 Appendix A), providing empirical support for their pairing. In addition, these two constructs are foundational to brand equity development, providing a diagnostic to early stages of brand equity growth and image development. One perceptual map pairs these two CCBE dimensions in what is termed "awareness-association strength space".

The second map paired the two remaining CBBE factors: perceived brand quality and brand loyalty. Brand loyalty and perceived brand quality do not share a theoretical connection similar to the natural pairing with the memory constructs. However, current results showed significant correlations between loyalty and quality perceptions for each analyzed brand. Whereas, for three of the brands examined, neither brand loyalty nor perceived brand quality were correlated with the awareness and association strength measures. In addition, there are diagnostic advantages that result from pairing these two constructs on CBBE perceptual map space.

Both perceived brand quality and brand loyalty represent a disproportionate amount of brand equity, particularly the latter. In other words, while many brands can establish themselves in consumer memory, these two constructs differentiate the strongest brands. As reviewed, industry experts consider brands with the highest quality ratings world-class brands, and brand loyalty a central marketing goal that often serves as a measure of brand equity in itself. Pairing these two CBBE factors should help depict the greatest differentiation between brands in equity space. Therefore, the second perceptual map paired these two CBBE factors to create a "perceived brand quality-loyalty" space. Note that the present map configuration is but one optional arrangement of the CBBE factors. Other paired combinations are possible, and marketers can reconfigure the construct parings to address their particular needs.

For presentation, the two maps (i.e., Map 1 = "awareness-association strength" and Map 2 = "perceived quality-loyalty") merge as a single figure. Each perceptual map has four quadrants that represent particular areas in brand equity space defined by the rating levels on combined dimensions. Characteristics for each paired-variable quadrant

describe the brand equity position of mapped stimuli using the dimension construct descriptors for defining the space, representing a generalized summary of CBBE theoretical conceptions. These descriptive diagnostics suggest the general strategic direction for brand equity development in each quadrant. Perceptual Map 1 contains Quadrants I, II, III, and IV – each represents different levels of consumer brand memory and described in Table 4. Perceptual Map 2 contains Quadrants V, VI, VII, and VIII, described in Table 5.

Table 4
Perceptual Map 1 Quadrant Characteristics: Awareness-Association Strength Space

Map Quadrant	Quadrant Characteristics
Quadrant I	High brand awareness and low brand association strength ratings. The brand is well known by respondents, yet the image is not as well established compared to higher equity brands. Consumers are aware of brands in this quadrant, can recognize them among other brands, however, they cannot quickly think of brand associations. Quadrant I suggests brands that need to strengthen image associations, cultivate the brand's logo/symbol, while maintaining name awareness.
Quadrant II	Low brand awareness and low brand association strength. These brands lack the foundations of brand equity. This quadrant is typical of new and unfamiliar brands. Brands lack established memory structures, are not easily recognized among competing brands, and consumers do not recall their characteristics. Brand strategy in Quadrant II should focus on building awareness and forging positive associations to build brand knowledge and identity.
Quadrant III	High brand awareness and strong brand associations, the most desirable location on Map 1. Brands that occupy this quadrant are well known, have forged brand associations in consumer memory, and established knowledge structures. Brands with positive associations need a strategic focus that maintains a strong favorable brand identity. Brands with strong negative associations each require particular strategic redirection.
Quadrant IV	Low brand awareness and strong brand associations. This quadrant suggests an improbable situation for a brand given that awareness (i.e., memory) is a necessary condition for the formation of associations.

Note. Brand equity perceptual Map 1 quadrant descriptors characterize the general brand equity position on awareness-association strength space and suggest general equity development strategy.

On both perceptual maps, the further brands move toward the right and the top, the better the performance on the brand equity indicators. For each map, the location illustrative of strong brand equity is the top-right location that represents high ratings on both mapped dimensions; this corresponds to Quadrant III on Map 1 and Quadrant VII on Map 2. An exception is Quadrant VIII that represents brands with high loyalty, yet low perceived quality ratings.

Table 5
Perceptual Map 2 Quadrant Characteristics: Perceived Quality-Loyalty Space

Map Quadrant	Quadrant Characteristics
Quadrant V	Low brand loyalty and high-perceived quality ratings. Consumers view these brands as moderate to high quality and likely to be functional in meeting their needs, yet they are not brand loyal, and would not choose the brand first, considering other brands if available. Strategies should focus on influencing the consumer decision process, loyalty-building programs, combating competitive offerings, while protecting differentiating thoughts about quality.
Quadrant VI	Low brand loyalty and low perceived quality ratings, representing low brand equity. Consumers are not loyal to these brands, would not choose them first, and would easily buy other brands if available. Products represented by these brands are not perceived as quality or likely to be functional in meeting consumer needs. Brand strategy should focus on changing consumers' brand perceptions and developing positive, differentiating thoughts.
Quadrant VII	High brand loyalty and high quality ratings, representative of brands with strong brand equity. Consumers consider themselves loyal to these brands, they are their first choice, and will not buy other brands if available. Consumers believe these brands are of high quality and highly likely to be functional in meeting their needs. Strategies should focus on maintaining consumer perceptions and relationships, while protecting brand status.
Quadrant VIII	High brand loyalty and low perceived quality ratings. Loyal consumers that would choose brand first and not buy alternatives even though these brands are viewed as lower quality. This quadrant likely represents value brands that also have strong equity given the loyal customers. Strategies should maintain customer relationships, while delivering value-added loyalty programs and promotions.

Note. Brand equity perceptual Map 2 quadrant descriptors characterize the general brand equity position on quality-loyalty space and suggest general equity development strategy.

Brand Equity Perceptual Maps: Nike, Converse, and Reebok

The forthcoming brand equity perceptual maps illustrate the position of the analyzed brands in brand equity space as described. Perceptual map figures are presented for each category brand set (i.e., athletic shoes and automotive sedans) and for each brand to illustrate the brand's position with each respondent segment (i.e., Black, Hispanic, and White respondents) in brand equity space. For succinctness, only the automotive brand's 'consumer segment' perceptual maps are discussed in detail. Appendix B presents the consumer segment map figures (see Figures 6-8) for the other three brands (Nike, Converse, and Reebok). For reference, Tables 12-17 in Appendix C present the consumer segment brand equity dimension mean scores for the corresponding perceptual maps.

Figure 1 illustrates the positions of Nike (1), Converse (2), and Reebok (3) in brand equity space for all respondents. Map 1 shows the position of each brand plotted on awareness-association strength space. Each brand occupies Quadrant III, denoting moderate to high awareness and association strength scores. Nike (1) occupies the strongest position compared to the other two brands, with both higher awareness and association strength ratings, indicating stronger brand presence in consumer memory. Reebok (3), while positioned in Quadrant III, occupies the weaker position on both variables compared to Nike (1) and Converse (2).

Map 2-Figure 1, shows a similar pattern between the plotted brands on perceived quality-loyalty space, though Reebok's (3) position is low in Quadrant V, illustrative of moderate quality ratings and poor brand loyalty. Nike (1) occupies the strongest position, particularly with higher perceptions of quality and brand loyalty than Converse (2) and particularly Reebok (3). Converse (2) occupies a position between the other two brands on both maps, close to Quadrant V on Map 2 with moderate brand loyalty in comparison. Overall, for the three athletic shoe brands, loyalty ratings are moderately high at best, which may indicate a general characteristic of the product category.

Figure 1
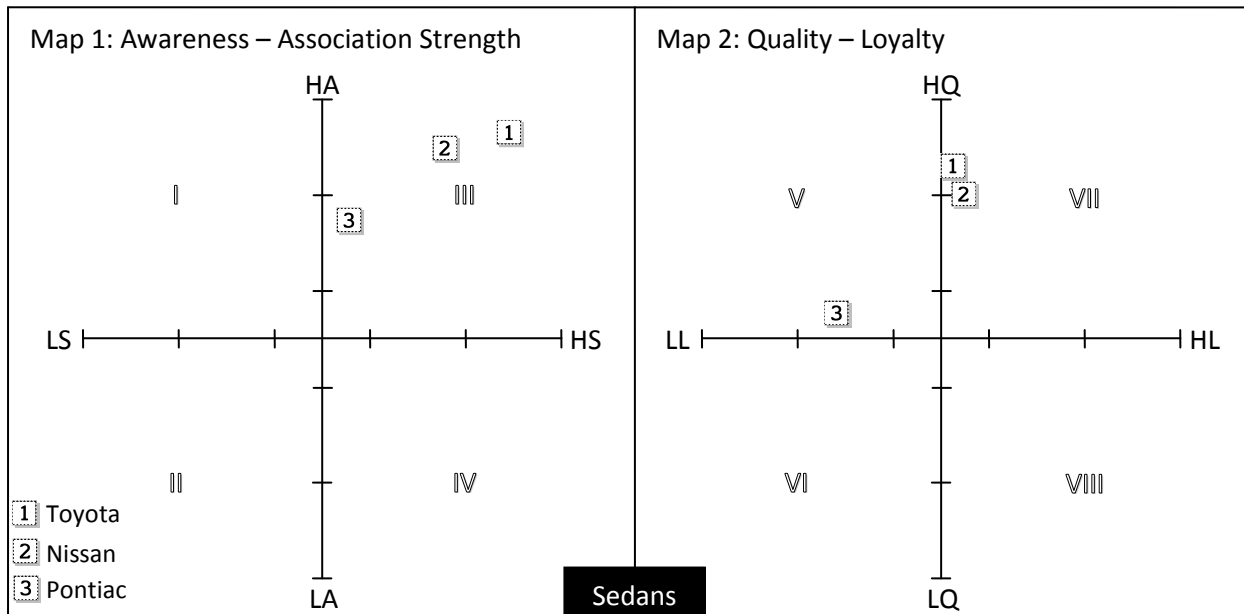**Athletic Shoes: Brand Equity Perceptual Maps**
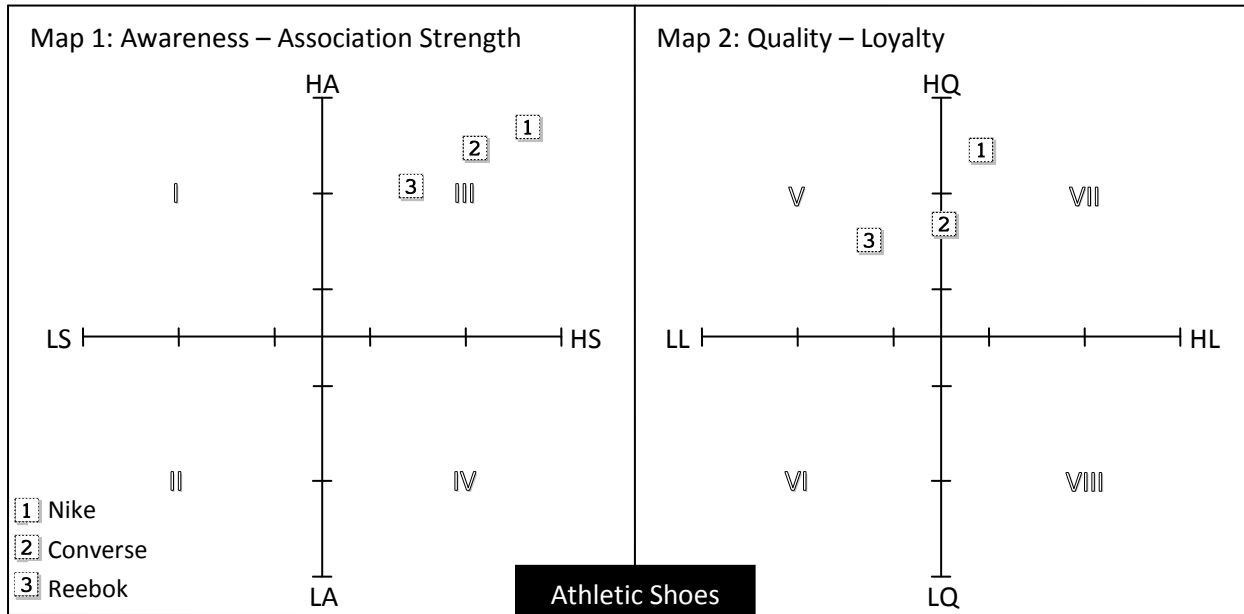
Brands plotted position based on the mean dimension scores for all sampled respondents. Each axis represents 5-point scales (1 = low and 5 = high). Map 1: Awareness – Association strength space: LA = Low Awareness, HA = High Awareness; LS = Low Association Strength, HS = High Association Strength. Map 2: Perceived quality – Brand loyalty space: LQ = Low Quality, HQ = High Quality; LL = Low Loyalty, HL = High Loyalty.

Brand Equity Perceptual Maps: Toyota, Nissan, and Pontiac

Figure 2 illustrates Toyota (1), Nissan (2), and Pontiac (3) plotted in brand equity space. Map 1(awareness-association strength) shows each brand in Quadrant III, notably, there is more differentiation between the car brands than the shoe brands. Toyota (1) occupies the strongest position on Map 1, indicative of stronger brand presence in consumer memory than the other two car brands. Pontiac's (3) brand presence is not as strong, with both lower brand awareness and weaker associations, positioned in close proximity to Quadrant I. Nissan (2) also occupies a strong position on Map 1, however, the brand has slightly lower awareness and weaker brand associations than Toyota (1).

Figure 2
Sedans: Brand Equity Perceptual Maps

Brands plotted position based on the mean dimension scores for all sampled respondents. Each axis represents 5-point scales (1 = low and 5 = high). Map 1: Awareness – Association strength space: LA = Low Awareness, HA = High Awareness; LS = Low Association Strength, HS = High Association Strength. Map 2: Perceived quality – Brand loyalty space: LQ = Low Quality, HQ = High Quality; LL = Low Loyalty, HL = High Loyalty.

Map 2-Figure 2 (quality-loyalty space) shows Toyota (1) and Nissan (2) both in Quadrant VII, occupying nearly the same position, with high quality ratings and moderate brand loyalty scores. Even though Toyota (1) and Nissan (2) occupy similar positions on quality-loyalty space, Toyota, positioned stronger than Nissan on Map 1, illustrates the point of brand equity differentiation between the two brands (i.e., a stronger image for Toyota). Further, Pontiac (3), plotted in Quadrant V, displays low to moderate quality ratings and low brand loyalty from all respondents.

Toyota: Consumer Segment Brand Equity Perceptual Maps

Figure 3 displays Toyota's brand equity position with Black (1), Hispanic (2), and White (3) respondents. Toyota has the strongest brand equity with Black (1) respondents, whom occupy positions on both maps illustrative of very high ratings on awareness, association strength, perceived quality, and high brand loyalty. Toyota is well positioned with Hispanics (2), except noticeably lower brand loyalty than with Black respondents, illustrated on Map 2. For White (3) consumers, Toyota is established in memory, though not as strong compared to the other segments, positioned close to Hispanics on Map 1. Map 2, shows Toyota positioned with White (3) consumers in Quadrant V, depicting the groups' lower perceived quality and brand loyalty compared to the other segments.

Figure 3
Toyota: Consumer Segment Brand Equity Perceptual Maps

Figure illustrates brand's position for Black (1), Hispanic (2), and White (3) consumers based on the mean dimension scores for each group. Each axis represents 5-point MBE scales (1 = low and 5 = high). Map 1: Awareness – Association strength space: LA = Low Awareness, HA = High Awareness; LS = Low Association Strength, HS = High Association Strength. Map 2: Perceived quality – Brand loyalty space: LQ = Low Quality, HQ = High Quality; LL = Low Loyalty, HL = High Loyalty.

Nissan: Consumer Segment Brand Equity Perceptual Maps

Figure 4 illustrates Nissan's brand equity position with each consumer segment. Nissan is best positioned on brand awareness with Hispanics (2) and occupies the strongest brand association position with Black (1) consumers, illustrated on Map 1. While positioned in Quadrant III for White (3) respondents, Nissan received both lower brand awareness and association strength ratings from this segment. Furthermore, Nissan's position with the three groups shows more differentiation on Map 1 than illustrated with Toyota, evidence of a less consistent presence in consumer memory across segments.

Figure 4
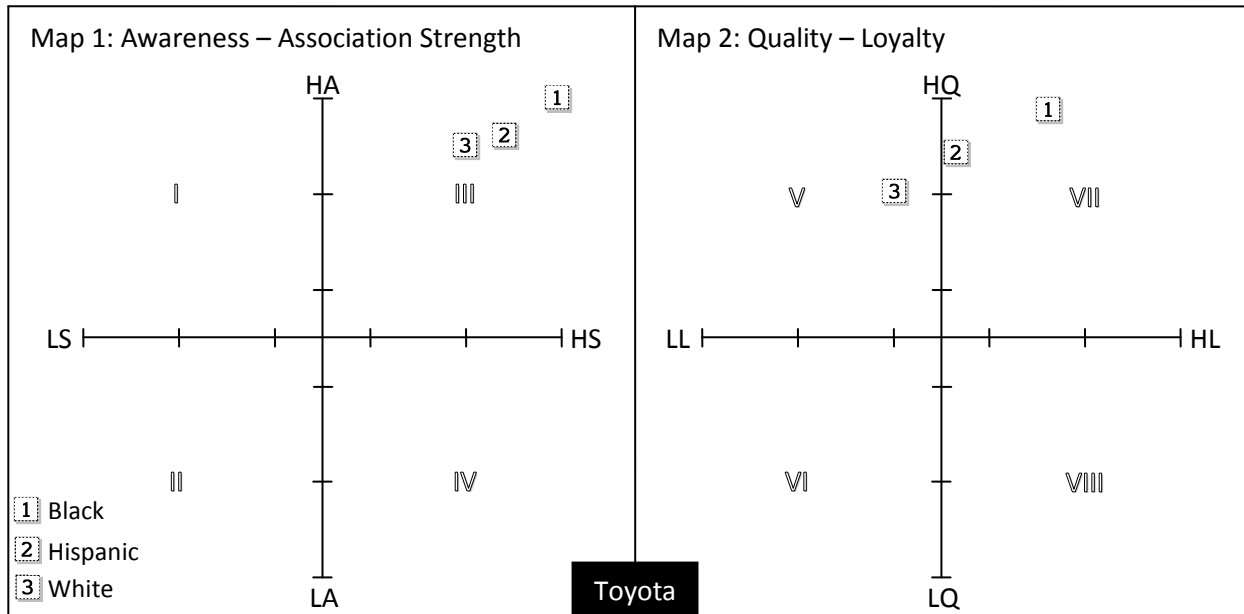**Nissan: Consumer Segment Brand Equity Perceptual Maps**

Figure illustrates brand's position for Black (1), Hispanic (2), and White (3) consumers based on the mean dimension scores for each group. Each axis represents 5-point MBE scales (1 = low and 5 = high). Map 1: Awareness – Association strength space: LA = Low Awareness, HA = High Awareness; LS = Low Association Strength, HS = High Association Strength. Map 2: Perceived quality – Brand loyalty space: LQ = Low Quality, HQ = High Quality; LL = Low Loyalty, HL = High Loyalty.

Map 2-Figure 4 shows Nissan positioned on quality-loyalty space for each group. Evident on this map, Nissan's position with Black (1) consumers is very strong, occupying the furthest right position in Quadrant VII, illustrative of higher brand loyalty with this group. Map 2 also shows that Nissan's perceived quality ratings are similar across groups, with each plotted at relatively the same height on the variable axis. Rather, brand loyalty with Hispanic consumers and brand image strength with White consumers diminish the brand's overall equity compared to Toyota shown in Figure 3.

Pontiac: Consumer Segment Brand Equity Perceptual Maps

Pontiac, the brand with the lowest overall brand equity in this study, has a consistently weak position with each analyzed consumer group, as shown on both maps in Figure 5. Although each segment occupies Quadrant III on Map 1, Pontiac is positioned lower on brand awareness and has weaker brand associations compared to Toyota and Nissan. Of the three segments, Pontiac is positioned slightly stronger with White (3) consumers on awareness-association strength space, while occupying a position with Hispanics (2) near Quadrant I.

Figure 5
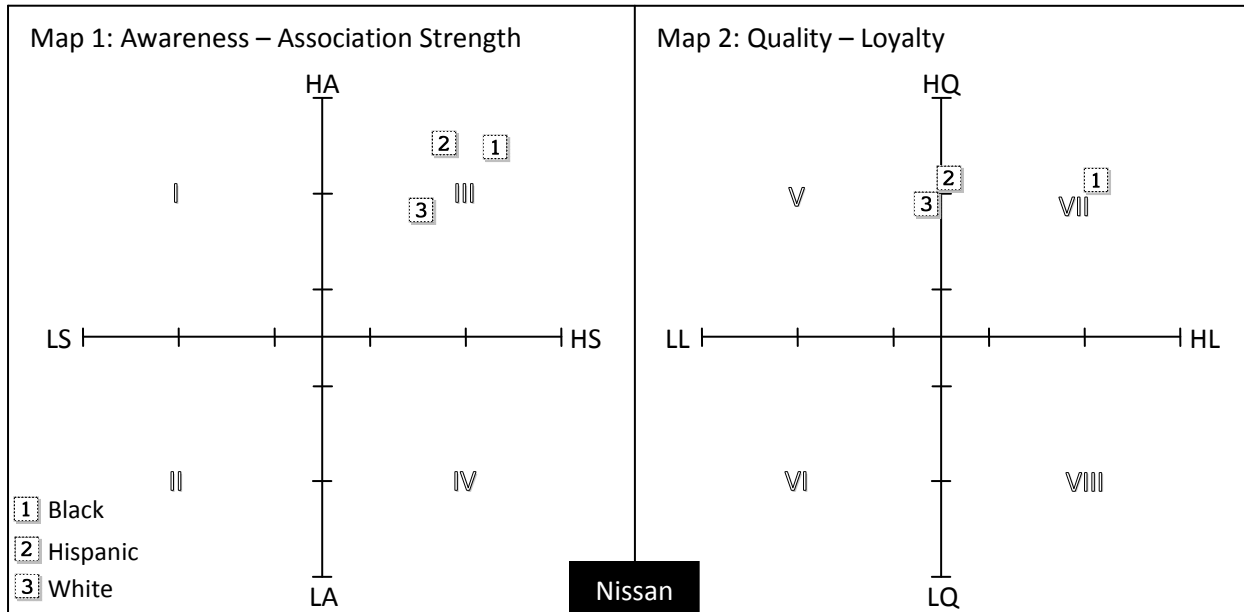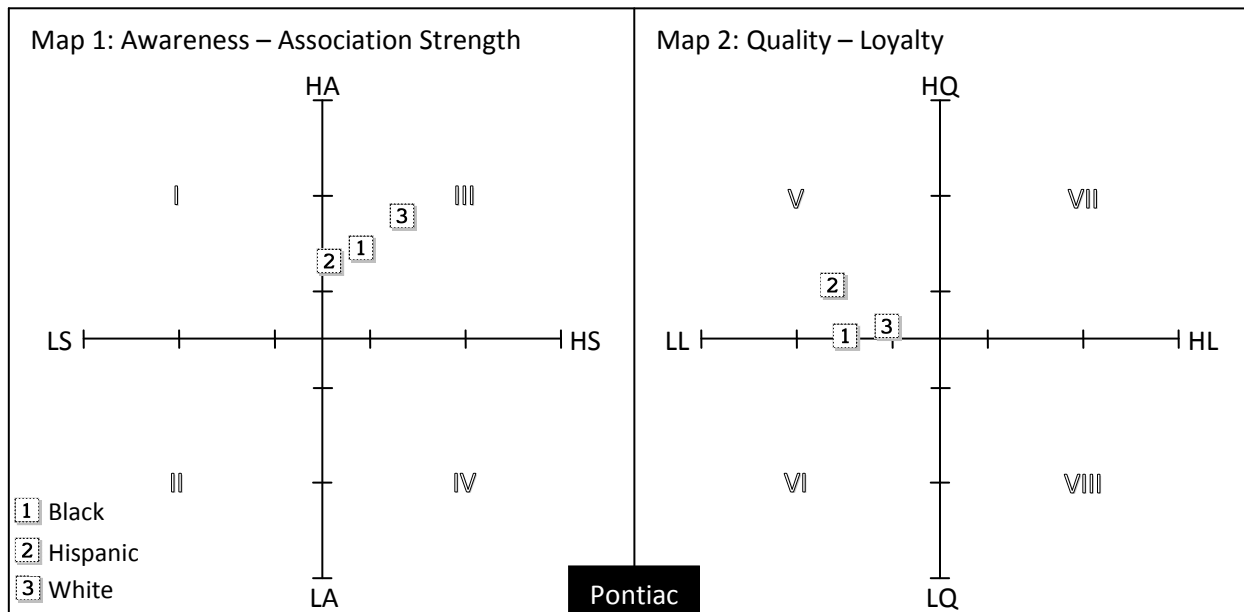**Pontiac: Consumer Segment Brand Equity Perceptual Maps**

Figure illustrates brand's position for Black (1), Hispanic (2), and White (3) consumers based on the mean dimension scores for each group. Each axis represents 5-point MBE scales (1 = low and 5 = high). Map 1: Awareness – Association strength space: LA = Low Awareness, HA = High Awareness; LS = Low Association Strength, HS = High Association Strength. Map 2: Perceived quality – Brand loyalty space: LQ = Low Quality, HQ = High Quality; LL = Low Loyalty, HL = High Loyalty.

Shown on Map 2-Figure 5, Pontiac's position with each consumer group is toward the bottom of Quadrant V, with low to moderate perceived quality and low brand loyalty ratings. Black (1) and White (3) respondents occupy space that is borderline Quadrant VI, illustrative of both low loyalty and perceived quality scores. Map 2, in particular, illustrates the consistently low ratings across segments for this brand, with the groups in close proximity in Quadrant V. Pontiac is positioned slightly higher on perceived quality for Hispanics (2), and somewhat better with White (3) consumers on brand loyalty.

DISCUSSION

Perceptual mapping captured the competitive landscape for six brands, illustrating their position on four brand equity dimensions at the time of data collection. Of the two perceptual maps, the awareness-association strength maps typically showed brands in relative close proximity in Quadrant III, evidence of established brand memory (i.e., high-awareness and association strength). This is because the study used well-known brands to ensure most respondents could evaluate them. On the quality-loyalty perceptual maps, there was generally more differentiation between the brands, making salient the positions of higher-equity brands.

Unfortunately, the employed brand equity scales did not measure the favorability of a brand's image associations. Brands with unfavorable associations can also occupy Quadrant III (i.e., high brand awareness and strong brand associations). Even though a brand is well known, the strong brand associations forged in consumer memory are negative. Such brands would likely score low on perceived quality and brand loyalty ratings and, therefore occupy quadrants on the quality-loyalty map illustrative of lower overall brand equity similar to the brand Pontiac.

An unexpected result of this study was that brands with the highest overall brand equity (i.e., Nike) and the lowest overall brand equity (i.e., Pontiac) displayed consistent positions with the consumer segments, illustrated by their close proximity on both perceptual maps for these brands. The illustrated data pattern suggests consumer response moderates brand equity, and it evolution is partly a function of the response consistency across target audiences. While not the goal of this study, this finding illustrates the importance of examining brand equity across key consumer groups. Overall, the brand equity perceptual maps proved useful segmentation analysis tools.

Take, for example, the results for the brand Nissan. Higher ratings from Black respondents drove Nissan's overall brand equity, though lower ratings from the other segments, particularly White respondents, diminished the brand's overall equity. Nissan occupied a similar position with all segments on the perceived quality dimension. Rather, it was Nissan's significantly stronger position on brand loyalty with Black respondents that separated the segments in brand equity space. Nissan needs to focus building equity with White and Hispanic consumers, while maintaining a strong position with Black consumers. Specifically, for White consumers, Nissan needs to strengthen brand presence and establish more enduring, favorable associations to increase overall brand equity.

The suggested map quadrants characterize a brand's position in four-dimension brand equity space and facilitate strategic thinking. When plotted on both maps, combined quadrants suggest generic brand equity types. For example, the highest-equity brands occupy the strongest positions in Quadrants III and VII. Nike is a Quadrant III-VII high brand equity type, while both Converse and Reebok (i.e., moderate equity brands) are Quadrant III-V brands, that is, well-known brands, with moderately high quality ratings, though lower brand loyalty. Low equity brands are Quadrant II-VI brands; however, this study did not catalog this brand type.

Three of the eight quadrants present unique brand equity positions. One, Quadrant VIII, depicts a situation where a brand is rated low quality, with strong brand loyalty ratings. Even though the quality score diminishes an overall brand equity score, such a brand still garners loyal customers. One may consider a Quadrant VIII brand type a strong equity brand in the proper context, such as a "value" category. Two, Quadrant V represents brands that have good potential to increase brand equity because they have established perceived quality, though consumers are not brand loyal.

Rather than diminish resources on building image and knowledge structures, a Quadrant V brand strategy should focus efforts building long-term consumer relationships and countering competitive incentives. Three, Quadrant IV (low-awareness and strong brand associations) is a position that appears in principal, an improbable situation to have brands with strong images, yet consumers have difficulty recalling the brand. A similar quadrant would exist if brand awareness were paired with either brand loyalty or perceived quality, illustrating the foundational role brand awareness plays in overall brand equity.

Limitations and Future Research

The main limitation of this study was that it relied on a convenience sample of university students, not necessarily representative of all university students or the general population of consumers. The sample was also skewed with more women (71%) than men (29%) and more than half (54%) of sampled respondents were Hispanic. In particular, the sample was skewed toward Hispanic females 18-29 form an urban market. Further delineation of segments based on sex, age, and other demographic criteria would augment the application of perceptual mapping. In addition, results from a different population that includes a wider age range could produce different results from this study. In short, one should not generalize the results of this study beyond the population of students in the sample.
Another study limitation was the reliance on psychometric measures of brand equity, and not actual purchase behaviors (i.e., purchase or own athletic shoes). It is likely that other measures of brand equity and actual behaviors may produce different results. Future research must address these issues in replication and validation studies by comparing measured results with product experience and other behavior-based assessments indicative of brand equity. Doing so will increase the confidence in the measured brand equity and advance the refinement of CBBE perceptual mapping techniques.

Future research should use probability sampling methods of other populations and a wider range of brands from different product categories. The development of measures to gauge the favorability of brand associations will enhance the usefulness of brand equity measurement, particularly to differentiate between brands with high brand association strength, currently both positively and negatively viewed brands occupy similar brand equity space. In general, brand equity assessment and theory would benefit from the development of scales that measure the favorability and uniqueness of brand associations, important variables related to a brand's overall identity.

The usefulness of brand equity perceptual mapping will benefit from further refinement of the presented maps. Researchers should catalog brands that occupy each map quadrant and test relationships with other brand

performance variables (i.e., purchase intention and brand trust) in order to further develop the descriptions of each quadrant space. The number of brands in each product category was limited by the capacity of the dataset, a complete picture of a product category would foster a better understanding of each brands' actual competitive brand equity position. Furthermore, development of similar mapping techniques, with comparable models that use brand equity indicators outside the employed four-dimension construct, would validate and complement the usefulness of the presented maps.

Perceptual mapping techniques will help track brand equity changes over time, aiding longitudinal research. Because mapping techniques capture a snapshot of brand equity at the time of data collection, they would prove useful in illustrating directional changes in the competitive field and with valued target audiences. In a similar manner, mapping brand equity before and after a promotional campaign or other marketing activities will assist in monitoring a firm's and its competitors' brand equity changes that result from different tactics. These suggestions, and other refinements of the proposed techniques, will further the advancement of CBBE theory to practical applications.

IMPLICATIONS FOR MARKETING PRACTITIONERS

This study illustrates how marketing practitioners can apply brand equity theory to direct strategic marketing actions. The applied brand metrics (i.e., brand awareness, brand image association strength, perceived brand quality, and brand loyalty) each play an important role in the lifecycle of a brand, and affect consumer behaviors. Because these factors primarily result from marketing actions, their assessment can have immediate applications for developing or fine-tuning marketing strategies.

Brand equity perceptual mapping helps determine brand strength in relation to competitive brands and with different consumer groups. The illustrative technique aggregates assessment data and depicts the position of brands on each equity factor. When compared to competitor brands, the relative importance of each factor is evident. This is also the case when comparing consumer segments. Ultimately, brand equity is dependent on the target group that evaluates the brand. This study highlights the need to determine how different valued customers or potential customers evaluate brands on each metric.

Moreover, the connection to CBBE theory adds a layer of diagnostic capabilities not found with most traditional perceptual mapping techniques. Because of the importance placed on these four CBBE factors, each has received a great deal of attention from the research community. This has resulted in an abundance of readily available information that enhances the actionable intelligence derived from these visual mapping techniques, and the applicability of the theory to marketing practice.

Brand equity and the marketing advantages it imbues are a result of long-term cultivation and marketing investments. The assessment of brand equity is a critical aspect of developing and maintaining the benefits a strong brand delivers. No matter the technique used to evaluate a brand's strength, this study emphasizes the importance of looking at brand equity in relational terms, and puts forth a diagnostic system that will assist marketing practitioners in this process.

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APPENDIX A: BRAND EQUITY AND ATTITUDE CORRELATION TABLES

Table 6
Nike: Brand Equity and Attitude Correlation Coefficients

Variable	Aw.	As-St.	Qu.	Lo.	MBE	B.A.
Aw.	1					
As-St.	.53**	1				
Qu.	.15	.09	1			
Lo.	.31**	.22*	.37**	1		
MBE	.62**	.52**	.60**	.85**	1	
B.A.	.31**	.30**	.58**	.62**	.72**	1

Note. Pearson correlation coefficients (r) show the strength of the relationship between brand equity dimensions (Aw. = Awareness, As-St. = Brand association strength, Qu. = Perceived quality, and Lo. = Brand loyalty), overall multidimensional brand equity (MBE), and brand attitude (B.A).
**$p < .01$
*$p < .05$

Table 7
Converse: Brand Equity and Attitude Correlation Coefficients

Variable	Aw.	As-St.	Qu.	Lo.	MBE	B.A.
Aw.	1					
As-St.	.76**	1				
Qu.	.38**	.35**	1			
Lo.	.29**	.43**	.54**	1		
MBE	.62**	.52**	.60**	.85**	1	
B.A.	.53**	.60**	.60**	.62**	.76**	1

(See note in Table 5)
**$p < .01$
*$p < .05$

Table 8
Reebok: Brand Equity and Attitude Correlation Coefficients

Variable	Aw.	As-St.	Qu.	Lo.	MBE	B.A.
Aw.	1					
As-St.	.51**	1				
Qu.	.42**	.31**	1			
Lo.	.01	.16	.23*	1		
MBE	.71**	.78**	.71**	.48**	1	
B.A.	.24*	.33**	.52**	.33**	.52**	1

(See note in Table 5)
**$p < .01$
*$p < .05$

Table 9
Toyota: Brand Equity and Attitude Correlation Coefficients

Variable	Aw.	As-St.	Qu.	Lo.	MBE	B.A.
Aw.	1					
As-St.	.58**	1				
Qu.	.39**	.47**	1			
Lo.	.33**	.41**	.48**	1		
MBE	.66**	.76**	.77**	.82**	1	
B.A.	.41**	.55**	.69**	.56**	.73**	1

(See note in Table 5)
**p < .01
*p < .05

Table 10
Nissan: Brand Equity and Attitude Correlation Coefficients

Variable	Aw.	As-St.	Qu.	Lo.	MBE	B.A.
Aw.	1					
As-St.	.67**	1				
Qu.	.54**	.46**	1			
Lo.	.31**	.40**	.45**	1		
MBE	.77**	.82**	.76**	.78**	1	
B.A.	.60**	.59**	.68**	.59**	.79**	1

(See note in Table 5)
**p < .01
*p < .05

Table 11
Pontiac: Brand Equity and Attitude Correlation Coefficients

Variable	Aw.	As-St.	Qu.	Lo.	MBE	B.A.
Aw.	1					
As-St.	.73**	1				
Qu.	.28**	.13	1			
Lo.	.27**	.22*	.38**	1		
MBE	.85**	.79**	.59**	.58**	1	
B.A.	.28**	.23**	.58**	.36**	.49**	1

(See note in Table 5)
**p < .01
*p < .05

APPENDIX B: CONSUMER SEGMENT BRAND EQUITY PERCEPTUAL MAPS – NIKE, REEBOK, CONVERSE

Figure 6
Nike: Consumer Segment Brand Equity Perceptual Maps
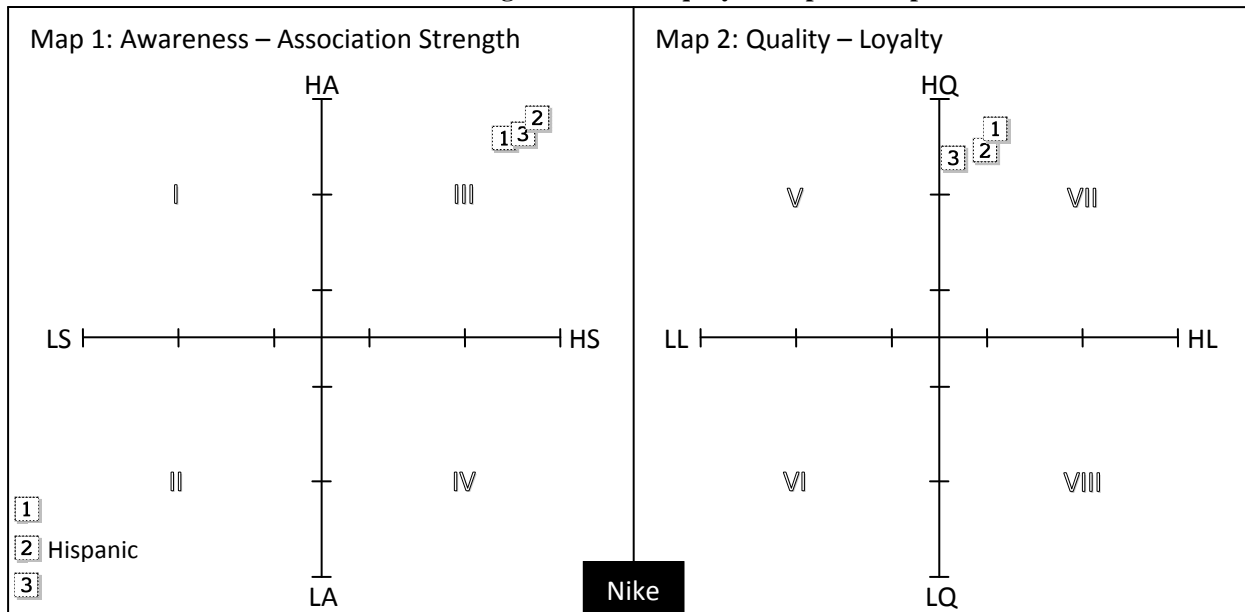
Figure illustrates brand's position for Black (1), Hispanic (2), and White (3) consumers based on the mean dimension scores for each group. Each axis represents 5-point MBE scales (1 = low and 5 = high). Map 1: Awareness – Association strength space: LA = Low Awareness, HA = High Awareness; LS = Low Association Strength, HS = High Association Strength. Map 2: Perceived quality – Brand loyalty space: LQ = Low Quality, HQ = High Quality; LL = Low Loyalty, HL = High Loyalty.

Figure 7
Reebok: Consumer Segment Brand Equity Perceptual Maps
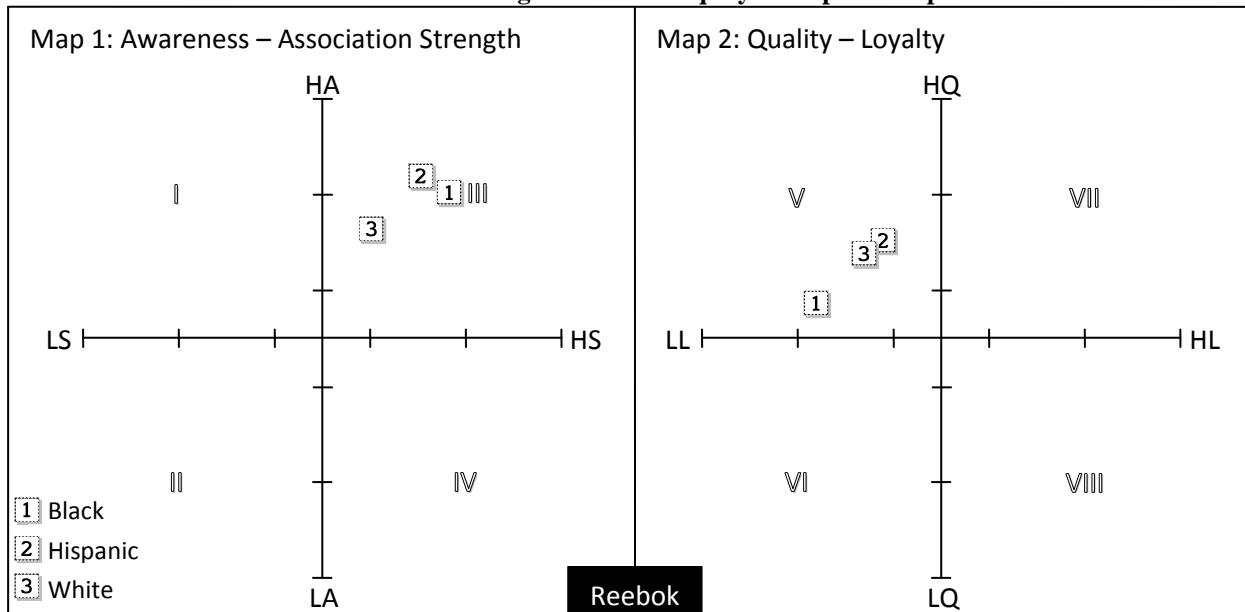
(See figure 6 legend)

APPENDIX C: CONSUMER SEGMENT BRAND EQUITY DIMENSION SCORES

Table 12
Nike: Consumer Segment Brand Equity Dimension Scores

Segment	N	Brand Awareness		Association Strength		Perceived Quality		Brand Loyalty	
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Black	46	4.57	0.49	4.57	0.58	4.71	0.44	3.14	1.20
Hispanic	134	4.65	0.64	4.72	0.50	4.44	0.72	3.01	1.22
White	54	4.59	0.52	4.66	0.58	4.41	0.63	2.66	1.16

Note. Brand awareness, association strength, perceived quality, and brand loyalty score values are the sample mean of the combined MBE scale items for each dimension reported on 5-point scales for Black, Hispanic, and White respondents.
[a]Standard deviation.

Table 13
Converse: Consumer Segment Brand Equity Dimension Scores

Segment	N	Brand Awareness		Association Strength		Perceived Quality		Brand Loyalty	
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Black	46	3.85	1.02	3.67	1.00	3.07	0.65	1.78	0.92
Hispanic	134	4.55	0.67	4.21	1.07	3.82	0.94	2.72	0.96
White	54	4.43	0.72	4.16	0.89	3.54	0.82	2.43	1.12

Note. (See note in table 11)

Table 14
Reebok: Consumer Segment Brand Equity Dimension Scores

Segment	N	Brand Awareness		Association Strength		Perceived Quality		Brand Loyalty	
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Black	46	4.07	0.78	3.79	0.90	2.85	0.65	1.28	0.39
Hispanic	130	4.29	0.67	3.54	1.07	3.58	0.94	1.88	0.96
White	54	3.68	0.72	3.02	1.19	3.43	0.77	1.68	0.89

Note. (See note in table 11)

Table 15
Toyota: Consumer Segment Brand Equity Dimension Scores

Segment	N	Brand Awareness		Association Strength		Perceived Quality		Brand Loyalty	
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Black	46	4.92	0.18	4.98	0.28	4.85	0.37	3.36	1.20
Hispanic	134	4.58	0.60	4.40	0.74	4.33	0.77	2.60	0.89
White	54	4.50	0.50	4.04	0.75	4.02	1.15	2.09	0.96

Note. (See note in table 11)

Table 16
Nissan: Consumer Segment Brand Equity Dimension Scores

Segment	N	Brand Awareness		Association Strength		Perceived Quality		Brand Loyalty	
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Black	46	4.42	0.83	4.35	0.73	4.14	0.75	4.14	1.23
Hispanic	132	4.43	0.74	3.83	0.98	4.24	0.71	2.59	1.14
White	54	4.15	0.67	3.52	0.90	3.84	1.88	2.43	1.19

Note. (See note in table 11)

Table 17
Pontiac: Consumer Segment Brand Equity Dimension Scores

Segment	N	Brand Awareness		Association Strength		Perceived Quality		Brand Loyalty	
		Mean	SD[a]	Mean	SD[a]	Mean	SD[a]	Mean	SD[a]
Black	46	3.40	1.25	2.97	1.26	2.52	1.13	1.52	0.87
Hispanic	126	3.33	1.23	2.60	1.25	3.12	0.89	1.41	0.72
White	52	3.78	1.46	3.35	1.37	2.64	0.98	1.93	0.96

Note. (See note in table 11)