THE EFFECT OF BRAND ATTITUDE AND BRAND IMAGE ON BRAND EQUITY

James B. Faircloth
University of Wyoming

Louis M. Capella
Mississippi State University

Bruce L. Alford
Louisiana Tech University

Brand equity has been criticized by some for an alleged lack of managerial relevance. This paper reports a study which operationalizes brand equity and empirically tests a conceptual model adapted from the work of Aaker (1991) and Keller (1993) considering the effect of brand attitude and brand image on brand equity. The results indicate that brand equity can be manipulated at the independent construct level by providing specific brand associations or signals to consumers and that these associations will result in images and attitudes that influence brand equity. The results suggest that focusing on the constructs that create brand equity is more relevant to managers than trying to measure it as an aggregated financial performance outcome.

INTRODUCTION

Brands ("...a name, term, sign, symbol...intended to identify the goods or services of one seller..."(Kotler 1997)) have been a part of the marketing landscape for many years, but in the past few years the future of brands has been questioned (e.g., Light 1994). In response to the "death of brands" contentions, researchers have focused their efforts on developing a more sophisticated understanding of how strong brands can be created and nurtured.

In the search for better ways to meet the challenges faced by brands, researchers and marketers have identified a role for the brand equity construct. Although brand equity has been proposed as a financial instrument for capturing and measuring the value of brands, perhaps its most important contribution is as a metric for discovering the differential consumer behavior effect of the firm's marketing mix activities. While a number of brand equity definitions and conceptualizations are herein presented, this paper assumes a consumer based definition that suggests brand equity represents the biased behavior a consumer has for a branded product versus an unbranded equivalent.

Interest in brand equity has not been confined just to the academic community; numerous practitioners are starting to consider the construct in the development and evaluation of their marketing efforts (e.g., Cuneo 1999). However, at the same time the brand equity concept is most needed, it is also at a crossroads. It has been researched and measured for over ten years, but has nevertheless attracted detractors who argue it lacks managerial usefulness (e.g., Ehrenberg 1997). Thus, to contribute to positive brand development and management, brand equity must move beyond its growing, but perhaps anecdotally based popular use and be shown to be more managerially relevant. The stakes related to the role of brand equity are high for marketers; failure to managerially cope with the many threats to their brands will result in the loss of one of the firm's vital assets.

It is important for brand equity research to not focus on the construct exclusively as an aggregated financial performance outcome, but rather to develop enlightened management of the independent constructs that create the equity in the first place. This is not to say that knowing the financial value of our brands is unimportant, but that from a managerial perspective it is perhaps more relevant to understand how marketing activities affect consumer behavior biased to the firm's brands.

Research on brand equity suggests that creation of positive brand image and attitude should enhance its development (e.g., Aaker 1991). While these constructs should influence brand equity, empirical evidence is less than conclusive (Keller 1993). Particularly troubling is the lack of a consistent explanation for why brand attitude frequently fails to affect buyer behavior. This study provides a partial explanation by demonstrating brand image's mitigating impact on brand attitude and empirically supports the efficacy of the Aaker and Keller conceptualizations of brand equity in a managerially actionable manner. An empirical test of a reduced conceptual model of the impact of brand image and brand attitude on brand equity (see Figure 1) is presented. The model proposes three routes to brand equity creation–directly through brand image and brand attitude and indirectly from brand attitude through brand image. Immediately following is first a discussion of relevant literature and second a description of a conjoint experiment, which was employed as a method to facilitate the manipulation of brand associations (attributes) of a brand of polar fleece sweaters. The brand association manipulation measurement effects on the constructs of brand image, brand attitude, and brand equity were a prelude to a structural equation model analysis of the construct causal relationships. Finally, a discussion of the study's conclusions, implications, and limitations is provided.

FIGURE 1
BRAND AND BRAND ATTITUDE IMPACTS ON BRAND EQUITY
ADAPTED FROM AAKER (1991) AND KELLER (1993)
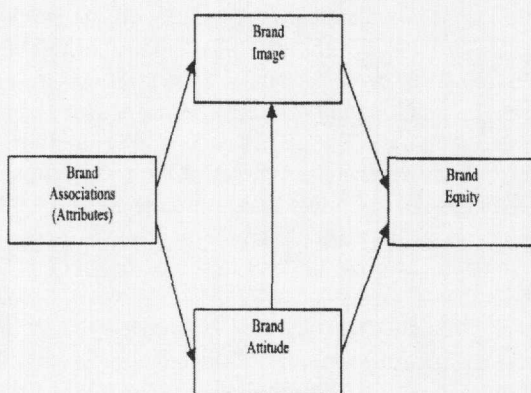
LITERATURE REVIEW

What Is Brand Equity?

The Marketing Science Institute (MSI) states that brand equity can be viewed by customers "...as both a financial asset and as a set of favorable associations and behaviors" (MSI 1989). While Farquhar (1989) contends that brand equity to a consumer follows from a positive evaluation of, or attitude toward, the branded product, Keller (1993) hypothesizes that consumer-based brand equity arises from a more favorable differential response to the firm's marketing efforts. Brand equity can also be viewed as the result of consumer behavior, that is, it is the consumer's biased behavior toward brands with certain positive brand associations. The differential response referred to by Keller is said to result from the consumer's brand knowledge memory structure, which consists of brand image and brand awareness. Keller views brand image as the perceptual beliefs about a brand's attribute, benefit, and attitude associations, which are frequently seen as the basis for an overall evaluation of, or attitude toward, the brand. Thus, brand image, which is a holistic construct formed from a gestalt of all the brand associations related to the brand, is different from brand attitude, which is a consumer's overall evaluation of the brand. Frequently confused with brand image, brand attitude is conceptualized as just one of the various associations used in the formation of the brand image.

Brand equity, a behaviorally oriented construct influenced by a consumer's image and attitude of the behavior's object, is also certainly influenced by other constructs, such as those proposed by Aaker (1991). More simply, it is helpful to view brand equity as biased consumer actions toward an object, brand image as perceptions related to the object, and brand attitude as an evaluation of the object; the latter two constructs hypothesized to influence actions toward the object. Upon examination of Farquhar's and Keller's notions of brand equity, it appears they believe brand equity is influenced by favorable evaluation of the brand.

Aaker (1991) suggests that brand equity consists of brand associations (brand image), brand loyalty, brand awareness, perceived quality, and other brand assets. While Aaker's book represents an important development in the conceptualization of brand equity, according to one reviewer (Shocker 1993) "Many of the conjectures that characterize the recommendations made could be subjected to rigorous investigation." A better understanding of brand equity depends on credible measures of the construct. Although many measures of brand equity have been presented (e.g., Farquhar and Ijiri 1991; Kamakura and Russell 1993; Kapferer and Laurent 1988; Park and Srinivasan 1994; Simon and Sullivan 1993), the premium prices enjoyed by many brands have often been identified with brand equity (e.g., Aaker 1991; Farquhar 1989). Holden (1992) maintains that

brand equity arises from greater brand choice probability by consumers and is reflected in willingness to pay premium prices. Other behavioral/choice variables that might indicate brand equity are likelihood of purchase (e.g., Smith and Swinyard 1983) and purchase intentions (e.g., Machleit, Madden, and Allen 1990). What is clear from the preceding and following discussion is that brand equity is a multidimensional construct and any measurement attempts must recognize its different dimensions.

Operationalizing Brand Equity

Researchers have attempted to measure different conceptualizations of brand equity. Simon and Sullivan (1993) tested "macro" and "micro" brand equity measurement models. Particularly relevant to the current research is their "micro" model attempt to calculate the effects from marketing events and other variables. While marketing's impact on brand equity was demonstrated, little specific guidance was developed for marketing managers trying to create consumer-based brand equity. Mahajan, Rao, and Srivastava (1991) measured brand equity with a consumer-based perspective for acquisition and divestment candidates. Although these researchers increased our understanding of the impact of consumer benefits on brand equity, their design was a measurement, not a manipulation of the brand association (brand image) component of brand equity. Farquhar and Ijiri (1991) have developed a brand equity measurement which they call "momentum accounting." Their model measures the effects of the firm's marketing efforts directly on brand equity, not on consumer information processing and brand knowledge, generally considered the sources of brand equity. Swait, Erdem, Louviere, and Dubelaar (1993) reported a study which developed an "Equalization Price" as the monetary value of a brand to a consumer resulting from brand associations and brand image. While the study improved understanding of brand image's impact on brand equity, it did not control for brand association types or specific images. Park and Srinivasan (1994) measured brand equity as brand preference for name brand products not explained by objectively measured attributes. Their study contributed to our understanding of the types of brand associations that create brand equity in well known brands, but was not an experimental manipulation of the effect of brand associations. A more recent study of brand equity development was conducted by Cobb-Walgren, Ruble, and Donthu (1995). These researchers presented a design that measured the impact of brand equity on brand image and brand attitude, the constructs of interest in the current research. They essentially tested whether brand equity influences brand attitudes, perceptions, and intentions. While they found this to generally be the case, their research design reversed the causal relationships presented in this study. Cobb-Walgren et al. (1995) were attempting to determine whether existing brand equity affected brand attitude and perceptions; the current study examines whether brand attitude and perceptions (brand image) affect brand equity.

The current study recognizes that image and attitude must be created first in order to realize brand equity. Proprietary or commercial brand equity models have been described by Dyson, Farr, and Hollis (1996) and Baldinger (1996). Their conceptualizations are similar to that presented in this research, but little information is available as to the operationalizations. Finally, a recent study by Yoo, Donthu and Lee (2000) reported a positive effect of brand associations and awareness on brand equity development. While their research supports the positive effect of brand associations (brand image) on brand equity, their measurements are broader overall image and awareness indicators and not the individual brand associations experimentally manipulated here.

By manipulating brand associations the current research demonstrates a more feasible way to managerially operationalize brand image and create brand equity, which addresses the previously noted relevance based criticism of brand equity. This paper adopts a consumer-based brand association conceptualization of brand equity because this approach offers an efficient way to manipulate the various signals a consumer receives. By controlling the brand associations a consumer processes via the marketing mix, the marketer has the best opportunity to create the desired brand image, thereby enhancing brand equity.

Brand Associations, Brand Image, and Brand Attitude

Anderson (1983) claims that a critical feature of human intelligence is how knowledge pertinent to a decision is identified and utilized. He describes various types of knowledge structures in the brain which contain detailed information or associations. Aaker (1991) defines brand associations as "...anything linked in memory to a brand." As previously noted, Keller (1993) presents a conceptual model of brand associations, which consist of brand attributes, brand benefits, and brand attitudes. Brand attributes, the brand association type manipulated in this study, are the tangible and intangible features and physical characteristics of the brand (e.g., Keller 1993). It should be noted that even though attributes are the most objective or concrete level of association, in reality they are perceptual (Wilkie and Pessemier 1973). They are perceptual in the sense that, regardless of the fact that attributes are the most tangible level of association, it is what the consumer perceives about the attribute that determines its importance or essence.

Keller (1993) describes the consumer's memory as a function of a set of nodes and links of the various associations related to a brand. Information is stored in nodes that are linked to other node sets in the brain. The links between nodes vary in strength. When information is stored by the consumer, the level of processing and involvement will determine the

strength of the associations between nodes. The resulting associations are thought to influence the consumer's buying behavior through a process of spreading activation (Collins and Loftus 1975). According to Anderson (1983), spreading activation brings relevant information into working memory and makes it available for decision making. Keller (1993) asserts the need to consider brand associations in relation to their ability to influence brand evaluation.

A review of the relevant literature suggests that creation of positive brand associations should result in a positive brand image which is a conceptual antecedent to enhanced brand equity (Aaker 1991). This area has been noted as a high priority research topic by MSI (Leuthesser 1988). This study utilizes a brand association conceptualization presented by Keller (1993), who has called for research which examines how different combinations of brand associations might affect marketing of the brand.

Influence of Brand Image on Brand Equity

Mental images are a "symbolic process" based on stored experiences in associative memory regarding objects and events. The image provides a "...mental representative of meaning..." (Paivio 1969). Brand image is usually considered as the combined effect of brand associations (e.g., Biel 1992) or more specifically as the consumer's perceptions of the "... brand's tangible and intangible associations" (Engel, Blackwell, and Miniard 1993). Kapferer (1992) suggests that "the customer forms an image through a synthesis of all the signals emitted by the brand..." Roth (1994) notes that the consumer's brand image results from the cumulative effects of the firm's marketing mix activities. Brand image, according to Kapferer, results from the consumer decoding, extracting, and interpreting the brand signals (read associations).

Marketing researchers have suggested that brand image is a vital element of brand equity (e.g., Keller 1993). Using brands from the Landor survey, Krishnan (1996) found that high equity brands are more likely to have more positive brand associations (brand image) than low equity brands. Additionally, Lassar, Mittal and Sharma (1995) report that premium prices and higher brand equity were related to brands with higher image ratings. Finally, Kwon (1990) found that positive brand image was more likely to be associated with preferred brands than non-preferred brands.

Brand image, a consumer construct (Kapferer 1992), resides in an associative memory network that is critical to consumer decision making and potentially provides biased brand evocation and evaluation, ultimately contributing to brand equity (Holden 1992). Brand associations, acquired through the firm's marketing mix activities or product use, contribute to and ultimately define the brand's image to the consumer (Keller 1993). Researchers have suggested that brand equity is at least partially driven by the nature of the brand associations which make up the image, yet existing research has not clearly demonstrated that positive brand image enhances brand equity measures of purchase intentions and willingnesss to pay premium prices in brands that are not already well known by consumers in the research setting. Associations that are unique, strong, and favorable should create a positive brand image which when processed by consumers will bias consumer brand behavior toward brand equity enhancement (Keller 1993). Moreover, a unique, strong, and favorable brand image permits the brand and its "meaning" to be strategically differentiated and positioned in the consumer's mind, contributing to the potential for enhanced brand equity (Pitta and Katsanis 1995).

This leads to Hypothesis H1:

> H1: Brand image has a significant positive direct effect on brand equity.

Influence of Brand Attitude on Brand Image and Brand Equity

Bettman (1979) contends that consumers form attitudes as a result of their limited cognitive processing capabilities. More likely than a detailed comparison of choice alternatives is the efficient formation of a simple heuristic toward the object. "This heuristic can be viewed as taking information about alternatives as inputs and arriving at an attitude as an output." The attitude represents affect toward the object (e.g., Bettman 1979). Lutz (1991) considers that attitudes are solely an affective construct and reflect "predispositions" toward an object, which may "...lead to actual overt behavior." Additionally, Lutz (1991) claims that attitudes function as a "filter" for how an individual perceives an object. Attitudes have been defined by Fishbein and Ajzen (1975) as "...a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object." The brand equity model developed by NPD has found that two-thirds of all studied brands had market share increases when brand attitude became more positive (Baldinger 1996). Millward Brown, Inc. reports (Dyson et al. 1996), based upon their proprietary brand equity model, that a person's self reported brand value is driven by their attitude toward the brand. Finally, Simonin and Ruth (1998) report that brand attitude toward specific brands influenced impressions of subsequent alliances the brand entered into. Nevertheless, as previously reported, many studies have failed to find that brand attitude consistently predicts purchase intentions or behaviors, both of which are measures of brand equity.

As a type of brand association, brand attitude should have a direct effect on brand image, which it has been noted includes the consumer's perceptions of all associations (e.g., Aaker 1991; Keller 1993). Brand attitude's direct effect on brand image should carry through to an indirect effect on brand equity. No reported research has been identified which

describes the indirect effect through brand image of brand attitude on brand equity. This leads to Hypotheses H2-H4:

H2: Brand attitude has a significant positive direct effect on brand equity.

H3: Brand attitude has a significant positive direct effect on brand image.

H4: Brand attitude has a significant positive indirect effect on brand equity through brand image.

METHODOLOGY

Preliminary Research

A series of focus groups, key informant, and depth interviews were held to identify the brand associations and criteria that product consumers would use in making purchase choices of polar fleece sweaters, the experimental product. This product was chosen because it was felt that the student subjects would be sensitive to the different combinations of attributes, an essential requirement for a conjoint manipulation. The use of students was considered appropriate since they are significant purchasers and users of the chosen product class. The use of students is common in experimental research (e.g., Biswas and Sherrell 1993). The focus groups consisted of senior level university undergraduates and the key informant interviews were held with product development and marketing personnel with two international polar fleece manufacturers. In order to pretest the measurement instrument and refine the experimental procedures, four pretests and two pilot studies, utilizing approximately 150 student subjects, were conducted. The brand associations (brand attributes), generated by the focus groups and refined in the pretests/pilot studies (see Table 1), were manipulated in a conjoint experiment.

TABLE 1
BRAND ASSOCIATION FACTORS AND LEVELS: FLEECE SWEATERS

Association	Factors	Levels
Brand Attributes	Entry	Pullover W/Zipper
		Cardigan W/Full Length Zipper
		Pullover W/ Snaps
	Fabric	Lightweight Pile/Fleece
		Heavyweight Pile/Fleece
	Hem/Cuffs	Loose/Non-Stretch
		Narrow (1/4") Band Elastic
		Wide (1 ½") Band Elastic
	Pockets	Breast Pocket Only
		No Pockets
	Color/Pattern	Solid Color
		Print Color
		Two Color Tone Solid

Subjects

One hundred and five undergraduate business majors from a medium size Midwestern university were used in the main experiment which measured responses to a conjoint manipulation of brand association attributes. Hair, Anderson, Tatham, and Black (1995) recommend an absolute minimum of 50, but preferably 100 subjects in estimating a LISREL model. All experiments were conducted during regular class time, and although no class credit was given for participation, other incentives (cash lotteries of $250, $150, $100, and $50) encouraged active participation. Additionally, product samples that were handled and examined by the subjects encouraged participation. A subject's willingness to participate and actively process information was measured by the FCB involvement scale (Ratchford 1987). Results indicated the student subjects had an adequate level of involvement (mean of 3.97 on 7 point semantic differential scale).

The demographic profile of the main experiment student subjects was compared to that of the pretest subjects and to the profile of their respective student population. A chi-square goodness of fit test indicated no significant differences between pretest and main experiment subjects. Finally, student subject product knowledge was measured and the results indicate an adequate level for information processing of the various stimuli and measures.

Experimental Procedures

The researcher and one or more graduate student assistants administered the experiments which lasted approximately 45 minutes. Student subjects received a sealed packet containing the experimental materials after they were seated in their regular classroom. After receiving their assignment, each subject was asked to examine the product samples being circulated. The subjects were asked to turn to the beginning of the experimental packet. Subjects were instructed to continue to the review of 16 product profile pages for the conjoint experiment and other measurements. Each page had one of the treatment levels for each of the five factors. After reviewing each of the product profiles the subjects responded to several scales: five item brand image measure, two item brand attitude measure, and a four item brand equity measure (a 1 item willingness to pay premium price and 3 item purchase intentions). After completing the last profile page the subjects answered a three item involvement scale, four item product knowledge scale, an open-ended question on the study's purpose, and several demographic questions. The subjects were dismissed upon completion and return of the packet.

Measures

All of the scales necessary to measure the constructs in the proposed conceptual model--brand image, brand attitude, and brand equity (willingness to pay premium price and purchase intentions)--were taken directly from existing literature. Following is a discussion of each of these scales.

Brand Image- As previously suggested in the literature review, brand image has been conceptualized and operationalized in a number of ways. Most of the brand image scales come from retail image or self-concept/brand image/store image congruence studies (e.g., Birdwell 1968; Sirgy 1985). Unfortunately, many of the scales utilized in these studies are specific to a particular product or store attributes and do not generalize to other categories not being studied. In other cases, such as that employed by Roth (1995), brand image was operationalized as a firm's self reported brand image--either functional, social, or sensory.

The brand image scale used in this study was adapted from one developed by Malhotra (1981) and is based upon Osgood, Suci and Tannenbaum's (1957) attitude measurement research. In addition to drawing heavily from Osgood et al's widely used original scale items, its use of the semantic differential is widely accepted in attitudinal and behavioral research (e.g., Churchill 1992). This fifteen item semantic differential scale (using seven scale points in this study) was developed as a general measurement of self-concepts, person concepts, and product concepts. Malhotra's brand image scale closely approximates other operationalizations of brand image reported by Sirgy (1985) and Gardner and Levy (1955), which assume that brands can take on human personality characteristics. More recently, Aaker (1997) has developed a brand personality measure which draws on Malhotra's brand image scale. Thus, a number of researchers have associated the personality based items in Malhotra's scale with brand image measurement. Malhotra (1981) reports this scale to have adequate test-retest reliability, internal consistency (coefficient alpha), content and construct validity. Malhotra specifically asserts it can be applied to a wide variety of product concepts and he reports that it is particularly appropriate for measurement of brand images in target markets. Most importantly, Malhotra's scale items, such as, colorfulness, modesty, thrift, dominating, and excitability appropriately operationalize the perceptual and belief based brand image definition adopted for this study. Because the length of the fifteen item Malhotra scale created difficulties with respondent fatigue and pattern coding in the sixteen product profile conjoint experiment and problems with reliability, the scale was ultimately reduced to five items through a systematic process of four pretests and two pilot studies. Adapting Malhotra's scale was an appropriate response to the undesirable psychometric properties that were created in the current study. When undesirable psychometric properties are present in an existing scale, a well designed scale adaptation

is recommended by Page (1994). In spite of the deletions from the original fifteen items, the remaining five items included items from all of Malhotra's first four factors and represented most of the variance extracted (71%). Malhotra (1981) specifically anticipated the probability of implementation complications and suggested that modification of the scale was appropriate if the researcher's situation demanded it.

Brand Attitude- Brand attitude has been one of the most widely examined constructs in consumer behavior (e.g., Berger and Mitchell 1989). Consistent with the overall evaluative nature of brand attitude and an overwhelming amount of literature support, the following scalar measurement is adopted from Berger and Mitchell (1989)–(seven point two item semantic differential-like extremely/dislike extremely and good/bad). Berger and Mitchell found this scale to have high internal reliability with all coefficient alphas in the .90 range.

Brand Equity- Brand equity has been frequently suggested to represent multidimensional biased or enhanced choice behavior and willingness of the consumer to pay premium prices (e.g., Aaker 1992; Keller 1993). To capture the multidimensional nature of the brand equity construct two scales were used. First, purchase intentions, a common measure of enhanced choice behavior, has been operationalized by MacKenzie, Lutz, and Belch (1986) in a seven point three item (likely/unlikely, probable/improbable, and possible/impossible) semantic differential scale. In two experiments these researchers reported adequate reliability (Cronbach's alphas of .88 and .90). This research utilized the MacKenzie et al. (1986) purchase intentions measure. Second, a general measure of the premium a consumer is willing to pay for a particular brand, based upon a comparison to another brand, has been reported by Park and Srinivasan (1994). This scale was adapted for the current study into a seven point single item semantic differential measure--willingness to pay a premium price (very likely/very unlikely). Thus, brand equity was measured by items related to purchase intentions and willingness to pay a premium price for the brand.

RESULTS

Variable Reliabilities and Manipulations

In order to better understand the impact of the two brand image dimensions a decision was made to create two new composite brand image variables, Factor 1 and Factor 2, from the five item scale (see Table 2). The factors were identified through a principal component factor analysis (68% variance extracted) with an orthogonal (varimax) rotation. The items on the two factors loaded cleanly and significantly. This is consistent with the original Malhotra scale which was not unidimensional. The factors were created by totaling and averaging the items in each of the two identified factors (Hair et al. 1995) for each of the sixteen conjoint product profiles.

TABLE 2
FACTOR ANALYSIS AND RELIABILITY RESULTS

Variable	Rotated Factor 1 Loading	Rotated Factor 2 Loading	Alpha If Item Deleted	Chronbach's Alpha
Factor 1				.770
Colorless-Colorful	.732		.811	
Dominating-Submissive	.848		.687	
Excitable-Calm	.888		.576	
Factor 2				.740
Modest-Vain		.851		
Thrifty-Indulgent		.904		

TABLE 3
MEASURES OF THE LATENT CONSTRUCTS

Brand Image (η_1):

$\lambda_{y_{11}}$	Factor 1	(Colorless-Colorful, Dominating-Submissive, Excitable-Calm)
$\lambda_{y_{21}}$	Factor 2	(Thrifty-Indulgent, Modest-Vain)

Brand Equity (η_2):

How would you describe your purchase intentions toward the brand with this combination of attributes?

$\lambda_{y_{32}}$	Purlik	(Likely-Unlikely)
$\lambda_{y_{42}}$	Purprob	(Probably-Improbable)
$\lambda_{y_{52}}$	Purposs	(Possible-Impossible)

How willing are you to pay a premium price for the brand with this combination of attributes?

$\lambda_{y_{62}}$	Prempric	(Very Likely-Very Unlikely)

Brand Attitude (ξ_1):

What is your overall evaluation of this combination of attributes?

$\lambda_{x_{11}}$	Evallike	(Like Extremely-Dislike Extremely
$\lambda_{x_{21}}$	Evalgod	(Good-Bad)

FIGURE 2
STRUCTURAL MODEL MEASURES
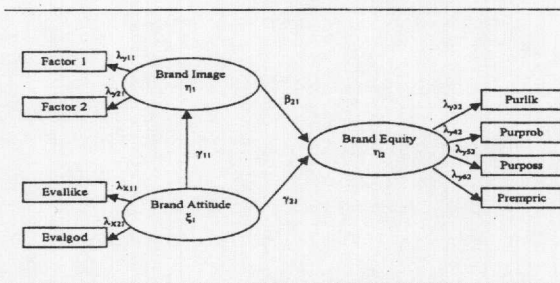
This manipulation was necessary because the sixteen profile responses for each subject were not independent observations. Each subject answered 16 profile responses for both Factor 1 and Factor 2. A close examination of the items in Factor1 appeared to consistently represent a brand tranquility dimension. More specifically, Factor1 suggests a brand dimension of how comfortable consumers feel with the pace of the brand. Factor2 seems to measure how self-indulgent the brand appears to consumers.

All measures used in the main experiment achieved adequate levels of reliability (Nunnally and Bernstein 1994) as measured by Cronbach's alpha. The two item brand attitude scale achieved an alpha of .95, three item purchase intentions an alpha of .94, Factor 1 (three item) for brand image an alpha of .77 and Factor 2 (two item) brand image an alpha of .74. The measures of the latent constructs are shown in Table 3 and Figure 2.

The structural equation model was tested utilizing a correlation matrix (see Table 4) of the relevant indicators and the parameters were estimated through the maximum likelihood method. The correlation matrix is deemed appropriate because of the study's purpose of examining the pattern of relationships and the omission of other variables that may partially explain brand equity (Hair et al. 1995). One indicator from each of the dependent constructs was fixed to a scale of one (Joreskog and Sorbom 1993). A number of measures were analyzed in order to assess the fit of the data to the theoretical model (Bagozzi and Yi 1988). The empirical results of the model are summarized in Tables 5-7.

Offending Estimates

The model was initially tested for offending estimates. A parameter estimate greater than one was observed for the independent construct brand attitude. In accordance with a procedure suggested by Fornell (1983), previously developed item-to-total correlations from Cronbach's alpha reliability testing were inserted as λ_x values (.92 for λ_{11} (Evallike) and λ_{21} (Evalgod)). No other offending estimates were observed.

Goodness of Fit Measures

The LISREL output furnishes a number of measures which allow assessment of the absolute and incremental fit of the proposed model (see Table 5). In the model a chi-square of 38.43 (df=18, p < .01) was observed. A goodness of fit (GFI) index of .92 was calculated. Values greater than .90 are normally accepted as evidence of acceptable model fit (Bagozzi and Yi 1988).

A Root Mean Square Residual (RMR) value of less than .08 is offered by Hu and Bentler (1999) as evidence of acceptable overall model fit. A RMR of .07 was observed for the model, suggesting an acceptable fit. Another overall goodness of fit measure that accounts for sample size is the root mean square error of approximation (RMSEA). Values in the .05 to .08 range are suggested to be acceptable by Browne and Cudeck (1993). The model, with an RMSEA of .11, is somewhat

TABLE 4
CORRELATION MATRIX

Construct Variables		Mean	Standard Deviation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Brand Image											
Factor1	(1)	3.625	.605	1.00							
Factor2	(2)	3.804	.580	.92	1.00						
Brand Equity											
Purlike	(3)	3.511	.892	.84	.84	1.00					
Purprob	(4)	3.503	.872	.84	.84	.88	1.00				
Purposs	(5)	3.930	.911	.59	.65	.72	.72	1.00			
Prempric	(6)	3.230	.870	.80	.77	.85	.84	.62	1.00		
Brand Attitude											
Evallike	(7)	3.511	.783	.18	.21	.19	.22	.00	.21	1.00	
Evalgod	(8)	3.890	.804	.37	.33	.39	.38	.16	.47	.37	.100

TABLE 5
GOODNESS OF FIT MEASURES

Absolute Fit		Incremental Fit	
Chi-Square	38.43	Normed Chi-Square	2.14
DF	18	NFI	.95
P-value	.00	NNFI	.96
GFI	.92	CFI	.97
RMR	.07	IFI	.97
RMSEA.	.11	RFI	.92
Q-plot	<1		

TABLE 6
ESTIMATES OF MEASUREMENT COEFFICIENTS

Constructs	Estimate	t Value	P Value	Indicator Reliability (SMC)	Construct Reliability	Variance Extracted
Brand Attitude (ξ_1):					.73	.57
λ_{11}*	.92			.85		
λ_{21}*	.92			.85		
Brand Image (η_1):					.96	.92
λ_{11}	1.0	21.63	<.01	.92		
λ_{21}**	1.0			.91		
Brand Equity (η_2):					.94	.80
λ_{32}**	1.0			.90		
λ_{42}	.99	19.54	<.01	.88		
λ_{52}	.77	10.08	<.01	.54		
λ_{62}	.94	16.19	<.01	.80		

* Item to Total Correlation
** Scale fixed to 1

outside of the acceptable range. Another measure examines the Q-plot of the residuals. A plot of the residuals with a slope greater than 1 indicates acceptable fit (Joreskog and Sorbom 1989). This model, while slightly less than 1, appears to be reasonably close.

LISREL also provides several incremental fit measures of goodness of fit (see Table 5). These measures compare the relevant proposed model to a baseline model (Hair et al. 1995). While a normed chi-square (chi-square/df) of less than 2 is frequently given as an indication of acceptable fit (Joreskog 1969), others argue that values up to 5.0 can be acceptable (Fredenberger 1994; Hair et al. 1995). The normed chi-square of 2.14 provides support for acceptable fit of the model. Typically, incremental fit measures close to .95 for NNFI and CFI are cited as indication of acceptable fit (Hu and Bentler 1999); the other measures are assumed to follow. The results presented in Table 5 meet this criterion. Based upon this evidence it seems reasonable to conclude that the model has achieved an acceptable goodness of fit.

Measurement Model

Several measures are utilized to assess the measurement model. The first measure involves the parameter estimates (loadings or λs) between the latent construct and its observed variables. All variables (see Table 6) had t-values greater than +/-1.96 at a .05 level of significance, suggesting that the variables and latent constructs are closely related.

Construct (composite) reliability, a measure of the internal consistency or unidimensionality of the dependent and independent constructs, uses measures greater than .60 as the rule of thumb for acceptable consistency (Bagozzi and Yi 1988). The following results were obtained for the composite constructs: brand attitude (.73), brand image (.96), and brand equity (.94). It appears the constructs achieved the desired level of unidimensionality. Examination of the Squared Multiple Correlations (SMCs) for the Y (endogenous) and X (exogenous) variables provides evidence of the reliability of each of the variables in measuring the construct of interest. Bagozzi and Yi (1988) report that SMCs greater than .50 are indicative of reliable variable measures. SMCs for the Y variables range from .54 to .92, suggesting that all are reliable measures. Since item-to-total correlations (.92) were inserted for the X variable (Evallike and Evalgod) loadings, it is appropriate to square λ to derive the item reliabilities

(Bagozzi and Yi 1988; Gerbing and Anderson 1987). The resulting product .85 is indicative of acceptable item reliability.

Finally, reliability can be assessed by consideration of variance extracted or variance accounted for by the constructs. The rule of thumb given for acceptable reliability is .50 (Hair et al. 1995). Brand attitude at .57, brand equity at .80 and brand image at .92 significantly exceed the criteria.

In addition to the acceptable construct reliability indicated by the above cited results, construct validity requires that discriminant validity be achieved. Discriminant validity can be determined by several measures. One method, variance extraction test, is performed by squaring the correlations between any two constructs and comparing the results to the variance extracted measures. Discriminant validity is indicated if the variance extracted is greater than the squared correlation (Fornell and Larcker 1981). The squared correlation between brand image and brand equity is .85, between brand attitude and brand image is .18 and between brand attitude and brand equity is .23. Discriminant validity is generally indicated by this measure since these are, with one exception (brand image-brand equity), less than the appropriate variance extracted measures (see Table 6) of brand image (.92), brand equity (.80), and brand attitude (.57). Another measure for discriminant validity is suggested by Bagozzi (1980). Discriminant validity is achieved when the phi correlations between the constructs are less than one. The phi between brand image and brand equity is .92 (s.e.=.02), between brand image and brand attitude .42 (s.e.=.13), and between brand equity and brand attitude .48 (s.e.=.13). Since all phis are less than one, discriminant validity is supported. Another method suggested by Anderson and Gerbing (1988) examines the confidence interval around each phi correlation (phi correlation plus or minus 2 standard errors). If the confidence interval does not include the value one, then discriminant validity is supported. The confidence interval around the brand image - brand equity phi is .88 to .96. The confidence interval around the brand image - brand attitude phi is .16 to .68. Finally, the confidence interval around the brand equity - brand attitude phi is .12 to .64. Since none of the confidence intervals include the value one, discriminant validity is supported. A two factor solution factor analysis was conducted for the items for brand attitude and brand image and for brand image and brand equity. The results indicated that in each case the two factor solution was appropriate, suggesting discriminant validity between the measures of the constructs. Thus, it appears discriminant validity has been achieved by the brand image, brand equity, and brand attitude measures.

Structural Model and Hypothesis Testing

This model appears to have achieved a satisfactory level of nomological validity. First, the β and γ parameter estimates (see Table 7) are significant and generally support the theory

represented in the model. Also, there are no modification indices in the psi, beta, gamma, phi or theta-delta matrices greater than 5.0 and only one in the theta-eps matrix greater than 5.0 (8.7 between purpose and factor1), which would indicate unidentified paths or relationships. Predictive validity for the model is supported because the parameter estimates are *a priori* significant and in the magnitudes expected. Since brand attitude had a significant influence on brand image and brand image significantly influenced brand equity, it can be concluded that the theoretical model adequately predicts the empirical relationships.

Hypotheses 1 through 4 are tested using the structural equation model with an examination of the structural coefficients. The structural model results are summarized in Table 7.

Direct Effect of Brand Image on Brand Equity (H1)-In H1 it is proposed that brand image will have a significant positive direct effect on brand equity. This relationship (β_{21}) can be assessed by examination of the structural coefficients. The measured coefficient is .86, with a t-value of 12.6 (p <.01),

TABLE 7
ESTIMATED STRUCTURAL RELATIONS COEFFICIENTS

	Coefficient	t Value	Coefficient (t-value) Total Effect	Indirect Effect
γ_{11}- Brand Attitude > Brand Image	.68	3.13***		
γ_{21}- Brand Attitude > Brand Equity	.16	1.43*		
β_{21}- Brand Image . Brand Equity	.86	12.60***		
Brand Attitude > Brand Image > Brand Equity			.75 (3.40)***	.59 (3.18)***

* Significant at .10; ** Significant at .05; *** Significant at .01 (All tests are 1 tail)

strongly suggesting the positive direct influence of brand image on brand equity. Thus, H1 is supported.

Direct Effect of Brand Attitude on Brand Equity (H2)-In H2 it is proposed that brand attitude will have a positive direct effect on brand equity. This relationship (γ_{21}) has a parameter estimate of .16 and a t-value of 1.43 (p >.05). The positive direct influence of brand attitude on brand equity is not significant at the .05 level. Thus, H2 is not supported.

Direct Effect of Brand Attitude on Brand Image (H3)-In H3 it is proposed that brand attitude will have a positive direct effect on brand image. This relationship (γ_{11}) has a parameter estimate of .68 and a t-value of 3.13 (p <.01), strongly indicating the positive direct influence of brand attitude on brand image. Thus, H3 is supported.

Indirect Effect of Brand Attitude on Brand Equity (H4)-In H4 it is proposed that brand attitude will have a significant positive indirect effect on brand equity through the brand image construct. Examination of the total and indirect effects of brand attitude on brand equity allows consideration of this hypothesis. Although the total effect of brand attitude on

brand equity has a parameter estimate of .75 and t-value of 3.40 (p < .01), it can be seen that the indirect effect has a parameter estimate of .59 and a t-value of 3.18 (p < .01). Although the total effect of brand attitude on brand equity is significantly positive, most of the total effect is derived from the indirect nature of the relationship, providing support for H4. Thus, H4 is supported.

DISCUSSION

It has long been known that marketing mix activities affect how consumers perceive brands (e.g. Kapferer 1992; Keller 1993). Unfortunately, this knowledge does not guarantee that marketers understand how the resulting brand image is created or its ultimate impact on the brand's equity. In fact, marketing researchers have not placed great emphasis on understanding the dynamics of creating a consumer's brand image (e.g., Leuthesser 1988). As a result, marketing activities, such as communications, are often undertaken with no clear concept of the probable effect on consumers (Tauber 1993).

The results of this study provide a partial confirmation of the brand equity theory presented by Aaker (1991) and Keller (1993). Both of these researchers suggested that creation of positive brand image and brand attitude should enhance brand equity. While this has been assumed true for some time by many marketers, much of the evidence has been anecdotal and empirical evidence has been inconsistent. This study found that different combinations of brand associations (brand attributes) manipulated in the conjoint experiment and tested causally in a structural equation model can result in positive brand images that significantly enhance the likelihood of purchase intentions and willingness to pay premium prices, indicators of brand equity. In this study, brand image directly influenced brand equity. Creation of positive brand attitude was shown to have only an indirect effect on enhanced brand equity. Even though the research literature has frequently postulated, and found, a direct path from brand attitude to behavior (brand equity), it is not completely unexpected that this research failed to find a direct relationship. The results present a partial explanation for why brand attitude does not consistently predict brand equity. The research literature has included brand attitude as one of the several types of brand association, yet has generally ignored the role of attitude as a contributor to brand image. This research considered that brand attitude is a type of brand association, and therefore, should also indirectly influence brand equity through the brand image construct. It was evident from the structural equation model results, that while the total effect of brand attitude on brand equity was significant, the significance was achieved because of the strong indirect relationship through brand image. This is consistent with Keller (1993), who conceptualized brand attitude as a part of brand image. Thus, while brand attitude might be positive, when combined with other retrieved relevant associations, an image that is not positive or otherwise conducive to biased brand purchase behavior may have been created. Therefore,

brand image is a better predictor of brand equity than brand attitude. It appears a more holistic construct, such as brand image, captures the effect of attitudes and other associations that may indirectly drive brand equity or biased behavior. This provides support for the inclusion of brand attitude as just one of the elements in the associative memory network explanation of brand image and brand equity. Therefore, this study demonstrated that brand image and brand attitude, direct and indirect antecedents to brand equity are subject to a marketer's manipulation through the marketing mix. A final brand image-brand equity model is presented in Figure 3.

FIGURE 3
FINAL BRAND EQUITY MODEL
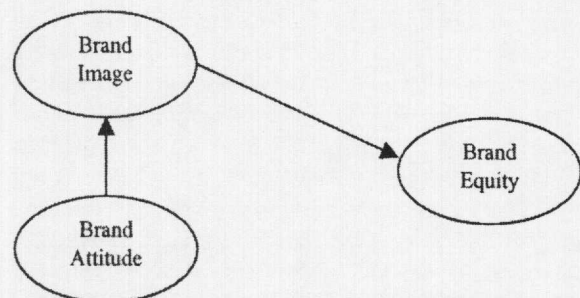
This research has addressed a shortcoming in the brand equity literature, that is, the theoretical and empirical basis for operationalizing the construct. Brand equity's usefulness becomes manifest because an improved understanding of how it is created, measured, and nurtured is made possible by the enhanced understanding and awareness of its antecedents, brand image (positive brand associations) and brand attitude.

This paper contributes to the branding literature because its focus is not a macro level examination of the aggregate equity outcome or even the broadly measured contributors to brand equity, but is instead a demonstration that brand equity can be manipulated at the independent construct level by providing specific brand associations or signals to consumers and that these associations will result in images and attitudes that influence brand equity. This distinction differentiates the current research from that previously reported by allowing a way to more directly operationalize constructs that influence brand equity. An empirical foundation is attempted for effective management of brand image and brand attitude, but not brand equity, which is perhaps better conceptualized as the performance outcome subsequent to image and attitude development.

Managerial Implications

Some have alleged that the brand equity concept lacks managerial relevance or usefulness. Brand marketers have faced a dilemma, they understood their actions may not be enhancing brand value (equity), but they could not diagnose the problem thoroughly enough to effect a precise solution.

Marketing management has often proceeded by serendipity or trial and error. In the fast paced and unforgiving e-commerce world, with many brands under assault, this method is unacceptably problematic. Brand equity management has been proposed as a means of effectively enhancing brand value. Unfortunately, the construct has been criticized, perhaps with some justification, that while interesting and intuitively attractive, it could not be operationalized. This research provides a sound basis for operational relevance. Specifically, the research demonstrates how strong brands can be created and nurtured. Thus, the research provides empirical support for the previous anecdotal notion that investment in image focused marketing works and that images can be manipulated. The image investment can result in enhanced brand equity and now there is support to justify and document the results of a brand building budget or investment to a skeptical CFO.

The following discussion provides guidance for marketing managers trying to create consumer-based brand equity. First, marketers can create and grow brand equity by managing the independent constructs that create brand equity in the first place. Until now the relevance of the brand equity concept has been minimized because it was only considered useful for measurement, but there was little, if any, actual direction provided to the marketing manager. The interest, particularly in Europe, to consider brand equity as a balance sheet asset, provides valuable measurement for marketers, but provides no real guidance for creation of brand equity. Of significant consequence to marketers is how to manage the constructs that create the equity. The experiment demonstrated that creation of different brand images significantly affected the brand equity measures of purchase intentions and willingness to pay premium prices. Firms should create brand images that have been developed and demonstrated to have positive brand equity effects. Marketers should specifically manage brand image and brand attitude, not brand equity. Additionally, marketers should not assume, based on this research, that creation of positive brand attitude or evaluation will directly enhance brand equity. Marketers should create and manage positive brand attitude as just one of the brand associations that synergistically create brand image. Brand attitude is one of the dimensions or elements of brand image and a positive brand evaluation will not otherwise offset the consumer's perception of an inappropriate or poorly positioned image.

Second, the relevance of brand equity is further strengthened when marketers understand that brand associations can be manipulated to create a specific image. By providing and communicating specific brand associations, marketers can fine tune desired images. For instance, in the research experiment the brand image of polar fleece sweaters was significantly affected by the brand attributes (associations) provided to respondents. Experimental subjects in the upper Midwest had negative images about the functionality of a sweater with a print design pattern. Perhaps Southern consumers would have developed a positive image based on the fashionability of a print versus a solid color. The associations provided in the marketing efforts should not be randomly developed and communicated. Overloading the consumer with brand associations, with the assumption that some of them might be effective, will likely create images that are not desirable. Marketers should pro-actively control the brand images that are communicated to consumers. Particularly important is the notion that the brand associations should be conveyed consistently across all marketing and communication efforts if the desired image is to be realized.

Third, the research provides direction for marketers who want to use brand equity as a metric for discovering the differential consumer behavior effects of the firm's marketing mix activities. One useful operationalization of this research could be the development of multiple executions of a marketing management effort. An experimental manipulation can be used to measure image and attitude effects of the different executions. It becomes less necessary to measure the actual potential intentions to behave, which is a more difficult proposition. A related research benefit/implication is the assistance it provides as a metric of marketing management results. For instance, assume that marketing managers have decided on a specific positioning/identity for a brand. The identity is what marketers want their brand to mean to consumers. An experimental manipulation of brand associations can be conducted to determine which association combination (and resulting image) most closely correlates with the desired identity. It can now be roughly assumed that the highest correlated association combination will optimize the brand equity outcome. Thus, the research is a useful control metric and helps answer the question; did the investment achieve what it was intended to achieve? This allows the firm to directly observe marketing effects on consumers and take corrective action or make mid-course corrections. Now marketers have a new tool and a better understanding of how to diagnose important image problems and effect precise solutions. Outside the experimental context, the research demonstrates a useful method for determining the effectiveness of a brand repositioning campaign. The evidence that images are subject to experimental manipulation suggests the possibility that they are not perhaps as "sticky" as previously assumed. Brand repositioning campaigns and image repair are possible with attention to the marketing actions that communicate the associations relevant to the new desired identity.

Fourth, this research provides guidance to brand marketers competing in an e-commerce environment. Much has been said about the changes in marketing as a result of the movement to e-commerce. Two of the suggested effects are increased price transparency (Sinha 2000) and more competitive markets. Some have said that brands will be less important in this environment. From this research comes the realization that brands can be even more important as a factor in consumer decision making. For marketers who assumed low prices

would drive the marketing mix in e-commerce, this research provides evidence that investments in brand image building are still important and will directly affect success.

Research Limitations and Future Research

The measurement model results indicate that other omitted constructs also explain variance in brand equity. This was not a major surprise, since the research was designed as only a partial test of the Aaker (1991) and Keller (1993) brand equity conceptualizations. The focus in this research on brand image's impact on brand equity meant the effect of other components of brand equity was not specifically considered.

In the future, research should continue to examine the effects of the brand equity components of perceived quality, brand awareness, brand loyalty, and other associations such as brand personality and brand benefits. Since these brand equity components are closely related to brand image, more effective brand image development awaits better understanding of their impact on image and attitude.

While the use of students was appropriate for this study involving polar fleece sweaters, any generalization to the entire population should be avoided. Future research should be conducted with a sample more representative of the entire consuming population.

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AUTHOR BIOGRAPHY

James B. Faircloth, (D.B.A., Mississippi State University) is an assistant professor of marketing at the University of Wyoming. He has previously published in such journals as the Journal of Marketing Theory and Practice, Journal of Contemporary Business Issues, and the New England Journal of Entrepreneurship. His current areas of research interest are in brand equity and small business marketing.

AUTHOR BIOGRAPHY

Louis M. Capella (D.B.A., University of Kentucky) is a professor of marketing and Associate Dean for Internal Affairs, College of Business and Industry at Mississippi State University. He has previously published in such journals as Psychology and Marketing, Journal of Service Marketing, and the Journal of Marketing Theory and Practice.

AUTHOR BIOGRAPHY

Bruce L. Alford (Ph.D., Louisiana State University) is an assistant professor of marketing at Louisiana Tech University. He has previously published in such journals as the Journal of Business Research, Journal of Business Strategies, and Health Marketing Quarterly. His current areas of research interest are in consumer evaluation of services, retail reference prices, and measurement and validation.