CONSUMER RESPONSE TO LOGO SHAPE REDESIGN: THE INFLUENCE OF BRAND COMMITMENT

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University of Pittsburgh, 2005

This dissertation examines consumer response to one aspect of logo redesign: shape. Relatively little research has focused exclusively on logos and even less attention has been given to logo redesign. Reaction to change in logo shape is hypothesized to be a function of the degree of change (from incremental to considerable) and the level of commitment (from strong to weak) a consumer has towards the underlying brand. Consumers who are strongly committed to a brand will more negatively evaluate redesigned logos and have more negative attitude toward the brand. Conversely, consumers less committed to a brand will more positively evaluate redesigned logos and have more positive attitude toward the brand. Four experimental studies are discussed. The first three studies used athletic shoe logos as stimuli. The fourth study extended generalizability by replicating the effects of Study Three with bottled water brands and considered two mediating variables. Results fully support the concept of brand commitment moderating logo evaluation and change in brand attitude. The mediating variables were found to not influence the main effect of brand commitment on logo evaluation and change in brand attitude.

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PREFACE

This dissertation has been a remarkable voyage. I am humbled by the help and encouragement of many individuals. To my chair, Vikas Mittal, thank you—for encouraging me in an early doctoral seminar to your advocacy throughout my doctoral studies. The rest of my dissertation committee--Bob Gilbert, John Hulland, Jeff Inman and Ajay Kalra helped turn coal into a diamond, dissertation wise. I am indebted to my doctoral colleagues, Karen Page and Gergana Yordanova for their insights, know-how and empathy. And I give a big thank-you to Ebony Tan and Peter Walsh for their coding assistance.

Four years ago, Bob Atkin showed how to navigate the tricky shoals of academia in order to make my dream come true. There is no finer mentor and counselor than Bob.

I reserve my deepest appreciation to my wife Lisa who has been my partner, soul mate and cheerleader.

To those named as well as the many that have crossed my path, *Gratias Tibi ago*.

1.0 INTRODUCTION

A logo refers to a graphic design that is used to identify a firm or brand (Bennett 1995). Logos, as part of overall brand meaning, provide differentiation and influence choice. Logos help a brand two ways. First, they can be used in conjunction with the name to speed recognition of a brand (Aaker 1996). Second, a logo can be used in place of the name when there is a space or time constraint. Nike's "Swoosh" logo is so well recognized that it is frequently used without any other identifiers such as the Nike name (Aaker 1996).

In a given year, one in 50 companies will change its name and logo for a variety of reasons (Speath 1990). Logos may need to be changed due to changes in the company name. For example as shown in Figure One, Federal Express shortened its name to FedEx in 1994 which resulted in changes to its logo. Other logo changes may reflect a strategy or service emphasis change (United Airlines changed its logo when it became employee owned). Some logos are changed in order to "update" an image. For example, Aunt Jemima modernized its original stereotypical image of a smiling black "mammy" on its pancake mix and syrup packages. If Aunt Jemima had not updated its logo, it ran the risk of alienating consumers with a blatantly stereotypical image. Finally, logos may also be changed for purposes of novelty. Examples of this would include the Prudential Rock which now features vertical lines in the image.

Not all logo changes are embraced by a brand's customers. In 2003, Apple Computer announced a change to their logo from a monochromatically red color to a brushed silver hue. Within hours of Apple's announcement, there were over 200 signatures on an online petition demanding a return to the old logo treatment (Kahney 2003). See Figure 1 for examples of the Fed-Ex, Aunt Jemima and Apple logo changes.

Original	Revised
  	  

Figure 1 Examples of Logo Changes

Or consider Sunset Magazine, the venerable West Coast lifestyle magazine. After a logo change in 1996, the magazine was deluged with letters of complaint. One reader, in a letter to the editor, complained "changing the logo is like changing Half Dome, the Grand Canyon and Mount Rushmore" (1996). These examples of logo change being met with consumer resistance beg the obvious question, why are some logo changes met with consumer resistance and others are not?

This dissertation seeks to explore this issue, specifically consumer response to one aspect of logo redesign: shape. Relatively little research has focused exclusively on logos and even less attention has been given to logo redesign. It is hypothesized that reaction to change in logo shape is a function of the degree of change (from incremental to considerable) and the level of commitment (from strong to weak) a consumer has towards the underlying brand. Consumers who are strongly committed to a brand will more negatively evaluate redesigned logos and have

more negative attitude toward the brand. Conversely, consumers less committed to a brand will more positively evaluate redesigned logos and have more positive attitude toward the brand. Four experimental studies are discussed. The first three studies used athletic shoe logos as stimuli. The fourth study extended generalizability by replicating the effects of Study Three with bottled water brands. Results support the concept that brand commitment influences logo evaluation and change in brand attitude.

This dissertation proposal is divided into five parts. First, the relevant literature dealing with logos is briefly reviewed. Secondly, the underlying theoretical concepts pertaining to reaction to logo change are established. The third part develops the hypotheses. Following this, the results from Studies One, Two, Three and Four are described. A general discussion follows individual study results.

2.0 DIMENSIONS OF LOGOS

Henderson and Cote (1998) directly examined logos. The authors performed a factor analysis of design dimensions and consumer response to the dimensions of logos. Design dimensions are under the control of the firm and include things such as shape (roundness) and naturalness (representative of commonly experienced objects). In their study, Henderson and Cote (1998) identified 13 different design dimensions. Of these dimensions, one dimension—shape—is particularly relevant to this study since consumer response to modifications of logo shape are measured. Turning to response dimensions, these are under the control of consumers and include recognition, affect and meaning. False recognition occurs when respondents profess recognition but have not really seen the logo in the past. Affect refers to the overall liking of the logo and meaning refers to the ability of the respondent to make a clear connotation of the product or the company.

Henderson and Cote (1998) found that correct recognition is aided by high naturalness (the logo is representative of common everyday objects). A moderately high level of harmony (the degree of balance found in the logo) but slightly less symmetry (elements on one side of the axis are identical to the elements on the other side) aids recognition. False recognition (when respondents profess recognition but have not really seen the logo in the past) is aided by moderately high parallelism (placement of multiple lines or elements next to each other) and high harmony. Strong positive affect toward logos is aided by high levels of naturalness and elaboration (intricacy of design). Finally, familiar meaning is aided by selecting designs representing a familiar object.

Other authors have explored design elements such as color, language and typeface on brand name and brand name recall and consumer preference. These studies used a variety of stimuli (such as advertisements), but their findings seem applicable to logos. Gorn, Chattopodhyay Yi and Dahl (1997) examined the effect of color in advertising. Their findings

indicate that colors with highest level of value (degree of darkness or lightness of the color relative to a neutral scale) and chroma (proportion of pigment in a color) lead to increased affect and excitement. Tavassoli (2001) examined effect of printing brand names in color and found color did not have a main effect on brand name ratings. On the other hand, Madden, Hewett and Roth (2000) explored inter-cultural differences in consumer preferences for colors and color combinations for product logos across eight countries. Klink (2003) explored the role of language and found that brand names with front vowels and containing fricatives (the letters s, f, v and c) are more closely related to lighter colored brand names and angular brand marks. Henderson, Giese and Cote (2004) studied typeface design. The authors developed four measures of type (pleasing, engaging, reassuring and prominent) and studied the effect of elaborate, harmonious and natural typefaces on the measures.

In summary, work to date has identified the elements of logos and examined how various elements of logos (such as color) affect underlying brand attitudes. However, consumer evaluations of logo redesign and changes to underlying brand attitude have not been addressed by researchers. This is the focus of my dissertation.

3.0 THEORETICAL UNDERPINNINGS

Since logos are designed to be used in a variety of ways (signage, advertising, business cards etc.) and are meant to last over time, people are exposed to logos on a repeated basis. Given this, the exposure/repetition-effects literature stream is helpful in understanding the theory behind response to stimuli such as logos. Researchers who have examined the relationship between exposure (in particular, repetitive exposure to stimuli) and affective response have reported results that can be categorized into two broad categories.

First, a number of studies report an inverted "U" relationship between exposure to stimuli (ranging from nonsense syllables to advertisements) and affect (Crandall, Montgomery and Ress 1973; Kail and Freeman 1973; Zajonc Crandall, Kail and Swap 1974, Anand and Sternthal 1990; Calder and Sternthal 1980; Craig, Sternthal and Leavitt 1976; Schumann, Petty and Clemons 1990). The prevailing explanation is the "two-factor theory" that states two opposite psychological processes: positive habitation and tedium mediate the relationship between exposure and affect (Berlyne 1970, Cacioppo and Petty 1979). Positive habitation is defined as a reduction in uncertainty or conflict in a person's mind (Cacioppo and Petty 1979). Repeated exposure leads to more opportunities to learn about the stimuli thereby reducing uncertainty and this learning is presumably rewarding and leads to increased affect toward the stimulus (upward portion of the inverted U). The decline of affect (downward portion of U) results from the tedium of repeated exposures to the stimulus. Tedium is defined as a state of mind described as boredom or satiation (Cacioppo and Petty 1979). At some point repeated exposures to stimuli becomes boring and this leads to decreased affect toward the stimulus (downward portion of U).

Secondly, other studies regarding repetitive exposure to stimuli and affective response report different results, namely a monotonically increasing relationship between exposure and affect regardless of the number of exposures (Bornstein 1990, Zanjonc et al 1974, Bornstein and D'Agostino 1994, Jacoby, Toth, Lindsay and Debner 1992, Mandler, Nakamura and Van Zandt

1987). For example, Zajonc et al. (1974) report no downturn in affective response after 243 exposures. This number far exceeds the level noted by Bornstein (1990) as the mean point at which a downturn in affective response commonly occurs, approximately 21 exposures. The explanation for this is the perceptual fluency/misattribution model (Bornstein and D'Agostino 1992). Perceptual fluency is defined as the ease which people perceive, encode and process stimuli (Nordhielm 2002). Bornstein and D'Agostino (1992) showed perceptual fluency of a stimulus is increased by prior exposure particularly when the prior exposure was of such short duration that respondents might not even remember the prior exposure. This suggests the perceptual fluency/misattribution model is a more appropriate model when deeper processing of stimuli is impeded.

Nordhielm (2002) integrated these two theories by demonstrating that level of processing dictates whether the tedium effect will set in. Level of processing is characterized as the perception, encoding and processing of surface features of advertisements including headlines, illustrations, graphics and copy elements. Deeper processing involves the processing of the semantic content of the stimuli. In Nordhielm's main study (using ads as stimuli), she manipulated level of processing and showed that when ads are processed in a shallow fashion there is no tedium effect. When repeated exposures to stimuli are processed in a deeper fashion, evaluation of the stimuli exhibit the inverted U shape.

While the two factor theory and perceptual fluency misattribution model are useful in characterizing consumer reaction to stimuli, and Nordhielm's work helps to understand the patterns of results, both models focus on repeated exposures to the same stimuli. This dissertation focuses on consumer reaction to changes to logos and explores why some logo redesigns are rejected by consumers and others are not. An examination of underlying brands and consumer commitment to these brands helps to address this issue. As consumers become attached to a brand, the emotional bonds formed between the consumer and the brand frame the consumer's response to changes to the brand and brand artifacts such as logos.

3.1 THE ROLE OF BRAND COMMITMENT

While consumers consume thousands of products, they form an emotional bond to only a select subset of products (Thomson, MacInnis, and Park 2005). Born out of attachment theory in psychology (Bowlby 1979), commitment is an emotion-laden target-specific bond between a person and a specific object. Commitment is defined as "an enduring desire to maintain a valued relationship" (Moorman, Zaltman and Deshpande 1992 p. 316). Commitment can vary in strength, with stronger attachments exhibiting feelings of affection, love and connection (Aron and Aron 1996; Bowlby 1979; Brennan, Clark, and Shaver 1998; Collins and Read 1990). Extending this concept into the world of products and brands, commitment is defined as a psychological attachment to a brand and is viewed as a close antecedent of behavioral loyalty (Beatty, Kahle and Homer 1988). A number of researchers have shown that an emotional bond can be formed between consumers and select brands. For example, Slater (2000) identified emotions such as love and warm feelings as characterizations of the emotional bond between consumers and Coca-Cola and Hallmark.

Brand commitment has been shown to play a critical role in determining resistance to various actions such as brand transgressions and outside attacks on the brand. The more committed an individual is toward a brand, the more likely they will resist information that attacks that brand (Ahluwalia, Unnava, and Burnkrant 2000). In Ahluwalia et al's study (2000), consumers of a particular brand of athletic shoes were shown fictitious news articles detrimental to the brand. Those consumers committed to the brand counter-argued negative information about the brand. A consumer who responds in this fashion is said to be defense motivated (Ratneshwar and Chaiken 1991). A defense motivation is defined as the use of heuristics to protect vested interests, attitudinal commitments or other preferences (Koslow 2002). Thus a strongly committed consumer of a brand, because of defense motivation, is more likely to resist information that attacks or undermines the meaning of the brand. Turning to logos, one element of a brand's meaning is its logo (Bennett 1995). Changes to a logo have the potential of changing the meaning of the brand to a consumer and this dissertation explores consumer response to such changes.

4.0 HYPOTHESES

In using longstanding and well established brands, it is assumed that the logos of these brands have enjoyed very high exposure across a broad gamut of consumers. My question is: why do some consumers, when exposed to a redesigned logo, like the redesign whereas other consumers do not? This dissertation considers brand commitment to be a moderator of a consumer's reaction toward logo change. The outcomes of logo evaluation and brand attitude are examined between those consumers strongly committed to a brand versus those consumers weakly committed to a brand.

Strongly and weakly committed consumers respond differently to information about a brand. As consumers become attached to a brand, the brand becomes more meaningful for the consumer and they form an emotional bond to the brand. This bond frames a consumer's emotional response to the brand. A change to a brand component such as a logo raises the possibility that the meaning of the brand has been altered for a consumer. A strongly committed consumer is likely to view such change negatively as a means to protect their vested interests. Koslow (2000) called this type of behavior "defense motivation" and this is defined as "the use of heuristics selectively so as to protect vested interests, attitudinal components or other preferences like freedom of choice" (Koslow 2000 p. 249). Likewise Ahluwalia et al (2000) found commitment to be a moderator of consumer response to negative information. Ahluwalia et al (2000) posit that commitment is a major element of attitude strength. Consumers strongly committed to a brand counter-argue negative information about that brand. On the other hand, a weakly committed consumer does not form an emotional bond and is less likely to have vested interests and attitudes towards the brand. The brand is less meaningful to the consumer. With weak commitment, its effect on attitude is reduced. Thus change to a brand component (such as a logo) does not carry as much impact on the meaning of the brand to a weakly committed customer and such change is less likely to be counter-argued as with strongly committed

customers. For weakly committed people, the novelty of the change may result in a positive evaluation of the redesigned logo. This result is consistent with Berlyne's (1970) and Cacioppo and Petty's (1979) two factor model that suggests the decline in affect towards a stimuli results from the tedium of repeated exposures to the stimulus. A change in stimuli can attenuate the effect of tedium. It is theorized that by understanding the level of brand commitment respondents have toward the underlying brand we can more accurately predict if the downturn in affective response to logo change will occur.

Changes to logos as well as brands run the gamut from relatively minor to significant. In light of this, this dissertation also considers two levels of change. Incremental change and considerable change are studied to examine potential non-linearity in the effect of commitment on change.

This leads to the following hypotheses:

H1: When commitment is strong (weak), the effect of logo change on logo evaluation will decline (improve) as the degree of change becomes greater.

An Interbrand Schechter study measured consumer response to redesigned logos and found some logo redesigns can evoke negative evaluations which can hurt the underlying brand image (Bird 1992). This study did not explore the underlying reasons for this response. Thus it is important to examine how a logo change impacts attitude towards the underlying brand. In H1, strongly committed people are predicted to be less inclined to positively evaluate a changed logo, whereas weakly committed people are more likely to positively evaluate a changed logo. Extending this to brand attitude, negatively evaluated logos will cause a decline in brand attitude and positively evaluated logos will cause an improvement in brand attitude.

H2: When commitment is strong (weak), the effect of logo change on attitude toward the underlying brand will decline (improve) as the degree of change becomes greater.

Logos can be redesigned in a myriad of ways through the addition, deletion or modification of the various dimensions of logos. One such dimension is shape, specifically the "roundness" of a logo (Henderson and Cote 2001). An exploratory study was conducted by the author to identify the prevailing logo redesign trends in the U.S. Twelve leading logo designers were interviewed regarding logo design trends. The results indicated a shift toward more simplistic designs and the use of rounded shapes in logo redesign as the most prevalent design trends. (See Appendix A for interview script, respondent names and summary of comments).

Based on results of this exploratory study, this dissertation focused on shape of logo, specifically shapes that are more rounded.

In summary, hypotheses one and two state no change, followed by incremental change and, finally, considerable change logo shapes are preferred when the consumer is strongly committed to the brand (in terms of logo evaluation and change in underlying brand attitude). For weakly committed consumers, the opposite is predicted: considerable change followed by incremental change and, finally, no change logo shapes are preferred (in terms of logo evaluation and change in underlying brand attitude).

5.0 OVERVIEW OF STUDIES

To test the hypotheses, a series of studies were conducted that modified brand logos and measured consumer response (to the redesign) and consumer commitment to the underlying brand. Studies One and Two served as pretests to measure brand commitment and degree of logo change. This dissertation has two main studies (Studies Three and Four). H1 and H2, predicting logo evaluation and change in brand attitude are tested in both main studies. Subsequent to Study Three, a number of mediating hypotheses pertaining to boredom, need for cognition depth of processing and openness mediation were developed and tested as part of Study Four. The following is a brief outline of each study.

Study One. This was done to measure respondent's commitment to athletic shoe brands—the product category used in subsequent Studies Two and Three. The pretest involved showing respondents a test booklet containing logos of the top five athletic shoe brands and asking them to complete Beatty, Kahle and Homer's (1988) brand commitment scale. The objective of the pretest was to select the specific brand of athletic shoes and to confirm that the selected brands have a wide distribution of commitment scores. The results of the study confirmed the selected brands (Adidas, New Balance and Nike) have a wide distribution of commitment scores. Additionally, the mean scores were similar to those found in the Ahluwalia et al (2000) study which used the same stimuli.

Study Two. Next, A second pretest was designed to verify that the respondents categorized the logo stimuli as "no change/incremental change/considerable change" as intended. Subjects were shown a test booklet showing an original logo and either the original, incremental, or considerably changed logo for three brands of athletic shoes. A Latin Square design was used to ensure all combinations of brand/logos/conditions were tested. The results confirmed that the modified Adidas and New Balance logos were evaluated as intended. That is, respondents' ranking of logos in terms of degree of change was 1.) no change, 2.) incrementally changed and

3.) considerably changed. The Nike results did not conform to expectations and the Nike brand was dropped from the main study.

Study Three. This served as the first of two tests of hypotheses one and two and featured athletic shoe brands. The study design was a two (commitment toward the brand: strong, weak) x three (degree of logo change: none, incremental and considerable) between subjects design. It is important to note commitment was a measured as opposed to a manipulated variable. Study Three participants were undergraduate students. Subjects were shown a test booklet containing either an Adidas or New Balance logo in one of three conditions: no change (which served as a manipulation check), incremental change, or considerable change. Subjects were also asked to complete a brand commitment scale, brand attitude scale (pre and post exposure to logos) and a logo evaluation scale. The results of this study supported the hypotheses.

Study Four. Finally the last study was designed to extend generalizability by attempting to replicate the effects found in Study Three for brands from another product category. The selected product category was bottled water, specifically the Dasani and Aquafina brands. Study Four also considered a number of potential covariates and tested two mediation hypotheses (defined and discussed as part of Study Four) relating to a respondent's depth of processing and sense of boredom. Finally, the sample for Study Four was expanded from undergraduates to the general public. The results from Study Four support hypotheses one and two thus extending generalizability. The mediation hypotheses were not supported in Study Four.

6.0 STUDY ONE

Study One served as a pretest and was done to identify a product category and specific brands for studies two and three. In particular, it was necessary to identify brands that show a wide distribution of brand commitment scores.

6.1 SURVEY RESPONDENTS

Eighty-one undergraduate students at a large Midwestern university took part in the study. Participants received extra credit for participating.

6.2 STIMULI

The stimuli were athletic shoes. Athletic shoes were selected as the target category because participants in the subject pool (undergraduate students) are familiar with this category. This is the same category used by the Ahluwalia et al (2000) study. The top five athletic shoe brands were selected for this pretest (Schumann 2004). These brands were Adidas, Fila, New Balance, Nike and Reebok.

6.3 MEASURES

Study One featured one independent variable: a respondent's commitment toward a brand. This was measured using a three item brand commitment scale proposed and tested by Beatty, Kahle and Home (1988) and subsequently used by Ahluwalia, Burnkrant and Unnava (2000). The actual scale can be found in Appendix B, pages 84-90. The brand commitment scale items were "If (brand) were not available, it would make little difference to me if I had to choose another brand," "I consider myself to be highly loyal to (brand)," "When another brand is on sale, I will generally purchase it rather than (brand)." Nine point Likert scales, anchored by strongly agree/disagree were used to record responses. The second item is reverse coded. The scale was consolidated into a single measure by computing a mean brand commitment score (coefficient alpha = .88). Those respondents whose mean brand commitment score was in the upper third (7.0 through 9.0) were categorized as strongly committed. Those respondents whose mean brand commitment score was in the lower third (1.0 through 3.0) were categorized as weakly committed. This procedure is identical to the one used by Ahluwalia et al (2000). In addition to the brand commitment scale, age, gender and shoe ownership (current, last two years and never) were collected as potential covariates.

6.4 PROCEDURE

The subjects were given a test booklet containing logos of the top five athletic shoes brands: Adidas, Fila, New Balance, Nike and Reebok. Each page of the test booklet contained a logo of an athletic shoe brand (order of brands was counter-balanced across the sample). For each logo, subjects were asked to complete Beatty, Kahle and Homer's (1988) three-item brand-commitment scale. Following this, demographic (age, gender) and ownership data (currently owned, owned within last two years and never owned) were collected. Fieldwork was completed in March, 2005. See Appendix B for a copy of the test booklet.

6.5 RESULTS

The primary objective of Study One was to verify that athletic shoes had a wide distribution of commitment scores. This objective was achieved and the results were similar to the Ahluwalia et al (2000) study. (This study: combined brand's means = 6.03/9, standard deviation = 2.68, n = 81; Ahluwalia et al (2000): combined brand's means = 6.11/9, standard deviation = 2.66, n= 456). Results are shown in Table 1.

Turning to specific brands, the frequency distributions of mean commitment scores for all brands were skewed towards weakly committed respondents. Fila and Reebok had virtually no strongly committed respondents whereas Adidas, Nike and New Balance had both strongly and weakly committed respondents. Strongly committed consumers were defined as those consumers whose mean brand commitment scores were in the upper third (7.0 to 9.0). The percentages of strongly committed consumers were: Adidas (14.81), New Balance (13.58) and Nike (24.69). Fila and Reebok had less than one percent of respondents who could be categorized as strongly committed.

Weakly committed consumers were defined as those consumers whose brand commitment scores were in the lower third (1.0 to 3.0). The percentages of weakly committed consumers were: Adidas (30.86), Fila (80.25), New Balance (39.51), Nike (27.16) and Reebok (59.26). The mean commitment scores for the brands were as follows: Adidas (5.56), Fila (8.04), New Balance (5.90), Nike (5.28) and Reebok (7.21). Standard distribution values of the mean commitment scores by brand were: Adidas (2.18); Fila (1.26); New Balance (2.23); Nike (2.38); Reebok (1.50).

Table 1 Commitment Scores: Frequency Distribution and Means

	Adidas	Fila	New Balance	Nike	Reebok
Mean Freq. Distribution Commitment 1.01-2.00	7	38	13	9	17
2.01-3.00	8	16	5	5	14
3.01-4.00	10	11	14	8	17
4.01-5.00	8	7	6	9	13
5.01-6.00	13	7	10	10	10
6.01-7.00	13	1	12	14	7
7.01-7.99	10	1	9	6	2
8.00-8.99	6	0	6	10	0
9.00	6	0	5	10	0
Mean Commitment*	5.56	8.04	5.90	5.28	7.21
Std. Dev.	2.18	1.26	2.23	2.38	1.50
% Strongly Committed	14.81	0	13.58	24.69	0
% Weakly Committed	30.86	80.25	39.51	27.16	59.26

*F=1.38; p<.05

Since the purpose of this study was to identify brands for inclusion in subsequent studies Two and Three, a brand commitment cutoff was established. A brand had to have at least three percent of respondents strongly committed to the brand for inclusion in the main studies. The three percent cutoff score was arbitrarily set, but done to ensure sample sizes for Study Three remained reasonable. (It would be necessary to survey a significantly higher number of people if a brand had relatively few strongly committed consumers in order to collect minimum sample sizes (25) of strongly and weakly committed consumers.)

In addition to brand commitment scores, demographics and ownership of respondents was obtained. Within the sample (n=81), 53.10% were males and 46.90% were females. Men

were coded "0" and women coded "1." Age was collected and average age was 21.82 (s.d. = 3.78) which is expected since the sample was undergraduate students. Regarding ownership, respondents indicated whether they currently owned, owned within the last two years and never owned each brand. Responses were coded 1= yes, 0= no. Nike, the number one brand, had the highest percentage of current ownership (51.88%). The remaining brands had current ownership percentages ranging from 41.92% (Adidas) to 1.18% (Fila). Please refer to Table 2 for full ownership detail.

Table 2 Descriptive Statistics: Ownership

N=81	Adidas	Fila	New Balance	Nike	Reebok
% Currently Owned	41.92	1.18	38.21	51.88	18.50
%Owned w/in last two years	37.30	6.22	21.04	24.61	25.86
% Never owned	18.49	86.37	39.52	11.10	46.92

The correlation between brand commitment and brand ownership was also examined. While all possible brand/ownership combinations are reported, it was of particular interest to examine the correlation between a brand's commitment and ownership of that brand. As shown in Table 3, there is a moderate to high correlation between brand commitment and ownership of that brand for Adidas, New Balance and Nike. Fila and Reebok correlations were not significant. This implies that, as expected brand commitment is related to brand ownership.

Table 3: Correlation Between Brand Commitment and Brand Ownership

(Kendall's Tau)

Brand Ownership/Brand Commitment	Adidas Commit.	Fila Commit.	New Balance Commit.	Nike Commit.	Reebok Commit.
Adidas currently owned	.46**	-.02	-.05	.01	.03
Adidas owned last two years	-.13	.09	.05	.12	.05
Adidas never owned	-.42**	-.14	-.07	-.18	-.11
Fila currently owned	-.07	-.10	.01	-.01	-.02
Fila owned last two years	.01	.01	-.13	.01	-.12
Fila never owned	-.01	.00	.03	-.01	.18
New Balance currently owned	.08	.08	.54**	-.12	.00
New Balance owned last two years	.06	-.02	-.08	.08	.02
New Balance never owned	-.15	-.04	-.45**	.08	.00
Nike currently owned	-.07	-.01	-.15	-.40**	.12
Nike owned last two years	.12	-.13	.21*	-.24*	-.10
Nike never owned	-.06	-.19	-.05	-.31**	.-10
Reebok currently owned	.05	-.01	.06	.07	.19
Reebok owned last two years	-.04	.10	-.16	.09	.11
Reebok never owned	-.06	-.02	.09	-.14	-.16
*p<.05; **p<.01 (two tailed)					

6.6 DISCUSSION

The results of Study One showed athletic shoe brands-especially Adidas, Nike and New Balance had a wide distribution of commitment scores. Hence these brands were used for Study Two.

7.0 STUDY TWO

Logo redesign can range from relatively incremental to considerable. Accordingly, it is valuable to examine potential non-linearity in the effect of commitment on change. To this end, the main studies (Studies Three and Four) featured two levels of logo redesign: incremental and considerable. Study Two served as a pretest for Study Three and was designed to verify that subjects categorized the redesigned logo stimuli as intended by the designer (measured as degree of change from the original logo). That is, unchanged logos were classified as unchanged by respondents, logos incrementally changed were classified as incrementally changed by the respondents, and considerably changed logos were classified as considerably changed. In addition, commitment and attitude towards the selected brands was measured.

7.1 SURVEY RESPONDENTS

Ninety undergraduate students at a large Midwestern university took part in the study. Participants received extra credit for participating.

7.2 STIMULI

Adidas, Nike and New Balance athletic shoe brands were used as the target brands. These brands were selected because they exhibit a wide distribution of commitment scores as demonstrated in Study One. Each brand had three logo conditions: unchanged, incrementally changed and considerably changed. The Adidas, Nike and New Balance logos were modified by

a professional graphic designer. Based on the exploratory survey results (Appendix A) that identified logo shape-- specifically roundness as a prevailing design trend, the designer was asked to modify the shape, specifically "roundness" of the logo. The designer produced two redesigns per logo: an "incremental" and a "considerable" redesign. In addition to the two redesigns, the original logo was used for the "unchanged" condition. The designer was compensated for her efforts ($200). Please refer to Figure 2 for the unchanged, incremental and considerably changed logo designs for the three brands.

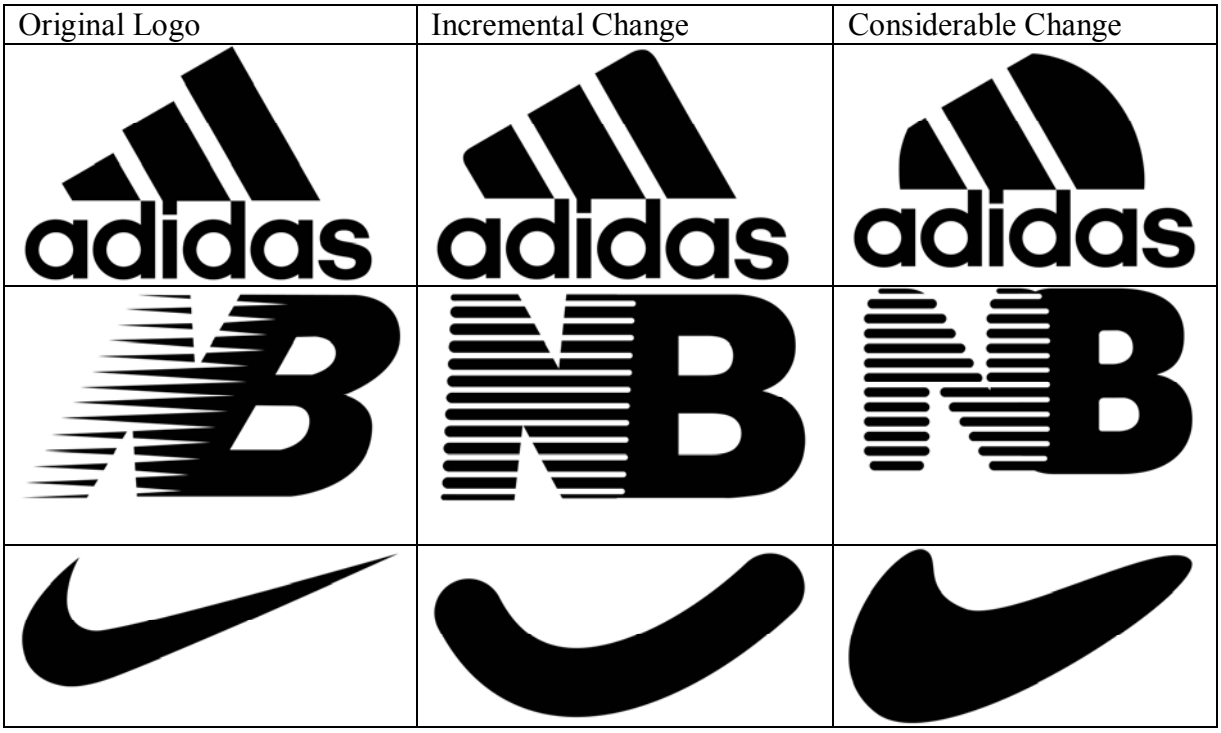


Figure 2: Logo Redesigns for Study Two and Three

7.3 MEASURES

Survey respondents' evaluation of logos in terms of degree of change was the primary independent variable. In addition, commitment toward the underlying brand and attitude toward the underlying brand were included as additional measures. Please see Appendix C (pages 91-104) for survey booklet materials containing the aforementioned measures.

7.3.1 Change rating. This variable refers to the respondent's evaluation of the modified logo in terms of degree of change and was measured using a three item, seven point semantic differential scales constructed specifically for this study. Respondents were shown the original logo (identified as "Version A") and either the same logo, an incrementally redesigned logo or a considerably redesigned logo (identified as "Version B") and were asked "Please compare the logos above. Compared to Version A, how would you rate Version B?" Following this, was a three item, seven point semantic differential scale: little difference/very different, minor modifications/extensive modifications, no change/completely changed. The three item scale was averaged into a single measure (coefficient alpha .96).

7.3.2 Commitment toward the underlying brand. This variable was measured using Beatty, Kahle and Homer's (1988) three item brand commitment scale discussed in Study One. The scale was consolidated into a single measure by computing a mean brand commitment score (coefficient alpha ranged from .72 to .83 depending on specific brand). As with the first study, subjects in the upper (lower) third are categorized as strong (weak) in commitment.

7.3.3 Attitude toward the underlying brand. This variable was measured using a brand attitude scale developed by Ahluwalia et al (2000). This measure includes four items, each measured on a nine-point semantic differentiation scale. The measures are "Good/Bad," "Beneficial/Harmful," "Desirable/Undesirable" and "Nice/Awful." The brand attitude scale was consolidated into a single measure by computing a mean brand commitment score (coefficient alpha .94). In addition to these measures, age, gender and shoe ownership was collected as potential covariates.

7.4 PROCEDURE

Using a similar methodology featured in Study One, subjects were given a test booklet (a copy can be found in Appendix C) and were told the study was about attitudes towards athletic shoes. Following the cover page, respondents were asked to compare two logos on three successive pages. Each page had an Adidas, New Balance or Nike original logo (titled version A) and the same logo in one of three conditions: unmodified, incrementally or considerably changed logo (titled version B). The unmodified logo was included as a manipulation check. Below the logos, respondents were asked to complete the degree of change scale. After the logo comparison pages, respondents completed the brand commitment scale, brand attitude scale, ownership questions for the three selected brands, plus demographic ownership questions (age and gender).

A Latin Square design was used to ensure all combinations of brands (three) and logo conditions (three) were tested. There were a total of six individual survey books. Each test book featured all three brand (Adidas, New Balance and Nike) logos in one of three conditions: unchanged, incrementally changed or considerably changed. The order of logo/conditions for each survey booklet was not rotated. Please refer to Table 4 for the Latin Square design details including the assignment of brand/logo condition for the six test booklets. Fieldwork was completed May, 2005.

Table 4 Latin Square Design for Study Two

	Version D	Version E	Version F
Version A	Adidas No Change	New Balance Considerable	Nike Incremental
Version B	New Balance Incremental	Nike No Change	Adidas Considerable
Version C	Nike Considerable	Adidas Incremental	New Balance No Change

7.5 RESULTS

The degree of change measure was consistent per my expectations for the Adidas and New Balance redesigned logos. That is, respondent's ratings of degree of change in New Balance and Adidas logo conditions reflected the designer's ranking of logos in terms of degree of change.

Since a Latin Square design was used, and to rule out potential order effects, a repeated measures analysis of variance was performed using the "proc mixed" function in SAS. Subject, brand, degree of change and order were entered as class variables. Change rating score was the dependent variable and brand and condition were entered as independent variables. Order was entered as a covariates and subject was entered as the repeated variable. The model was significant (X^2= 6.68, p<.05). As shown in Table 5, the covariate of order was significant and all other variables were not significant.

Table 5 : Type 3 Tests of Fixed Effects

Effect	df	F Value
Brand	2	0.46
Deg. Of Change	2	2.63
Brand*Deg. Of Change	2	0.20
Order	2	6.20*
Brand*Order	1	0.02
Deg Of Change*Order	2	0.64

*p<.05;

As shown in Table 6, the change ratings for Adidas logos were mean $_{\text{no change}}$ = 1.29, mean $_{\text{incremental change}}$ = 3.26, and mean $_{\text{considerable change}}$ = 4.17 ($F_{2, 89}$ =70.20, p<.001). The change ratings for the New Balance logos were mean $_{\text{no change}}$ = 1.21, mean $_{\text{incremental change}}$ = 4.72 and mean $_{\text{considerable change}}$ = 5.44 ($F_{2, 89}$ =114.50, p<.001).

In terms of Nike, the incrementally changed logo was rated as more changed as the considerably changed logo, contrary to the designer's intentions (mean $_{\text{no change}}$ = 1.64, mean $_{\text{incremental change}}$ = 5.92, $_{\text{mean considerable change}}$ = 5.55, $F_{2, 89}$ =129.10, p<.001).

Table 6 Change Rating Results
(Average of three items; 1= no change; 7= completely changed)

Athletic Shoe Brand	No Change	Incremental Change	Considerable Change	F
Adidas mean: s.d.	 1.29 .46	 3.26 1.03	 4.17 1.24	70.2*
New Balance mean: s.d.	1.21 .41	4.72 1.42	5.44 1.37	114.5*
Nike mean: s.d.	1.64 .92	5.92 .98	5.55 1.45	129.1*
*p<.001				

Additional significance testing was done by comparing paired combinations of the three brands. That is, comparing no change means versus incremental change means and comparing incremental change means versus considerable change means for each of the three brands to verify that the reported means are significantly different from each other. The pairwise means comparisons were significant for the Adidas and New Balance brands. The comparison of Nike incremental means versus considerable means was not significant. As Nike was dropped from future studies, this result was not deemed a problem. Please refer to Table 7 for the pairwise comparisons.

Table 7 Selected Pairwise Means Comparisons

(p-values)

	Adidas No Change	Adidas Inc. Change	Adidas Con. Change
Adidas No Change	NA	.001	.001
Adidas Incremental Change		NA	.05
Adidas Considerable Change			NA
	New Balance No Change	New Balance Inc. Change	New Balance Con. Change
New Balance No Change	NA	.001	.001
New Balance Incremental Change		NA	.05
New Balance Considerable Change			NA
	Nike No Change	Nike Inc. Change	Nike Con. Change
Nike No Change	NA	.001	.05
Nike Incremental Change		NA	n.s.
Nike Considerable Change			NA

While the main purpose of this study was to confirm the logo designer's intentions, a variety of other descriptive statistics were obtained and coded in the same fashion as Study One. The sample size was slightly weighted toward women (45.60% male respondents; 54.40% female respondents). Average age was 21.80. Ownership data was similar to Study One with current ownership ranging from 65.62% (Nike) to 24.41% (New Balance). Please refer to Table 8 for full details on ownership of the shoe brands.

Table 8: Descriptive Statistics: Ownership

N= 90	Adidas	New Balance	Nike
% Currently Owned	41.10	24.41	65.62
% Owned w/in last two years	45.60	28.90	31.10
% Never Owned	12.21	52.20	11.14

Brand commitment was measured as well. The three brands had similar mean commitment scores (Adidas: 3.90; New Balance 3.33; Nike 4.10 $F_{2, 89} = 3.81$, $p < .05$). The frequency distribution of mean commitment scores was reported for the three brands. Consistent with Study One, the brands showed a skewed distribution towards weakly committed respondents. The percentages of respondents strongly committed to the brand were Adidas (10.00), New Balance (3.33), and Nike (7.77). These results were lower than the same scores obtained in Study One but were within the cutoff (3%) established in Study One. The percentages of respondents weakly committed to the brand were Adidas (43.33), New Balance (50.00) and Nike (32.33). The mean commitment scores by brand were: Adidas (3.90), New Balance (3.33) and Nike (4.10). Please refer to Table 9 for mean commitment score's frequency distribution (by brand), mean commitment, standard deviations and percentage of strongly/weakly committed respondents.

Table 9: Commitment Scores- Frequency Distribution and Means

	Adidas	New Balance	Nike
Mean Commitment Frequency Dist. 1.01-2.00	18	29	20
2.01-3.00	21	16	9
3.01-4.00	11	11	15
4.01-5.00	14	21	16
5.01-6.00	13	10	18
6.01-7.00	4	1	5
7.01-7.99	3	1	6
8.00-8.99	6	2	1
9.00	0	0	0
Mean Commit*.	3.90	3.33	4.10
s.d.	2.11	1.86	1.79
% Strongly Committed	10.00	3.33	7.77
% Weakly Committed	43.33	50.00	32.22
Mean Brand Attitude**	2.56	3.03	2.19
*F=3.81, p<.05 **F=14.66, p<.001			

The correlation between brand commitment and brand ownership was also examined. As shown in Table 10, there is a moderate to high correlation between brand commitment and ownership of that brand for Adidas, New Balance and Nike. This result is as expected and suggests that brand commitment is an important construct with behavioral consequences

Table 10: Correlation between Brand Commitment and Brand Ownership

(Kendall's Tau)

Brand Commitment/ Brand Ownership	Adidas	New Balance	Nike
Adidas Currently Owned	.41**	.01	.03
Adidas Owned Last Two Years	-.15	-.12	-.01
Adidas Never Owned	-.19*	.25**	.06
New Balance Currently Owned	-.01	.33**	-.21*
New Balance Owned Last 2 Years	.02	.03	.12
New Balance Never Owned	-.03	-.25*	.23*
Nike Currently Owned	-.03	-.05	.30**
Nike Owned Last 2 Years	-.02	.02	-.27**
Nike Never Owned	-.07	-.01	-.21*
*p<.05; **p<.01 (two tailed)			

Finally, the variables of degree of change in logo and brand commitment were tested for independence. Three separate ANOVAs were run, one for each brand, with the dependent variable degree of change score and the independent variables logo condition and brand commitment. Across all three brands, commitment, as well as the interaction between commitment and logo condition, was not a significant factor. Logo condition is the only significant factor. Please refer to Tables 11, 12 and 13 for the ANOVAs by brand.

Table 11: Test of Independence: Adidas Brand

Dependent Variable: Adidas Degree of Change Score

Source	df	Mean Square	F Value
Model	4	37.55	33.00**
Error	85	1.14	
Total	89		
Commitment	1	.42	.37
Com*Deg Chg	1	.29	.27
Deg of Chg.	1	32.85	28.88**

*p<.05; **p<.001

Table 12: Test of Independence: New Balance Brand

Dependent Variable: New Balance Degree of Change Score

Source	df	Mean Square	F Value
Model	4	89.95	50.04**
Error	85	1.80	
Total	89		
Commitment	1	.87	.48
Com*Deg Chg	1	1.09	.60
Deg of Chg.	1	75.95	42.25**

*p<.05; **p<.001

Table 13: Test of Independence: Nike Brand

Dependent Variable: Nike Degree of Change Score

Source	df	Mean Square	F Value
Model	4	83.1	35.47**
Error	85	2.34	
Total	89		
Commitment	1	12.61	5.38*
Com*Deg Chg	1	0.47	0.20
Deg of Chg.	1	222.78	95.06**

*p<.05; **p<.001

7.6 DISCUSSION

Study Two shows that subjects categorized the redesigned logo stimuli (Adidas and New Balance) as intended by the designer. That is, unchanged Adidas and New Balance logos were classified as unchanged by respondents, Adidas and New Balance logos incrementally changed were classified as incrementally changed by the respondents, and Adidas and New Balance considerably changed logos were classified as considerably changed. Accordingly, Adidas and New Balance logo redesigns were selected as the stimuli for Study Three.

However the results for Nike did not conform to the designer's expectations. As such it was decided to drop Nike from further studies.

8.0 STUDY THREE

Study Three served as the first of two main studies for the testing of hypotheses one and two. That is, do strong commitment consumers differ compared to weak commitment consumers of a brand in terms of evaluation of logo redesigns and underlying brand attitude?

8.1 RESPONDENTS

Six hundred and seventy undergraduate students at a large Midwestern university took part in the study. Participants received extra credit for participation. The large sample size was obtained in order to yield at least 25 respondents in both strong and weak brand commitment conditions for each logo design condition (three) for each brand (two) for a total of 12 cells.

8.2 STIMULI

Logos of two athletic shoe brands, Adidas and New Balance were used for this study. The logos were the same stimuli used in Study Two.

8.3 MEASURES

Respondents' commitment toward the underlying brand and degree of change to logo shapes are the independent variables. Dependent measures included evaluation of the redesigned logo and attitude toward the underlying brand. Please see Appendix D (pages 105-117) for survey booklet materials containing the aforementioned measures.

8.3.1 Commitment toward the underlying brand. This measure is the same as Study One and Study Two. Namely, Beatty, Kahle and Homer's (1988) three item brand commitment scale discussed in Study One. The scale was consolidated into a single measure by computing a mean brand commitment score (coefficient alpha .88). As with the first two studies, subjects in the upper (lower) third are categorized as strong (weak) in commitment.

8.3.2 Degree of change. This variable refers to the range of logo redesign. This dissertation considers degree of change as a means to examine potential non-linearity in the effect of commitment on change. Using the same stimuli as Study Two, logo redesigns were nominally categorized as no change, incrementally changed, or considerably changed. The categorization scheme was validated in Study Two.

8.3.3 Evaluation of the logo. This dependent variable is measured using the same affective ratings developed by Henderson and Cote (2001). This measure includes five items, each measured on a seven-point semantic differentiation scale. The measures are "Like/Dislike," "Good/Bad," "Distinctive/Not Distinctive," "Interesting/Not Interesting" and High/Low Quality. Using these measures, a mean logo evaluation score was computed (coefficient alpha = .95).

8.3.4 Change in attitude toward the underlying brand. This variable was measured using a brand attitude scale developed by Ahluwalia et al (2000). Specific scale items were discussed as part of Study Two. For Study Three, participants were asked to complete this scale twice: before and after exposure to modified logos. The change in attitude score was calculated by taking the difference between a post-exposure mean brand attitude score and pre-exposure mean brand attitude score. The brand attitude scale measure includes four items, each measured on a nine-point semantic differentiation scale discussed in Study Two. The scale was consolidated into a

single measure (coefficient alpha-pre exposure = .93; coefficient alpha-post exposure= .96). This is the same procedure used by Ahluwalia et al (2000).

In addition to the above named independent and dependent variables, age, gender and shoe ownership (current, last two years and never) was collected as potential covariates.

8.4 PROCEDURE

The procedure for this experiment was subjects' being told this study is about attitudes towards athletic shoes (no mention of logo redesign). Subjects first completed the brand commitment and the pre-exposure brand attitude scales. After this, subjects were shown a logo and asked to complete the logo evaluation scale. Finally, subjects completed the post-exposure brand attitude scale, demographic and product ownership questions. The test books contained either an Adidas or New Balance logo in one of three conditions: no change, incremental change or considerable change (total of six test books used, see Appendix D). The fieldwork was completed in July, 2005.

8.5 RESULTS

Initially, the data was analyzed on a dichotomous basis (data was dichotomized on the basis of brand commitment scores and excluded all non strong/weakly committed respondents). However, as reported by Irwin and McClelland (2003), the use of dichotomized predictor variables reduces power in data analysis, especially in cases of non-normal distributions. Since, in Studies One and Two, commitment was not normally distributed but skewed toward weakly committed respondents, data was also examined continuously and results are reported for both approaches.

In terms of coding demographic information from the survey responses, here is a brief recap to the approach to coding. Gender was coded males = 0, females = 1. Age was collected as

open ended responses and coded "as is." Respondents has four education options (attend high school, graduated high school, attended college, and graduated college) and each option was coded "1" if checked, "0" if not checked. Respondents were given three options to indicate their ownership of the studied brands: currently owned, owned in last two years or never. Responses were coded "1" if checked and "0" if not checked.

All analyses were conducted by individual brand. Since individual brand results were similar, results are reported on a pooled basis.

8.5.1 Logo Evaluation. In terms of logo evaluation, strong commitment consumers were expected to evaluate logo redesigns more negatively than weak commitment consumers. Specifically, it was expected strong commitment consumers' logo evaluation scores to rank: no change > incremental change > considerable change. It was expected weak commitment consumers' logo evaluation scores to be opposite: no change < incremental change < considerable change. The results confirm this expectation. ANOVAs (dichotomous and continuous) were performed on logo evaluation mean scores and on this measure, the overall model was significant (dichotomous $F_{5, 446} = 23.19$, $p<.01$ and continuous $F_{5, 669} = 17.79$, $p< .01$). The main effect of commitment was significant (dichotomous: $F_{5, 446} = 52.85$, $p < .001$; continuous: $F_{5, 669} = 35.83$, $p <.001$). The two way interaction between degree of change and commitment was also significant (dichotomous: $F_{1, 446} = 101.54$, $p < .001$; continuous: $F_{1, 669} = 73.04$, $p <.001$). Likewise, degree of change was significant (dichotomous: $F_{1, 446} = 42.36$, $p < .001$; continuous: $F_{1, 669} = 34.21$, $p <.001$). In addition to brand, the potential covariate of gender was not significant. The full ANOVA tables are shown on Table 14 (Dichotomous) and Table 15 (Continuous).

Table 14: ANOVA: Effect of Commitment on Logo Evaluation (Dichotomous Variables)

Dependent Variable: Logo Evaluation Mean Score

Source	df	Mean Square	F Value
Model	6	52.33	23.19**
Error	441	2.26	
Total	446		
Commitment	1	119.24	52.85**
Com*Deg Chg	1	229.10	101.54**
Deg Chg	2	95.58	42.36**
Brand	1	1.25	0.55
Gender	1	1.73	0.77

*p<.05; **p<.001

Table 15: ANOVA: Effect of Commitment on Logo Evaluation (Continuous Variables)

Dependent Variable: Logo Evaluation Mean Score

Source	df	Mean Square	F Value
Model	6	49.15	17.99**
Error	663	2.77	
Total	669		
Commitment	1	99.05	35.83**
Com*Deg Chg	1	201.94	73.04**
Deg Chg	2	94.59	34.21**
Brand	1	1.72	0.62
Gender	1	.946	0.34

*p<.05; **p<.001

As predicted in H1 and shown in Table 16, strong commitment consumers expressed more negative evaluation of redesigned logos (mean $_{\text{no change}}$ = 5.58, mean $_{\text{incremental change}}$ = 4.26, mean $_{\text{considerable change}}$ = 3.29). Also as predicted in H1, weak commitment consumers expressed more positive evaluation of redesigned logos (mean $_{\text{no change}}$ = 4.39, mean$_{\text{incremental change}}$ = 4.83, mean $_{\text{considerable change}}$ = 5.86).

Table 16; Logo Evaluation
(Average of Four Items- 1=bad; 7=good)

	Total	High Commitment			Low Commitment		
No Change		Addidas	New Bal	Combined	Addidas	New Bal	Combined
n	201	25	30	55	61	26	87
mean	4.51	5.25	5.64	5.58	4.22	4.80	4.39
std dev.	1.78	1.58	1.17	1.36	1.83	1.58	1.77
Inc. Change							
n	235	26	27	53	47	51	98
mean	4.27	4.6	3.92	4.26	4.96	4.71	4.83
std dev.	1.58	1.34	1.58	1.49	1.49	1.01	1.26
Con.Change							
n	234	38	29	67	40	47	87
mean	4.32	3.19	3.42	3.29	5.61	6.09	5.86
std dev.	1.96	1.9	2.22	2.04	0.95	0.87	0.94

The effect can be seen graphically in Figure 3.

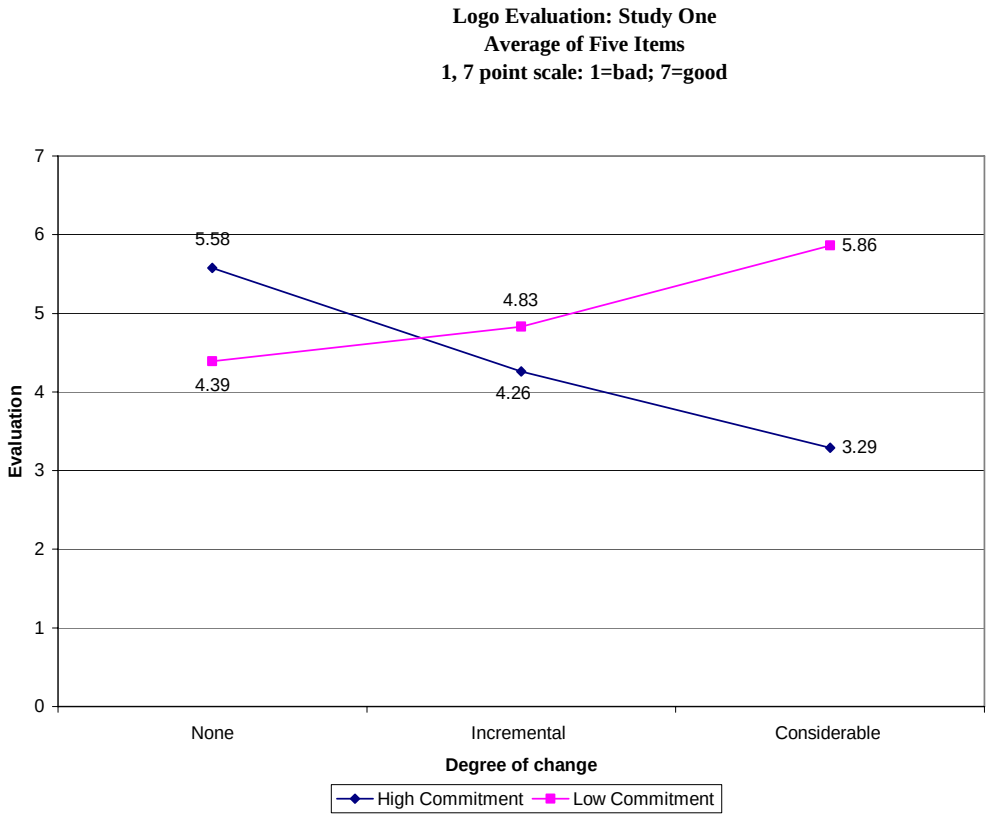


Figure 3

8.5.2 Change in Brand Attitude. In terms of change in brand attitude, attitude toward the underlying brand was expected to decline in the incremental and considerable logo redesign conditions for strong commitment consumers. Specifically, it was expected strong commitment consumers' brand attitude scores to rank: no change > incremental change > considerable change. It was expected weak commitment consumers' brand attitude scores to be opposite: no change < incremental change < considerable change. The results confirm this expectation. ANOVAs (dichotomous and continuous) were performed on change in brand attitude scores and on this measure, the overall model was significant (dichotomous $F_{5, 446} = 122.29$, $p<.001$ and continuous $F_{5, 669} = 47.98$, $p< .001$). As seen in Tables 17 and 18, the main effect of commitment is significant (dichotomous: $F_{1, 446} = 80.68$, $p < .001$; continuous: $F_{1, 669} = 33.89$, $p <.001$). The two way interaction between degree of change and commitment was also significant (dichotomous: $F_{2, 446} = 306.32$, $p < .001$; continuous: $F_{1, 669} = 122.74$, $p <.001$). Degree of change was also significant (dichotomous: $F_{1, 446} = 100.27$, $p < .001$; continuous: $F_{1, 669} = 37.53$, $p <.001$). Potential covariates of brand and gender were not significant when examined on a continuous basis. Gender was significant on a dichotomized basis.

Table 17: ANOVA Effect of Commitment on Brand Attitude Change (Dichotomous Variables)

Dependent Variable: Change in Brand Attitude Score

Source	df	Mean Square	F Value
Model	6	87.89	122.29**
Error	440	.72	
Total	446		
Commitment	1	57.97	80.68**
Com*Deg Chg	1	220.10	306.32**
Deg Chg	2	72.04	100.27**
Brand	1	.44	.61
Gender	1	6.11	8.51*

*p<.05; **p<.001

Table 18: Effect of Commitment on Brand Attitude Change (Continuous Variables)

Dependent Variable: Change in Brand Attitude Mean Score

Source	df	Mean Square	F Value
Model	6	82.43	47.98**
Error	663	1.72	
Total	669		
Commitment	1	58.22	33.89**
Com*Deg Chg	1	210.86	122.74**
Deg Chg	2	64.48	37.53**
Brand	1	.12	.07
Gender	1	.75	.44

*p<.05; **p<.01

As predicted in H2 and shown in Table 19, strong commitment consumers exhibited greater brand attitude decline in terms of redesigned logos (mean $_{\text{no change}}$ = .01, mean$_{\text{incremental change}}$ = -0.5, mean $_{\text{considerable change}}$ = -1.85). Also as predicted in H2, weak commitment consumers exhibited greater increase in brand attitude in terms of redesigned logos (mean $_{\text{no change}}$ =.03, mean $_{\text{incremental change}}$ = .59, mean $_{\text{considerable change}}$ = 1.75).

Table 19: Change in Brand Attitude
(Average of Four Items- 1=bad; 7=good)

	Total	High Commitment			Low Commitment		
No Change		Addidas	New Bal	Combined	Addidas	New Bal	Combined
n	312	34	29	63	89	75	164
mean	0.23	-0.08	0.05	-0.05	0.06	-0.05	0.01
std dev.	0.84	1.09	0.54	0.64	0.98	1.03	1
Inc. Change							
n	327	30	30	60	120	70	190
mean	0.04	-1.27	-1.44	-1.35	0.29	0.53	0.38
std dev.	1.16	1.23	1.22	1.22	0.7	1.2	0.92
Con.Change							
n	372	33	30	63	105	91	196
mean	-0.03	-2.21	-2.36	-2.28	0.68	0.65	0.67
std dev.	1.61	1.79	2.10	1.93	1.17	0.9	1.05

The interaction between brand commitment and logo evaluation is can be seen graphically in Figure 4.

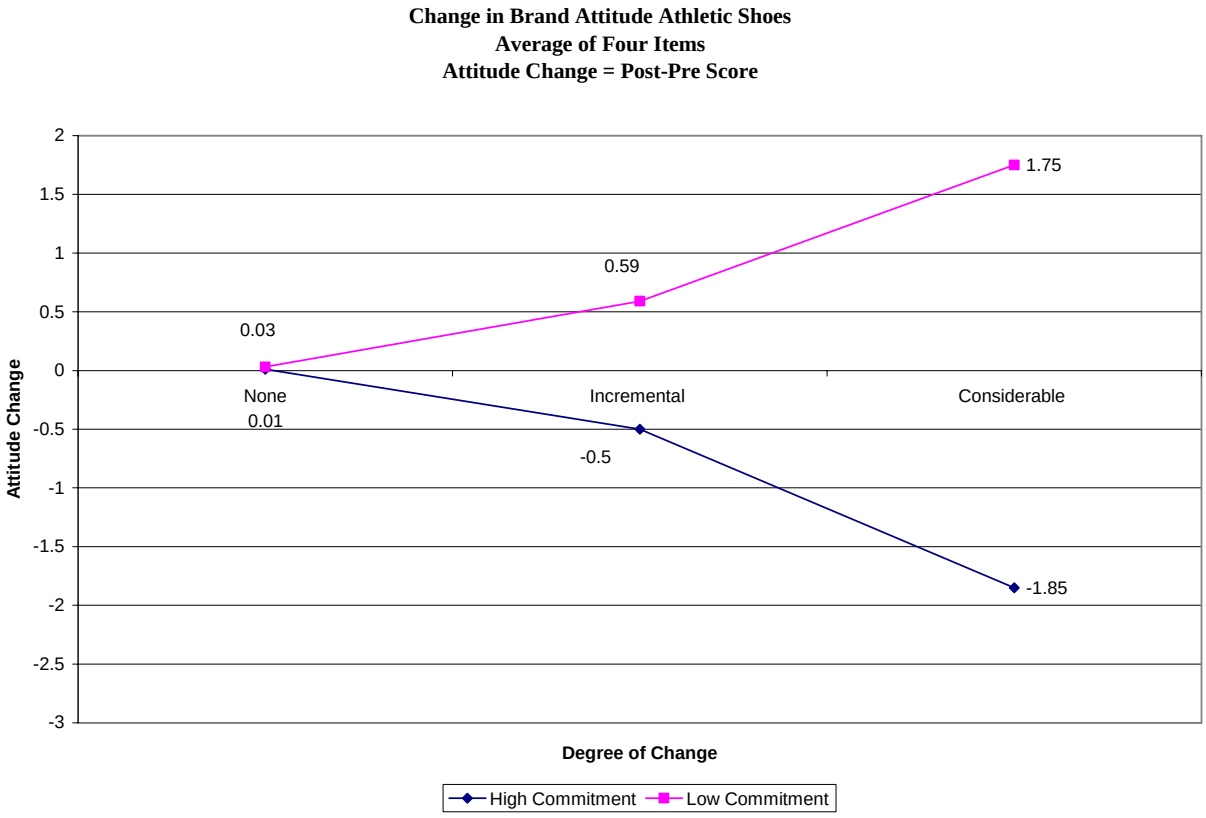


Figure 4

8.5.3 Test for Mediation. Logo evaluation mediating the effect of the two way interaction (brand commitment*logo condition) on change in brand attitude was examined and found to be not significant and is shown in Table 20. Mediation was tested using the procedure described by Baron and Kenny (1986). Three regression analyses were performed for each proposed mediator. First, the dependent variable (change in brand attitude) was regressed on the independent variable (brand commitment); second, the mediator (evaluation of logo) was regressed on the independent variable (brand commitment) and finally the dependent variable (changed in brand attitude) was regressed on the mediator (evaluation of logo). For a variable to be considered a mediator, the independent variable must be shown to affect the dependent variable in the first equation, the independent variable must affect the mediator in the second equation and the

mediator must affect the dependent variable in the third equation. Turning to this study, the interaction parameter estimate was highly significant across all three regressions indicating the potential for partial mediation. For partial mediation, one would expect the interaction parameter estimate to be less significant in the third regression compared to the second regression. Again, this was not the case. The beta estimate for the interaction of brand commitment and logo condition for the third regression was .34 versus .26 in the second regression. Thus, it can be concluded that brand commitment does not act as a mediator to change in brand attitude but is an important covariate in the model.

Table 20: Parameter Estimates: Brand Commitment on Logo Evaluation and Change in Brand Attitude

Variables	Regression 1	Regression 2	Regression 3
Dependent Variable	Chg in Brand Attitude	Logo Evaluation	Chg. in Brand Attitude
Independent Variables:			
Brand Commitment	-0.30*	.41*	-0.42*
Logo Condition	-1.25*	-1.52*	-1.67*
BrandCommit*Logo Condition	0.27*	0.26*	.34*
Logo Evaluation	n/a	n/a	-0.27*

*p<.0001

8.5.4 Descriptive Statistics. In terms of descriptive statistics, the sample was evenly divided between men (49.41%) and women (50.61%). Average age was 21.90 and this was expected since the sample was drawn from college students. As mentioned before, gender was considered a potential covariate but was found to be non-significant. Please refer to Table 21 for age and gender data between brand (Adidas and New Balance) and commitment condition (strong/weak).

Table 21: Study Three Descriptive Statistics

	Gender		Age	
	% Male	% Female	Mean	s.d.
All Respondents	49.4	50.6	21.9	3.41
Strongly Committed				
Adidas	57.3	42.7	21.8	2.78
New Balance	45.2	54.8	21.9	3.89
Weakly Committed				
Adidas	44.5	55.4	22.1	2.97
New Balance	54.7	45.3	21.6	3.00

Ownership of both Adidas and New Balance brands was obtained. As one might expect, strongly committed consumers tend to own the brand more than weakly committed consumers. Please refer to Table 22 for full ownership detail between brand and commitment condition.

Table 22: Ownership Descriptive Statistics

(Number of Respondents)

	Total	Adidas Ownership			New Balance Ownership		
	Resp.	Currently	Last 2 Yrs.	Never	Currently	Last 2 Yrs.	Never
Adidas							
High Comm.	89	47	25	20	32	24	33
Low Comm.	86	43	49	52	46	37	65
New Balance							
High Comm	148	40	28	19	40	24	20
Low Comm	124	46	45	33	32	32	31

The correlation between brand commitment and brand ownership was examined. These are shown in Table 23. Consistent with Studies One and Two, there is a weak correlation between commitment and ownership.

Table 23: Correlation Between Brand Commitment and Ownership

(Kendall's Tau)

Brand Commitment	Adidas Currently Owned	Adidas Owned Last 2 yrs	Adidas Never Owned	New Balance Currently Owned	New Balance Last 2 yrs	New Balance Never Owned
Adidas	.19*	.04	-.13**	-.03	-.02	.06
New Balance	.06	.00	.06	.17**	.01	-.16**
*p<.05; **p<.01						

8.6 DISCUSSION

Results from Study Three supported the hypotheses. Brand commitment was found to be a moderator to a consumer's evaluation of logo redesign as well as change in brand attitude relating to logo redesign. As expected, strongly committed consumers' evaluation of redesigned logos was worse compared to evaluations for existing logos. For consumers weakly committed to a brand, evaluation of redesigned logos improved compared to evaluations for existing logos. In terms of degree of change, strongly committed consumers preferred no change to the logo followed by the incrementally changed logo redesigns, and finally, considerably changed logo redesigns. In other words, the greater the change in logo redesign, the greater negative evaluation of that change by consumers. For weakly committed consumers, the results were opposite. Weakly committed consumers preferred considerably changed logo redesigns followed by incrementally changed logo redesigns and finally no change to the logo. For weakly committed consumers, the greater the change in logo redesign, the greater positive evaluation of that change.

In terms of attitude toward the underlying brand, attitude declined for consumers strongly committed to a brand, but improved for consumers weakly committed to a brand in terms of no change/incrementally changed/considerably changed logo conditions. Thus not only do strongly committed consumers resist change to logo design, any change to logo design negatively affects attitude towards the underlying brand. Incremental logo redesigns have less negative impact on underlying brand attitude compared to considerably changed logo redesigns for strongly committed consumers. On the other hand, weakly committed consumers preferred change to logo design, and any change to logo design positively affected attitude toward the underlying brand. Considerable logo redesigns had more positive impact on underlying brand attitude compared to incrementally changed logo designs. These findings would suggest resistance to redesigns of logos is likely to come from strongly committed consumers of the brand. Given these encouraging results, the logical question is whether these results can be extended to other product categories as well as whether there are potential mediators to these effects. Moreover, could the generalizabiltiy of the results be extended through an expanded sample? This is addressed in Study Four.

9.0 STUDY FOUR

The objectives of Study Four are two fold. First, the first three studies used leading athletic shoe brands and college students. A question that follows is whether these effects could be replicated for brands from another product category and within the general population. This would provide some evidence of generalizability. Accordingly, the stimuli were changed from athletic shoes to bottled water brands for Study Four. Secondly, based on the successful results from Study Three, it is logical to examine potential mediators to the main effect of brand commitment on logo evaluation and change in underlying brand attitude. To this end, in Study Four, two potential mediators are proposed: boredom and depth of processing. In addition, need for cognition and openness were included as potential covariates.

Berlyne's (1970) and Cacioppo and Petty's (1979) two factor model that suggests the decline in affect towards a stimuli results from the tedium of repeated exposures to the stimulus. Based on this, it is possible that a modification in stimuli attenuates the effect of tedium on affect. This leads to the following mediation hypothesis:

H3: The effect of commitment on logo evaluation and change in brand attitude will be mediated by a respondent's feelings of boredom when evaluating redesigned logos.

Nordhielm (2002) demonstrated that level of processing dictates whether the tedium effect will set in. Those individuals who deeply process stimuli are expected to experience the tedium effect whereas those individuals who process on a more shallow level do not exhibit the tedium effect. Thus, an individual's reaction to old versus new stimuli may depend on their level of processing. This leads to the following mediation hypothesis:

H4: The effect of commitment in logo evaluation and change in brand attitude will be mediated by a respondent's depth of processing.

In addition to the formal mediating hypotheses, cognitive response data were collected and analyzed as a potential mediator. Study Four uses the same basic research design,

independent/dependent variables and measures from Study Three. First, the measures and procedures for Study Four will be reviewed. Next, as was done with Study Three, it was necessary to pretest the logo stimuli and the approach to the pretest and pretest results will be discussed. Finally, results of Study Four are discussed.

9.1 RESPONDENTS

The sample was 1,100 adults from the Pittsburgh area. Eighty nine surveys were eliminated due to incomplete survey responses resulting in a final sample size of 1,011 The sample yielded at least 25 respondents in both strong and weak brand commitment conditions for each logo design condition (three) for each brand (two) for a total of 12 cells. In addition, 90 adults from the Pittsburgh area participated in a pretest of the logo stimuli.

9.2 STIMULI

The stimuli were brands of bottled water, specifically Aquafina, Dasani and Deer Park. Bottled water brands were selected as the target category based on evidence suggesting beverages, including bottled water and exhibit a wide distribution of consumer commitment (Traylor 1981). The specific brands were selected because they represent the top three brands in the bottled water category (Lazich 2005). As with the earlier studies, a graphic artist was used to produce two redesigns: an incremental redesign and considerable redesign. As seen in Figure 5, the graphic artist was instructed to focus her effort on logo shape and was compensated for her efforts ($200).

Original Logo	Incremental Change	Considerable Change
		
		
		

Figure 5: Logo Designs for Study Four

9.3 MEASURES

There are six independent variables. The first two independent variables are the same as in Study Three: subject's commitment toward the underlying brand and degree of change to logo shapes. In addition, a subject's need for cognition, depth of processing, and cognitive responses were examined as potential mediators. Given the successful results in Study Three, it was decided to also explore the potential mediators of need for cognition and openness. The dependent variables are the same as Study Three: evaluation of the logo and change in attitude toward the underlying brand. Please refer to Appendix E (pages 117-130) for the pretest survey booklet and Appendix F (pages 131-154) for the main survey booklet containing the aforementioned measures.

9.3.1 Commitment toward the underlying brand. This was measured using the Beatty, Homer and Kahle (1988) three item brand commitment measure used in the first three studies and discussed in Study One. The scale was consolidated into a single measure by computing a mean brand commitment score (coefficient alpha .88). As with the previous studies, subjects in the upper (lower) third are categorized as strong (weak) in commitment.

9.3.2 Degree of change. This variable refers to the range of logo redesign. Logo designs were nominally categorized as no change, incrementally changed or considerably changed. The categorization scheme of logo redesigns was pretested prior to fielding the main study.

9.3.3 Need for cognition. Need for cognition (NFC) is an influence on the motivation to process information (Haugtvedt, Petty, and Cacioppo 1992). NFC was measured using a scale developed by Cacioppo and Petty (1982). High NFC individuals are motivated to engage in cognitive effort and are more likely to process issue relevant information than low NFC individuals (Inman, McAlister, and Hoyer 1990). Further, high NFC individuals are more likely to use message content as a basis for judgments (Cacioppo and Petty 1982). Based on these findings, it is logical to think high NFC individuals process stimuli more thoroughly and this would have an impact on an individual's evaluation of redesigned logos. This measure included five items, each measured on a seven point Likert scale. The items were: "I would rather do something that requires little thought than something that is sure to challenge my thinking abilities," "I try to anticipate and avoid situations where there is a likely chance I will have to

think in depth about something," "I only think as hard as I have to," "The notion of thinking abstractly is appealing to me" and "The idea of relying on thought to make it to the top appeals to me." Using these measures, a mean NFC score was computed (coefficient alpha= .70).

9.3.4 Openness. "Openness" is a measure of personality and is defined as an active pursuit of novelty, a quest to clarify, intensify or otherwise enlarge our experience (McCrae and Costa, 1987). Adults who score low on openness tend to be conventional in behavior and conservative in outlook. They prefer the familiar to the novel, and their emotional responses are somewhat muted. Closed people tend to have a narrower scope and intensity of interests. Open individuals are unconventional, willing to question authority and prepared to entertain new ethical, social and political ideas. By definition, a redesigned logo represents something new. An individual's degree of openness should influence their reaction to something new like a redesigned logo. Openness was measured adapting a scale from the NEO Personality Inventory developed by Costa and McCrae (1991). One of the NEO Personality Inventory measures is the concept called openness. The original Costa and McCrae scales measured openness to a variety of life experiences and this scale was adapted to a consumer-product situation. This measure included five items, each measured on a seven point Likert scale. The items were: "Change to products and services are upsetting to me," "I keep an open mind toward change in products and services," "I can adapt to changes in products and services without difficulty," "It's wrong to change products and services," "If it isn't broken, don't fix it," and "I believe changes to products and services are done for a good reason even if its not immediately clear why a change occurred." The internal consistency of the five item scale was unacceptable (coefficient alpha .30). Statements one and four were dropped and the remaining three items were averaged into a single measure (coefficient alpha .70).

9.3.5 Boredom. The two factor model (Berlyne, 1970 and Cacioppo and Petty 1979) suggests the decline in affect towards a stimuli results from the tedium of repeated exposures to the stimulus. Based on this, it is possible that a modification in stimuli attenuates the effect of tedium on affect. The scale constructed for this study included Nordhielm's (2002) scale items: excited/unexcited, interested/uninterested and engaged/bored. To this, I added two additional items, entertained/bored and stimulated/tired. Using these items, a mean boredom score was computed (coefficient alpha .85)

9.3.6 Depth of processing. As previously mentioned, Nordhielm (2002) demonstrated that level of processing dictates whether the tedium effect will set in. This potential mediator was measured using a six item, seven point semantic differential scale constructed specifically for this study and based on the scales used by Lee and Aaker (2004). The items were: "Paid a lot of attention/did not pay much attention," "Examined the logos carefully/skimmed the logos very quickly," "Found it easy to understand/ found it difficult to understand," "Found it easy to process/found it difficult to process," "Was very involved/was not at all involved," and "Was very interested/was not interested." Using these measures, a mean NFC score was computed (coefficient alpha= .94).

9.3.7 Evaluation of the logo. This was measured using the same affective ratings developed by Henderson and Cote (2001) and used in Study Three. This measure included five items, each measured on a seven-point semantic differentiation scale. The scales were consolidated into a single measure by computing a mean brand commitment score (coefficient alpha .89).

9.3.8 Change in attitude toward the underlying brand. This variable was measured using the brand attitude scale developed by Ahluwalia et al (2000). Survey participants were asked to complete the scale twice: before and after exposure to redesigned logos. This measure included four items, each measured on a nine-point semantic differentiation scale and was consolidated into a single measure (coefficient alpha pre exposure = .91; coefficient alpha post exposure = .92). As with Study Three, a change in brand attitude score was calculated by taking the difference between a post exposure mean brand attitude score and pre exposure mean brand attitude score.

9.3.9 Cognitive response data. Cognitive responses were obtained from the respondents. After completing the logo evaluation scale, respondents were asked to "write down their initial reactions to logo." The interpretation and coding of response data is discussed in the results section.

In addition to the above named independent and dependent variables, age, gender, and bottled water usage of the respondents were collected as potential covariates. Usage (bottles consumed per average week) was obtained across a variety of usage levels: 8 or more, 5-7, 1-4 and none. In addition to the studied brands, two other leading brands of bottled water

(Arrowhead and Poland Spring) as well as an "other" option were included. Zip codes of respondents was also collected for purposes of reporting as a descriptive statistic.

9.4 PRETEST

A pretest was done to verify that subjects categorized the redesigned logo stimuli as intended by the designer (measured as degree of change from the original logo). That is, unchanged logos were classified as unchanged by respondents, logos incrementally changed were classified as incrementally changed by the respondents and considerably changed logos were classified as considerably changed. In addition, commitment and attitude towards the selected brands was measured.

9.4.1 Sample and Procedure. Using the same measures and methodology featured in Study Two, 90 adults in the Pittsburgh area were given a test booklet (Appendix E) and were told the study was about attitudes towards bottled water. There were a total of six test booklets. Each test booklet featured all three brands and in one of three conditions: no change, incremental change or considerable change. After the cover page, the next three pages had two logos representing the same brand. The logos were either an Aquafina, Dasani or Deer Park original logo (titled version A) and that logo in one of three conditions: unmodified, incremental or considerably changed logo (titled version B). The unmodified logo was included as a manipulation check. Below the logos, respondents were asked to complete the change rating scale described in Study Two (coefficient alpha = .98). After the logo comparison pages, respondents completed the brand commitment scale (coefficient alpha ranged from .70 to . 89 depending on the brand) , brand attitude scale (coefficient alpha .94), ownership questions for the three selected brands plus demographic ownership questions (age and gender).

A Latin Square design was used to ensure all combinations of brands (three) and logo conditions (three) were tested. There were a total of six individual survey books. The order of

logo/conditions for each survey booklet was not rotated. Please refer to Table 24 for the Latin square design details including the assignment of brand/logo condition for the six test booklets. Fieldwork was completed October, 2005.

Table 24: Latin Square Design For Study Four

	Version D	Version E	Version F
Version A	Aquafina No Change	Dasani Considerable	Deer Park Incremental
Version B	Dasani Incremental	Deer Park No Change	Aquafina Considerable
Version C	Deer Park Considerable	Aquafina Incremental	Dasani No Change

9.4.2 Results

The change rating measure was consistent per the designer's intentions for the Aquafina, Dasani and Deer Park redesigned logos. That is, respondent's ratings of change in Aquafina, Dasani and Deer Park logo conditions reflected the designer's intentions.

Since a Latin Square design was used, and to rule out potential order effects a repeated measures analysis of variance was performed using the "proc mixed" function in SAS. Subject, brand, degree of change and order were entered as class variables. Change rating score was the dependent variable and brand and degree of change were independent variables. Order was entered as a covariate and subject was entered as the repeated variable. The model was significant (X^2=4.11, $p<.05$). As shown in Table 25, brand, degree of change, order and the interactions between brand and degree of change and degree of change and order were significant. Thus, while order is significant, we have controlled for this covariate.

Table 25: Type 3 Tests of Fixed Effects

Effect	df	F
Brand	2	40.54**
Deg. Of Change	2	85.58**
Brand*Deg. Of Change	2	3.65*
Order	2	4.65*
Brand*Order	1	0.64
Deg Of Change*Order	2	5.16*

*p<.05; **p<.001

As seen in Table 26, the change ratings for Aquafina logos were mean $_{\text{no change}}$ = 1.77, mean $_{\text{incremental change}}$ = 3.64, and mean $_{\text{considerable change}}$ = 6.08 ($F_{2, 89}$ =256.37, p<.001). The change ratings for the Dasani logos were mean $_{\text{no change}}$ = 1.12, mean $_{\text{incremental change}}$ = 4.24 and mean $_{\text{considerable change}}$ = 5.88 ($F_{2, 89}$ =233.32, p<.001). The change ratings for Deer Park logos were mean $_{\text{no change}}$ = 1.18, mean $_{\text{incremental change}}$ = 2.74, and mean $_{\text{considerable change}}$ = 5.10 ($F_{2, 89}$ =73.063, p<.001).

Table 26: Change Rating Results
(Average of three items; 1= no change; 7= completely changed)

Athletic Shoe Brand	No Change	Incremental Change	Considerable Change	F
Adidas mean: s.d.	1.77 .34	3.64 1.08	6.08 .91	256.37*
New Balance mean: s.d.	1.12 .23	4.24 .70	5.88 1.25	233.32*
Nike mean: s.d.	1.18 .41	2.74 1.11	5.10 1.70	73.06*
*p<.001				

In addition to analysis of the degree of change scores, all analyses done in Study Two were repeated for the Study Four pretest. This included a pairwise mean significance test, correlation of brand commitment and brand ownership and independence tests of degree of change and brand commitment. The results of these analyses are as follows.

Pairwise significance tests. Significance testing was done comparing paired combinations of the three brands. That is, comparing no change versus incremental change means and comparing incremental change means versus considerable change means for each of the three brands to verify that the reported means are significantly different from each other. As seen in Table 27, the pairwise means comparisons were significant for all brands.

Table 27: Pairwise Means Comparison

(p-values)

	Aquafina No Change	Aquafina Incremental Change	Aquafina Considerable Change
Aquafina No Change	NA	.001	.001
Aquafina Incremental Change		NA	.001
Aquafina Considerable Change			NA
	Dasani No Change	Dasani Incremental Change	Dasani Considerable Change
Dasani No Change	NA	.001	.001
Dasani Incremental Change		NA	.001
Dasani Considerable Change			NA
	Deer Park No Change	Deer Park Incremental Change	Deer Park Considerable Change
Deer Park No Change	NA	.001	.001
Deer Park Incremental Change		NA	.001
Deer Park Considerable Change			NA

Correlation: brand commitment and brand ownership. The correlation between brand commitment and brand usage was also examined. As shown in Table 28, generally there is no correlation between brand commitment and usage of the studied brands with the exception of a low correlation (< .3) between moderate usage (5-7 bottles/week) and commitment for the Aquafina and Dasani brands. This suggests the notion that commitment and usage are separate yet related constructs.

Table 28: Correlation Between Brand Commitment and Brand Usage

(Kendall's Tau)

Brand Usage/Brand Commitment	Aquafina	Dasani	Deer Park
Aquafina 8+bottles/wk	.06	.03	.19*
Aquafina 5-7	.24**	.15	.07
Aquafina 1-4	-.12	.09	.19*
Aquafina None	-.10	-.04	.06
Dasani 8+	-.05	.06	.05
Dasani 5-7	.04	.22*	.08
Dasani 1-4	-.09	.04	.08
Dasani None	-.06	-.21*	.03
Deer Park 8+	.10	.06	.11
Deer Park 5-7	-.07	.16	.03
Deer Park 1-4	-.04	.17	.04
Deer Park None	.04	-.12	-.05
*p<.01; **p<.05 (two tailed)			

Independence. A test was done analyzing whether evaluation of degree of change was independent of brand commitment. Three separate ANOVAs were run, one for each brand, with the dependent variable degree of change score and the independent variables logo condition and brand commitment. Across all three brands, commitment as well as the interaction between commitment and logo condition were not significant factors. Degree of change is the only significant factor. Please refer to Tables 29-31 for the ANOVAs by brand.

Table 29: Test of Independence: Aquafina Brand

Dependent Variable: Aquafina Logo Degree of Change Mean Score

Source	df	Mean Square	F Value
Model	4	63.31	77.13**
Error	85	.82	
Total	89		
Commitment	1	0.07	0.08
Com*Deg Chg	1	0.27	0.33
Deg of Chg.	1	36.61	44.60**

*p<.05; **p<.001

Table 30: Test of Independence: Dasani Brand

Dependent Variable: Dasani Logo Degree of Change Mean Score

Source	df	Mean Square	F Value
Model	3	107.45	115.18**
Error	86	.83	
Total	89		
Commitment	1	0.65	0.70
Com*Deg Chg	1	0.14	0.15
Deg of Chg.	1	82.84	88.80**

*p<.05; **p<.001

Table 31: Test of Independence: Deer Park Brand

Dependent Variable: Deer Park Logo Degree of Change Mean Score

Source	df	Mean Square	F Value
Model	3	91.26	70.73**
Error	86	1.29	
Total	89		
Commitment	1	0.03	0.03
Com*Deg Chg	1	0.02	0.01
Deg of Chg.	1	45.54	35.29**

*p<.05; **p<.001

Ownership and demographic descriptive statistics. As with Study Two, a variety of descriptive statistics are reported. The sample size was evenly balanced, 50.00% men and 50.00% women. Average age was 30.80. Usage was consistent with reported market shares of the brands. The two top brands, Aquafina and Dasani were the most consumed brands by the survey respondents with 73.43% reporting consuming at least one bottle of Aquafina and 64.42% consuming at least one bottle of Dasani per week. Deer Park had substantially less consumption at 36.63%. Please refer to Table 32 for full details on ownership of the bottled water brands.

Table 32: Descriptive Statistics: Usage (% Respondents)

Bottles Consumed Per Week	Aquafina	Dasani	Deer Park	Arrow-head	Poland Spring	Other
8+	5.60	4.39	1.12	0	0	11.10
5-7	17.81	11.13	3.31	0	4.44	2.24
1-4	50.02	48.90	32.20	2.21	8.90	2.20
None	26.59	35.61	63.41	97.79	87.71	84.50

Frequency distribution of brand commitment. Brand commitment was measured and the three brands had similar mean commitment scores (Aquafina: 3.20; Dasani 3.38; Deer Park 4.48 F= 2.11, p <.001). Frequency distribution of mean commitment scores was calculated for the three brands. Consistent with Studies One, Two and Three, the brands showed a skewed distribution towards weakly committed respondents. As seen in Table 33, the percentages of respondents strongly committed to the brand were Aquafina (7.77), Dasani (11.11), and Deer Park (21.11). These results were within the cutoff (3%) established in Study One. The percent of weakly committed consumers were Aquafina (53.33), Dasani (55.55) and Deer Park (36.67).

Table 33: Commitment Scores: Frequency Distribution and Means

	Aquafina	Dasani	Deer Park
Mean Commitment Frequency Dist. 1.01-2.00	29	35	24
2.01-3.00	19	15	9
3.01-4.00	22	10	9
4.01-5.00	9	12	12
5.01-6.00	1	7	9
6.01-6.99	3	1	8
7.00-7.99	3	2	2
8.00-8.99	0	2	7
9.00	4	6	10
Mean Commit*.	3.20	3.38	4.48
s.d.	2.04	2.49	2.78
% Strongly Committed	7.77	11.11	21.11
% Weakly Committed	53.33	55.55	36.67
Mean Brand Attitude**	2.66	2.45	2.88
s.d.	1.39	1.15	1.13
*F= 2.11; p<.001 **F=4.99; p<.001			

9.4.3 Discussion

The pretest results validated that subjects categorized the redesigned logo stimuli as intended by the designer. That is, unchanged logos were classified as unchanged by respondents, logos incrementally changed were classified as incrementally changed by the respondents and considerably changed logos were classified as considerably changed. Unlike Study Two (where the Nike brand did not conform to expectations), all three studied brands had valid results. The goal was to select two brands for inclusion in the main study. While any combinations of the three studied brands could have worked, it was decided to use Aquafina and Dasani brands for the main study because these brands are the number one and two brands in the U.S. The third brand, Deer Park did exhibit a greater percentage of strongly committed consumers in the pretest sample; however, Deer Park's market share is lower than the leading brands and there was concern that including this brand increased the likelihood that it would have taken a larger sample size in order to find minimum cell sizes of highly committed consumers of the brand (Lazich 2005).

9.5 MAIN STUDY PROCEDURE

The main study procedures were similar to Study Three. The cover story for this experiment was subjects' being told this study is about attitudes towards bottled water (no mention of logo redesign). Subjects first completed the brand commitment and the pre exposure brand attitude scales. After this, subjects were shown a logo and asked to complete the logo evaluation scale. For the collection of cognitive response data, the subjects were told, "In the next two minutes, please write down your initial reactions to the logo" and were given space to record their thoughts. Following this, subjects completed the post-exposure brand attitude scale, boredom scale, need for cognition scale, depth of processing scale, openness scale, demographic and product ownership questions. The test books contained either an Aquafina or Dasani logo in one of three conditions: no change, incremental change or considerable change (total of six test books used, see Appendix F). The fieldwork was completed in October, 2005.

9.6 RESULTS

Overall, the results were consistent with Study Three findings in terms of logo evaluation and change in brand attitude. In addition, this study proposed two mediating hypotheses but neither of these were significant. All data were analyzed on a continuous basis since the use of dichotomized predictor variables reduces power in data analysis (Irwin and McClelland 2003).

In terms of coding demographic information from the survey responses, here is a brief recap to the approach to coding. Gender was coded males = 0, females = 1. Age and zip code was collected as open ended responses and were coded as reported. Respondents had four education options (attended high school, graduated high school, attended college, and graduated college) and each option was coded separately ("1" if checked, "0" if not checked). Respondents were given four options to indicate their weekly usage of bottled water brands: 8+, 5-7, 1-4 bottles per week and a "none" option. Responses were coded "1" if a brand/usage option was checked and "0" if not checked.

All analyses were conducted by individual brand. Since individual brand results were similar, results are reported on a pooled basis.

9.6.1 Logo Evaluation. It was expected strong commitment consumers to evaluate logo redesigns more negatively than weakly committed consumers and this was confirmed in Study Four. As seen in Table 34, the model is significant ($F_{15, 1010} = 14.80$, $p<.001$). The main effect of commitment on logo evaluation was significant ($F_{15, 1010} = 11.61$, $p<.001$). The two way interaction between degree of change and commitment was also significant ($F_{2, 1010} = 42.39$, $p<.001$). The covariates of boredom and openness were also significant (boredom: $F_{1, 1010} = 40.67$, $p<.001$; openness: $F_{1, 1010} = 5.50$, $p<.05$). Other covariates (brand, gender, age, education, depth of processing, and need for cognition) were not significant.

Table 34: ANOVA: Effect of Commitment on Logo Evaluation

Dependent Variable: Mean Logo Evaluation Score

Source	df	Mean Square	F-value
Model	15	22.79	14.80**
Error	995	1.54	
Total	1010		
Commit	1	17.88	11.61**
Deg of Chg	2	46.53	30.21**
Com*Deg Chg	2	65.27	42.39**
Brand	1	3.02	1.96
Gender	1	0.93	0.61
Education	3	1.27	0.83
Age	1	1.74	1.13
Boredom	1	62.63	40.67**
Depth of Proc.	1	4.02	2.61
Need for Cog	1	0.73	0.47
Openness	1	8.47	5.50*

*p<.05; **p<.001

In terms of logo evaluation means, as seen in Table 35, strongly committed consumers expressed more negative evaluation of redesigned logos (mean $_{\text{no change}}$ = 5.40, mean $_{\text{incremental change}}$ = 4.48, mean $_{\text{considerable change}}$ = 3.35). Weakly committed consumers expressed more positive evaluation of redesigned logos (mean $_{\text{no change}}$ = 3.48, mean $_{\text{incremental change}}$ = 4.35, mean $_{\text{considerable change}}$ = 4.82).

Table 35: Mean Logo Evaluation Score

	Total	High Commitment			Low Commitment		
No Change		Aquafina	Dasani	Combined	Aquafina	Dasani	Combined
n	312	34	29	63	89	75	164
mean	3.86	5.25	5.57	5.40	3.64	3.29	3.48
std dev.	1.31	1.09	0.86	1.00	1.03	0.93	1.00
Inc. Change							
n	327	30	30	60	120	70	190
mean	4.32	4.55	4.40	4.48	4.49	4.11	4.35
std dev.	1.32	1.14	1.27	1.11	1.19	1.19	1.19
Con.Change							
n	372	33	30	63	105	91	196
mean	4.14	3.76	2.90	3.35	5.03	4.59	4.82
std dev.	1.30	1.11	2.10	1.05	1.25	0.89	1.29
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000

The results are graphically displayed in Figure Six.

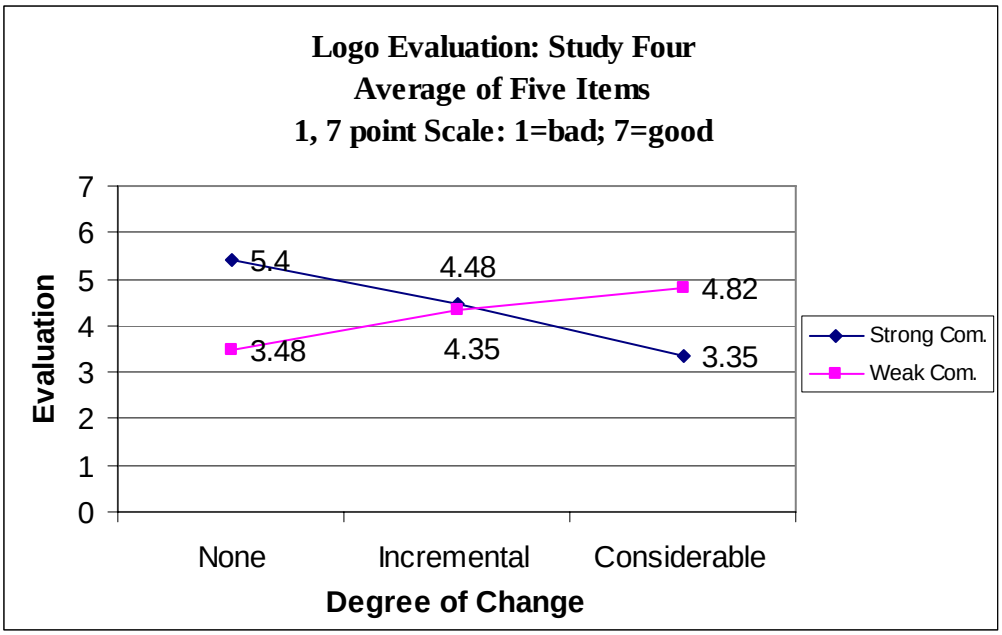


Figure 6

Since the covariates of boredom and openness were significant, these variables were tested for a three way interaction with brand commitment and condition. None of the three way interactions were significant.

9.6.2 Change in Brand Attitude. In terms of change in brand attitude, it was predicted that attitude toward the underlying brand would decline in the incremental and considerable logo conditions for strongly committed consumers and the opposite for weakly committed consumers. The results confirmed this expectation. The overall model is significant ($F_{15, 1010} = 28.53$, $p < .001$). The main effect of commitment on change in brand attitude was significant ($F_{1, 1010} = 180.58$, $p < .001$). The two way interaction between degree of change and commitment was also significant ($F_{2, 1010} = 69.35$, $p < .001$). The covariate of openness and depth of processing were also significant (openness: $F_{1, 1010} = 28.61$, $p < .001$; depth of processing $F_{1, 1010} = 4.15$ $p < .05$). However, all other covariates (gender, age, brand, education, boredom, depth of processing, need for cognition) were not significant. Please refer to Table 36 for complete ANOVA results.

Table 36: ANOVA: Effect of Commitment on Change in Brand Attitude

Dependent Variable: Change in Brand Attitude Score

Source	df	Mean Square	F-value
Model	15	33.06	28.53**
Error	995	1.16	
Total	1010		
Commit	1	209.25	180.58**
Deg of Chg	2	51.58	44.52**
Com*Deg Chg	2	80.36	69.35**
Brand	1	0.18	0.16
Gender	1	0.58	0.50
Education	3	1.73	1.50
Age	1	2.87	2.47
Boredom	1	1.10	0.95
Depth of Proc.	1	4.81	4.15*
Need for Cog	1	2.75	2.38
Openness	1	33.15	28.61**

*p<.05; **p<.001

Regarding specific change in brand attitude mean scores, strong commitment consumers expressed more negative evaluation of redesigned logos (mean $_{\text{no change}}$ = -0.05, mean $_{\text{incremental change}}$ =-1.35, mean $_{\text{considerable change}}$ = -2.28). Weakly committed consumers expressed more positive evaluation of redesigned logos (mean $_{\text{no change}}$ = 3.48, mean $_{\text{incremental change}}$ = 4.35, mean $_{\text{considerable change}}$ = 4.82). Please refer to Table 37 for logo evaluation means.

Table 37: Change in Brand Attitude Score

	Total	High Commitment			Low Commitment		
No Change		Aquafina	Dasani	Combined	Aquafina	Dasani	Combined
n	312	34	29	63	89	75	164
mean	0.23	-0.08	0.05	-0.05	0.06	-0.05	0.01
std dev.	0.84	1.09	0.54	0.64	0.98	1.03	1
Inc. Change							
n	327	30	30	60	120	70	190
mean	0.04	-1.27	-1.44	-1.35	0.29	0.53	0.38
std dev.	1.16	1.23	1.22	1.22	0.7	1.2	0.92
Con.Change							
n	372	33	30	63	105	91	196
mean	-0.03	-2.21	-2.36	-2.28	0.68	0.65	0.67
std dev.	1.61	1.79	2.10	1.93	1.17	0.9	1.05

The influence of commitment on change in brand attitude is graphically displayed in Figure 7.

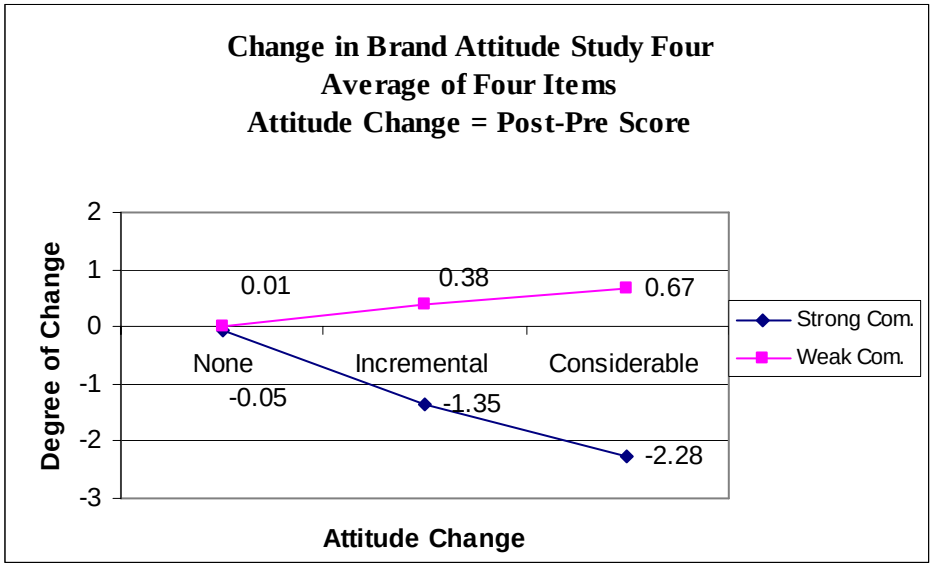


Figure 7

Since the covariate of depth of processing and openness were significant in the overall AOVA, these variables were tested for a three way interaction between brand commitment and degree of change. Depth of processing was not significant. As seen in Table 38, the three way interaction between openness, brand commitment and degree of change was significant ($F_{2, 1010} = 4.31$; $p < .05$).

Table 38 ANOVA: Three Way Interaction

Dependent Variable: Change in Brand Attitude

Source	df	Mean Square	F
Model	20	26.89	23.95**
Error	989	1.12	
Total	1010		
Brand Commitment	1	5.84	1.03
Deg of Chg	2	3.06	2.72
Brand Comm*Deg Chg	2	0.01	0.00
Openness	1	0.65	0.58
Brand Comm*Openness	1	6.14	5.47*
Openness*Deg of Chg	2	0.10	0.09
Comm*Deg of Chg*Openness	2	4.31	3.84*
Brand	1	0.21	0.18
Gender	1	0.19	0.17
Education	3	1.91	1.70
Age	1	3.41	3.04
Boredom	1	0.52	0.47
Depth of Processing	1	4.05	3.61
Need for Cognition	1	2.59	2.31

*p< .05; **p<.001

To further explore this interaction, the effect of openness on change in brand attitude scores between strong and weakly committed consumers and was examined with some interesting and somewhat counterintuitive results. For this analysis, the openness mean score was treated as a categorical variable and respondents were coded into three categories: high, mid and low openness-similar to the coding scheme used with the brand commitment scale. Those whose score was in the top third (mean score >5.0) were assigned into the high category. Scores between 3.0 and 5.0 were assigned to the mid third and scores <3.0 were assigned the low third

category. The change in brand attitude score was compared between strong and weekly committed consumers for each openness category. For all openness categories (low, mid and high), the effect is similar. In the weak commitment condition, the increase in brand attitude is attenuated. In the strong commitment condition, the decrease in brand attitude is exacerbated. These results are counterintuitive. If a respondent is highly open, one might expect their change in brand attitude to increase (positively) regardless of brand commitment. The rationale for this is that a redesigned logo represents something new, and highly open respondents should be open to this stimulus. Yet, the results are opposite as seen in Figures 8, 9, and 10.

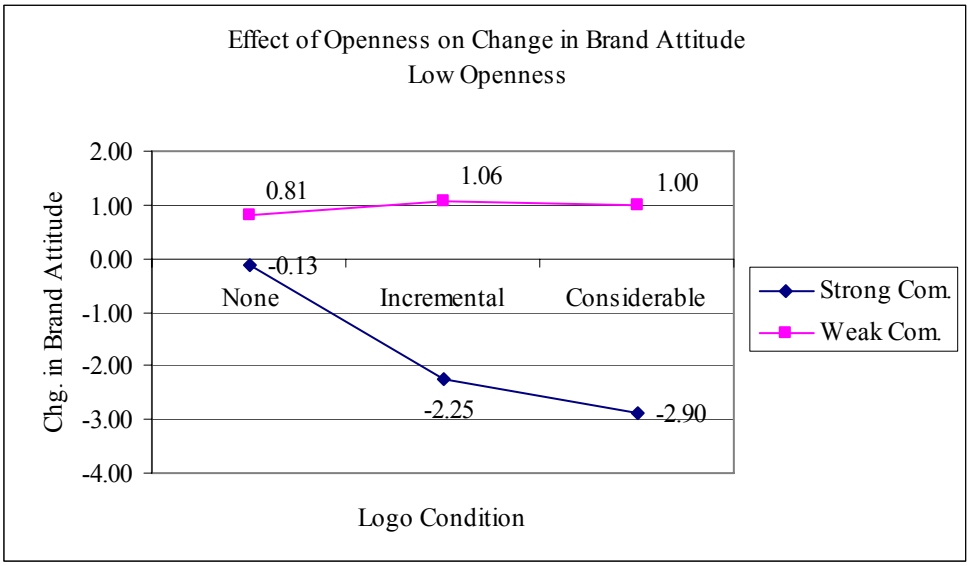


Figure 8

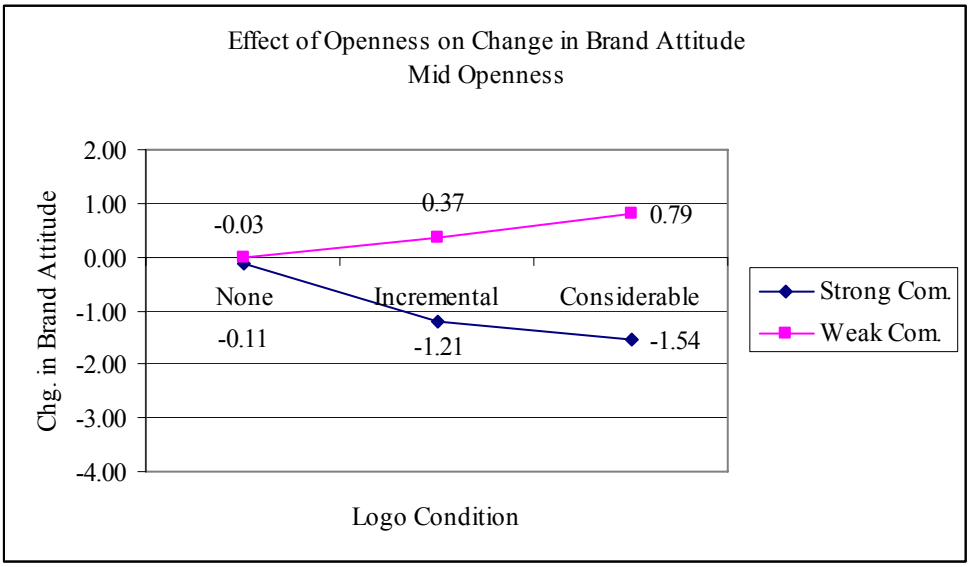


Figure 9

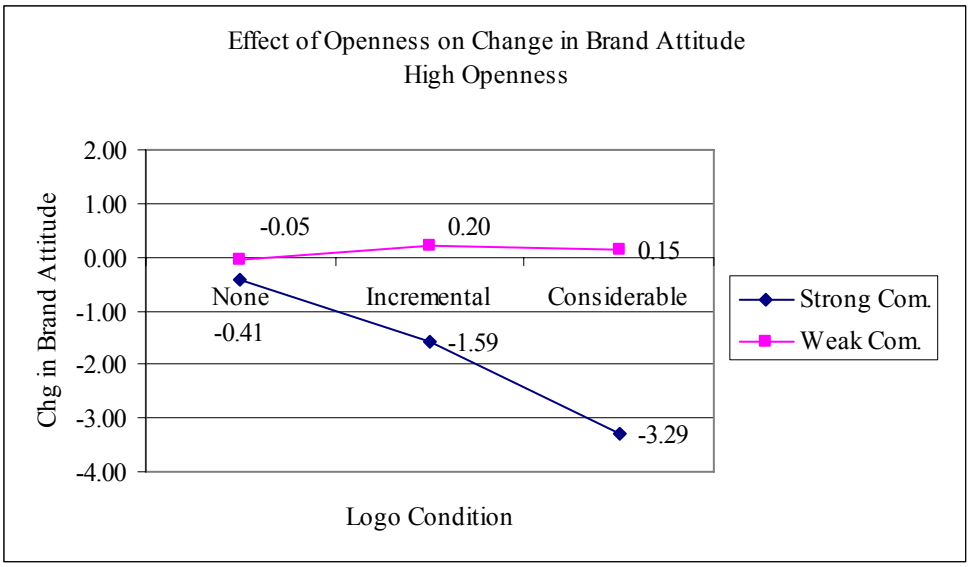


Figure 10

The following explanation is offered for these results. While the openness scale items focused on change ("I keep an open mind toward change in products and services," "I can adapt to changes in products and services without difficulty," "I believe changes to products and services are done for a good reason even if it's not immediately clear why a change occurred"), it is theorized that consumers could answer affirmatively to these questions yet when presented with an actual change to a logo, their "true colors" emerge in terms of response. Recall, these scale questions were developed specifically for this study and were based on a published personality measure. This scale has not been validated as a legitimate measure of openness to change in products. This raises two possibilities. Either this scale is not an appropriate measure of the openness to change in a logo design construct or this openness construct is simply invalid.

9.6.3 Mediating Hypotheses. There were a number of mediation analyses performed. Study Four proposed two mediation hypotheses pertaining to boredom (H3) and depth of processing (H4) and their effect on logo evaluation and change in brand attitude. In addition, as with Study Three, the role of logo evaluation as a mediator to the interaction between brand commitment and logo condition on change in brand attitude was examined. Finally, Study Four collected cognitive response data and this was analyzed for mediation. In summary, none of the above

named potential mediators were found to be significant, however, the results of the analyses are reported.

Mediation was tested using the Baron and Kenny (1986) procedure as described in Study Three. Regarding the mediating hypotheses, boredom (H3) was found to be a significant covariate on logo evaluation and depth of processing was found to be a significant covariate on change in brand attitude. These were tested for mediation. In all cases, in regression two, the independent variable was not found to affect the mediator. Please refer to Tables 39 and 40 for the regression parameter estimates.

Table 39: Mediation Analysis Parameter Estimates (Boredom as Mediator; Logo Evaluation as Dependent Variable)

Dependent Variable	Logo Evaluation	Boredom	Logo Evaluation
Pooled Model			
Brand Commitment	.49*	-.06	0.49*
Logo Condition	1.05*	0.04	1.05*
BrandCommit*Logo Condition	-0.23*	-0.01	-0.23*
Boredom	n.a.	n.a.	0.09**

*p<.0001; **p<.05

Table 40: Mediation Analysis Parameter Estimates (Depth of Processing as Mediator; Change in Brand Attitude as Dependent Variable)

Dependent Variable	Chg. In Brand Attitude	Depth of Processing	Chg. In Brand Attitude
Pooled Model			
Brand Commitment	.20*	0.06	.20*
Logo Condition	.71*	0.04	.71*
BrandCommit*Logo Condition	-0.19*	-0.02	-0.19*
Depth of Processing	n.a.	n.a.	0.06**

*p<.0001; **p<.05

As with Study Three, the role of logo evaluation as a mediator to the interaction between brand commitment and logo condition on change in brand attitude was examined but

found to be not significant. While the interaction parameter estimate was highly significant across all three regressions, partial mediation was not supported because the beta estimate for the interaction of brand commitment and logo condition for the third regression (-.18) was greater than the second regression (-.23). Please refer to Table 41 for regression parameter estimates.

Table 41: Mediation Analysis Parameter Estimates (Logo Evaluation as Mediator; Change in Brand Attitude as Dependent Variable)

Dependent Variable	Chg. in Brand Attitude	Logo Evaluation	Chg. in Brand Attitude
Pooled Model			
Brand Commitment	0.20*	0.48*	.18*
Logo Condition	0.72*	1.04*	.068*
BrandCommit*Logo Condition	-0.10*	-0.23*	-0.18*
Logo Evaluation	n/a	n/a	0.04

*p<.0001; **p<.05

Study Four also collected cognitive responses from the respondents for the purposes of testing them for prospective mediation. Responses were dummy coded and tested for mediation. The coding began with an impressionistic reading of approximately 100 responses by the author and a colleague. We discussed our reactions and agreed there were three general themes: affective comments pertaining to the underlying brand (e.g. "Dasani is great bottled water"), affective comments pertaining to the logo (e.g. "I hate this logo") and comments pertaining to elements of the logo (e.g. "The typeface is interesting). Based on these themes, five variables were designated. "Positive affect—brand" was designated for positive affect comments regarding the underlying brand. "Negative affect—brand" was designated for negative affect comments regarding the underlying brand. "Positive affect—logo" was designated for positive affect comments regarding the logo. "Negative affect—logo" was designated for negative affect comments regarding the logo. "Logo elements" was designated for any comments pertaining to logo elements. Each respondent's comment(s) was analyzed in terms of relevance to the five variables and coded "1" if the comment applied to a variable and "0" if not. For example, the comment "Dasani is great bottled water" would have been coded "1" under "Positive affect—

brand" and "0" for all other response variables. The author did all coding although consulted with colleagues on some ambiguous responses. Not all responses neatly fell into at least one category but these were highly infrequent (less than 1% of all comments) and were ignored (an example of this is the comment one respondent made "Makes me thirsty.") Please refer to Table 42 for the coding schemes and exemplars.

Table 42: Cognitive Response Coding and Exemplars

Theme	Exemplar Responses
Positive Affect: Brand	"Dasani is a great bottled water."
Negative affect brand	"This (brand) is a rip off. Use tap water instead."
Positive affect: logo	"The logo is cool."
Negative affect: logo	"I hate this logo."
Logo elements	"The typeface is interesting."

Mediation was tested for each response variable. None of the variables were found to mediate brand attitude. In all cases, regression two, was not found to be significant. Please refer to Table 43-47 for mediation parameter estimates.

Table 43: Mediation Analysis Parameter Estimates (Positive Affect-- Brand)

Dependent Variable	Chg. in Brand Attitude	Pos. Affect Brand	Chg. in Brand Attitude
Pooled Model			
Brand Commitment	.20*	.02**	.20*
Logo Condition	.71*	-.01	.71*
BrandCommit*Logo Condition	-.19*	-.01	-.19*
Positive Affect Brand	n/a	n/a	-.04

*p<.0001; **p<.05

Table 44: Mediation Analysis Parameter Estimates (Negative Affect-- Brand)

Dependent Variable	Chg. in Brand Attitude	Neg. Affect Brand	Chg. in Brand Attitude
Pooled Model			
Brand Commitment	.20*	-.00	.20*
Logo Condition	.71*	.00	.71*
BrandCommit*Logo Condition	-.19*	-.00	.19*
Negative Affect Brand	n/a	n/a	.02

*p<.0001; **p<.05

Table 45: Mediation Analysis Parameter Estimates (Positive Affect-- Logo)

Dependent Variable	Chg. in Brand Attitude	Pos. Affect Logo	Chg. in Brand Attitude
Pooled Model			
Brand Commitment	.20*	.01	.20*
Logo Condition	.71*	.02	.72*
BrandCommit*Logo Condition	-.19*	.00	-.19*
Positive Affect Logo	n/a	n/a	-.16*

*p<.0001; **p<.05

Table 46: Mediation Analysis Parameter Estimates (Negative Affect--Logo)

Dependent Variable	Chg. in Brand Attitude	Neg. Affect Logo	Chg. in Brand Attitude
Pooled Model			
Brand Commitment	.20*	.02	.20*
Logo Condition	.71*	.12*	.69*
BrandCommit*Logo Condition	-.19*	-.01	-.19*
Negative Affect Logo	n/a	n/a	.23**

*p<.0001; **p<.05

Table 47: Mediation Analysis Parameter Estimates (Logo Elements)

Dependent Variable	Chg. in Brand Attitude	Logo Elements	Chg. in Brand Attitude
Pooled Model			
Brand Commitment	.20*	-.04**	.20*
Logo Condition	.71*	-.04	.72*
BrandCommit*Logo Condition	-.19*	.01	-.20*
Logo Elements	n/a	n/a	.05

*p<.0001; **p<.05

9.6.4 Descriptive Statistics. The sample was slightly skewed toward women (52.00%) versus men (48.00%). Average age was 33.81 (s.d. 8.81). There were 234 separate zip codes listed by the respondents with only five zip codes having more than 20 respondents. Zip codes were predominately from the Western Pennsylvania region. As mentioned before, age, gender and zip code were analyzed as covariates but not found to be significant. Please refer to Table 48 for age and gender data between brand and commitment conditions descriptive statistics.

Table 48: Descriptive Statistics

	Gender		Age	
	% Male	% Female	Mean	s.d.
All Respondents	48.00	52.00	33.81	8.81
Strongly Committed				
Aquafina	53.60	46.40	34.30	9.33
Dasani	43.80	56.20	34.31	8.04
Weakly Committed				
Aquafina	50.30	49.70	33.00	8.62
Dasani	46.21	53.82	33.83	8.51

Usage of the Aquafina and Dasani brands was obtained. Usage was defined as the number of bottles consumed per week and for purposes of analysis, categorized as "high" (5 or more bottles per week), "low" (1-4 bottles per week) and "none." This is the same categorization scheme used by the Simmons Market Research Bureau when they report bottled water consumption. As seen in Studies One through Three, strongly committed consumers tend to use the brand more than weakly committed consumers. Please refer to Table 49 for usage descriptive statistics.

Table 49: Usage Descriptive Statistics

	Total	Aquafina Usage			Dasani Usage		
	Resp.	5+ Bottles	1-4 Bottles	None	5+ Bottles	1-4 Bottles	None
Total	1011	127	433	450	172	488	351
Aquafina							
High Comm.	97	13	38	46	28	44	25
Low Comm.	314	35	118	160	31	148	135
Dasani							
High Comm	89	15	43	31	12	44	33
Low Comm	236	12	113	111	32	120	84

The correlation between brand commitment and brand ownership was examined. The results were inconclusive. There is no correlation between commitment and usage a particular brand. There was a weak correlation (< .23) between commitment of one brand and usage of that brand. This supports the notion that brand commitment is a separate construct than brand ownership. Please refer to Table 50 for the correlation analysis between brand and commitment level.

Table 50: Correlation Between Brand Commitment and Brand Usage

(Kendall's Tau)

Brand Commitment	Aquafina5+	Aquafina 1-4	Aquafina None	Dasani 5+	Dasani 1-4	Dasani None
Aquafina	.17**	.04	-.16*	.01	.01	-.02
Dasani	.04	.05	-.08*	.23**	.04*	-.23**
*p<.05 **p<.001						

9.7 DISCUSSION

With an expanded sample and using a different product category, results from Study Four were consistent with Study Three and supported Hypotheses One and Two. Brand commitment was found to be a moderator to a consumer's evaluation of logo redesign as well as change in brand attitude relating to logo redesign.

Likewise, brand commitment was found to moderate attitude toward the underlying brand. Attitude declined for consumers strongly committed to a brand but improved for consumers weakly committed to a brand in terms of no change/incrementally changed/considerably changed logo conditions. Boredom, depth of processing, and openness was found to be a covariate on logo evaluation. In addition, openness was also found to be a covariate on change in brand attitude. However, none of these variables were found to mediate the relationship between commitment and logo evaluation and change in brand attitude.

10.0 GENERAL DISCUSSION

In a given year, consumers will be faced with a plethora of change to products they use. Most changes to products will be welcomed but there will be situations where managerially induced change is resisted by consumers. Why are some changes welcomed and others resisted? In the realm of logo redesign, no research has directly explored answers to this question. Through this dissertation, this phenomenon was investigated.

Studies Three and Four showed brand commitment moderates logo evaluation and change in brand attitude. Strongly committed consumers' evaluations of redesigned logos were worse compared to evaluations for existing logos for consumers strongly committed to a brand. The greater the change in logo redesign, the greater negative evaluation of that change by consumers. For weakly committed consumers, the results were opposite. For weakly committed consumers, the greater the change in logo redesign, the greater positive evaluation of that change.

Changes to logos affected attitude toward the underlying brand. Attitude declined for consumers strongly committed to a brand but improved for consumers weakly committed to a brand in terms of no change/incrementally changed/considerably changed logo conditions. Thus, not only do strongly committed consumers resist change to logo design, any change to logo design negatively affects attitude towards the underlying brand. Incremental logo redesigns have less negative impact on underlying brand attitude compared to considerably changed logo redesigns for strongly committed consumers. On the other hand, weakly committed consumers prefer change to logo design and any change to logo design positively affects attitude toward the underlying brand. Considerable logo redesigns have more positive impact on underlying brand attitude compared to incrementally changed logo designs.

A number of potential covariates were examined, and boredom and openness were found to influence logo evaluation. Depth of processing and openness was also found to influence

change in brand attitude. Boredom and depth of processing were not found to mediate the main effect of brand commitment on logo evaluation and change in brand attitude. With such strong main effects, a logical direction for future research is the additional exploration of potential mediators.

These results shed light on one aspect of consumer resistance to change and have managerial implications. This dissertation indicates brand commitment is a predictor of consumer reaction to change. Clearly those brands with strong commitment levels must be especially sensitive to change. These findings are relevant to logo design as well as other aspects of brand aesthetics such as packaging and advertising.

In terms of contributions, work to date has identified the elements of logos and examined how various elements of logos (such as color) affect underlying brand attitudes. Yet no one has examined what happens when existing logos are changed. This dissertation builds on the brand aesthetics literature stream and extends into the world of managerially induced change to products and services.

As with any study, there are limitations to this study. These studies measured reaction to logo redesigns in an artificial environment. Respondents were presented logo redesigns in absence of other marketing materials commonly associated with logos such as packaging and advertising. In effect, respondents were asked to evaluate logos in a vacuum which is not representative of reality. Other limitations relate to the stimuli. These studies focused on one aspect of logo redesign: shape, specifically the degree of roundness. There are infinite variations of logo design (e.g., color and type), yet this dissertation focused on a single aspect of logo redesign. Rarely are logos redesigned along one dimension such as shape. This limits the generalization of the findings.

There are a number of future research opportunities. As already mentioned, the initial attempt to discover mediators to the main effects was unsuccessful. Of the studied covariates, the openness measure had the most interesting results. More work needs to be done on developing the appropriate measure of openness as well as alternative psychological process(es) that might influence our reaction to change.

Depth of processing likewise had interesting results and while it was a significant covariate on logo evaluation, it did not mediate the relationship between logo evaluation and brand commitment. One potential alternative approach is to treat depth of processing as a

manipulated variable as opposed to a measurement variable. It was fascinating reading the cognitive response data. However the mediation analyses were not significant. More work—perhaps alternative coding approaches might lead to a significant finding of mediation effects. Examining other aspects of logo design (e.g. color, type) would help extend the generalizability of the results.

Another interesting opportunity would be to consider managerial aspects of this issue such as firm communications surrounding a logo change. For example, Apple Computer did not explicitly announce their logo change. Rather, the logo redesign simply began to appear on products, packaging and advertising. It is possible the negative response to Apple's decision was due to the "surprise" of the new logo. It is interesting to speculate whether consumer response to the logo change would be been different had Apple preceded their decision with press releases, press conferences and other communication explaining the rationale behind their decision. A possible future research study could compare consumer response to logo change with and without accompanying firm communication.

APPENDIX A

EXPLORATORY RESEARCH ON PREVAILING LOGO DESIGN TRENDS

Objective: To identify prevailing trends in logo design

Methodology: Phone interview with designers from local and nationally recognized logo/corporate identity design firms. After introductions and explanation of the purpose of the research, designers were asked one open ended question: "As you think about recent logo redesigns, what are the prevailing trends?" Interviews were conducted by the author. Responses were recorded by the author (note taking) and were read back to the participants at the end of the phone conversation. Interviews took place January 6-11, 2005.

Sample: 12 designers from leading local and national corporate identify design firms. The designers included:

Patti Sulkowski, free lance designer

Mary Peg Miller, Miller Design

Kai Yurik, H2 Design

Gary Adams, Vance, Wright Adams

Dave Bissat, Blattner Brunner

Shirley Yees, Art Institute of Pittsburgh

Gabriella Minensky, American Institute of Graphics Artists

Margaret Youngblood, Landor and Associates

Jerry Kuyper, Lippencott and Margulies

Brett Wooldridge, Interbrand

Akio Okumura, Siegel and Gale

Vince Longo, Longo Design

Results

- Three designers did not feel it was possible to summarize or otherwise categorize logo redesigns. They felt logos are individualized efforts tailored to specific market/client conditions and any design characteristics is subordinated to market client needs
- The other designers used the following descriptions:
    - Use of more round shapes
    - More feminine design
    - More bulbous shapes
    - Movement back to traditional design
    - More personal (use of hand drawn designs reflecting company culture/values
    - Less use of Helvetica typeface

- More “retro” look (e.g. Old Navy)
- Playful, warm and fuzzy

APPENDIX B

SURVEY BOOKLET USED IN STUDY ONE

(Order of logos was randomized)

Marketing Study about Athletic Footwear

Thank you for participating in this study. In this survey, you will be asked to answer questions and provide information about some brands of athletic footwear.

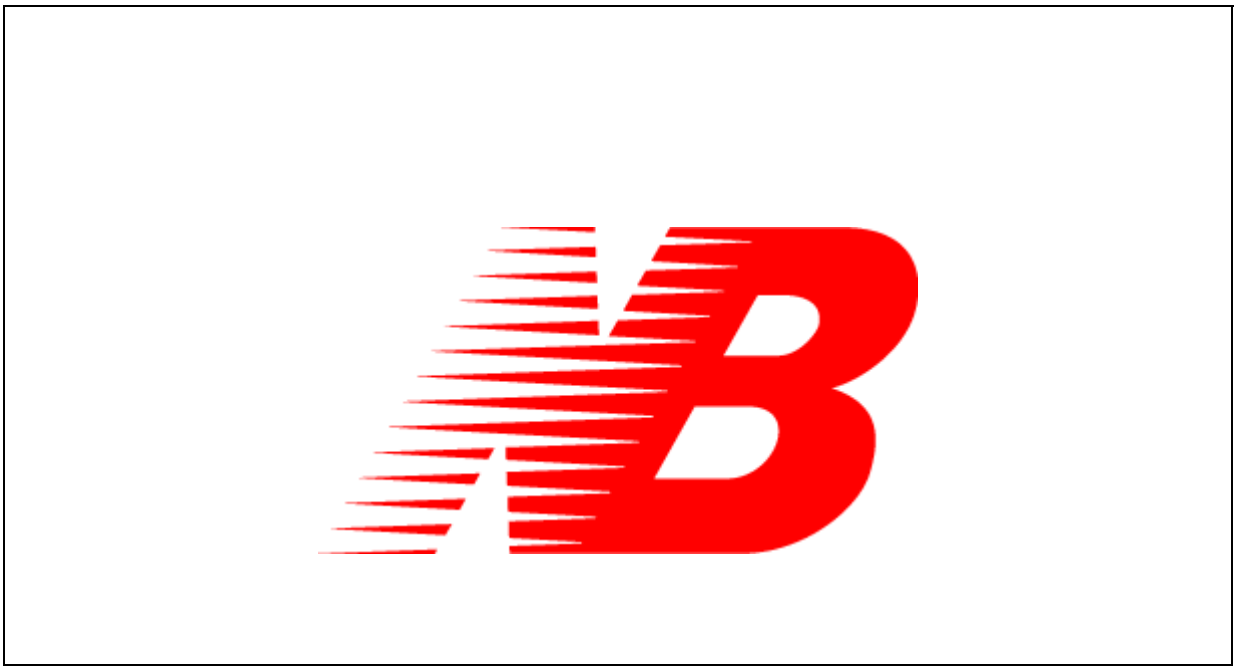
There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

Please rate your agreement with each item with respect to the brand displayed above.

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If this brand were not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to this brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than this brand.	1	2	3	4	5	6	7	8	9

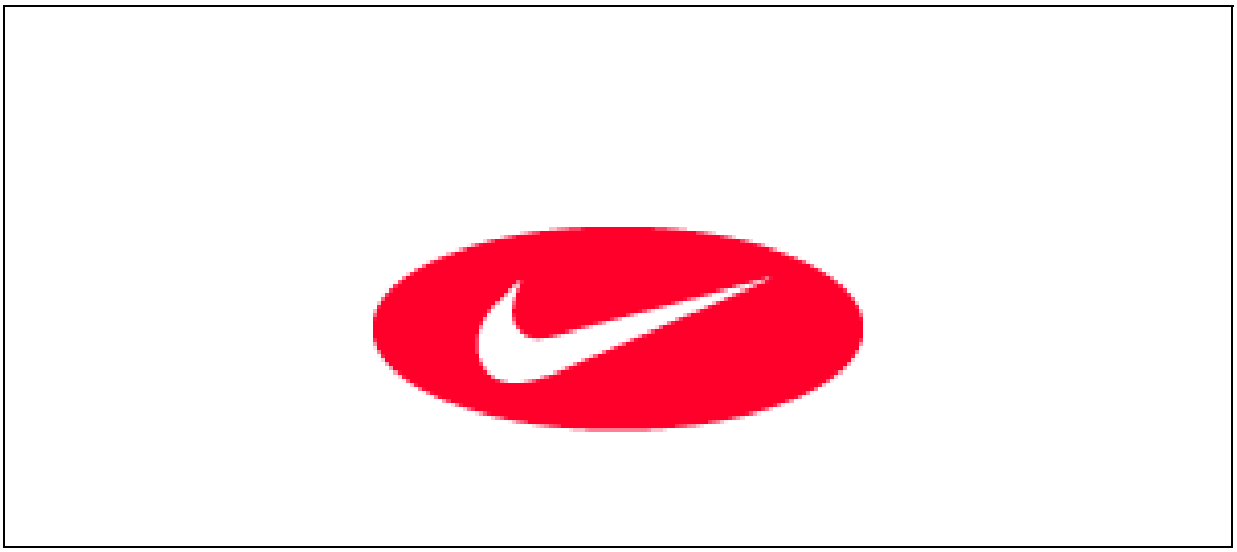
Please rate your agreement with each item with respect to the brand displayed above.

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If this brand were not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to this brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than this brand.	1	2	3	4	5	6	7	8	9



Please rate your agreement with each item with respect to the brand displayed above.

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If this brand were not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to this brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than this brand.	1	2	3	4	5	6	7	8	9



Please rate your agreement with each item with respect to the brand displayed above.

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If this brand were not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to this brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than this brand.	1	2	3	4	5	6	7	8	9

Please rate your agreement with each item with respect to the brand displayed above.

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If this brand were not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to this brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than this brand.	1	2	3	4	5	6	7	8	9

Thank you for participating in this study. Before turning in this form, please answer the following questions about yourself:

1. Please indicate the athletic footwear brands you have owned:

	Currently Owned	Previously Owned: Last 2 years	Never Owned
Adidas	☐	☐	☐
Fila	☐	☐	☐
New Balance	☐	☐	☐
Nike	☐	☐	☐
Reebok	☐	☐	☐

2. Gender: Male _____ Female _____

3. Age: _____

APPENDIX C

SURVEY BOOKLET USED IN STUDY TWO

(Includes all logo variations; each test book contained only three logos)

Marketing Study about Athletic Footwear Logos

Thank you for participating in this study. In this survey, you will be asked to compare versions of athletic footwear logos. Following this, you will be asked questions relating to your attitudes towards these brands.

There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

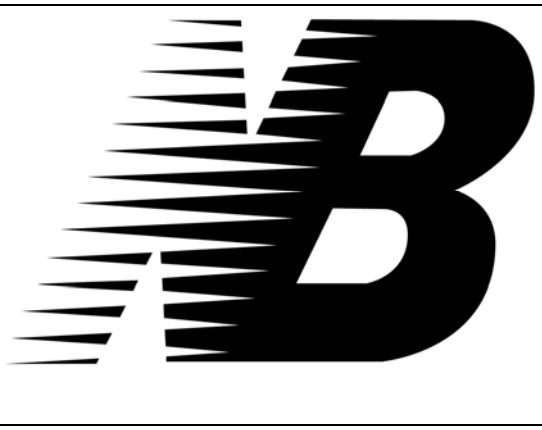
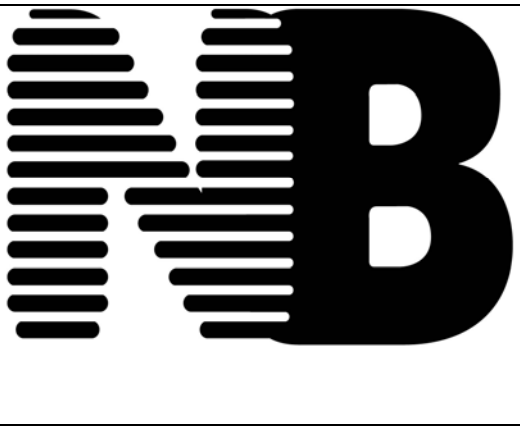
Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

Adidas

Please respond to the following statements with respect to the ADIDAS brand of athletic footwear:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Adidas brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Adidas brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Adidas brand.	1	2	3	4	5	6	7	8	9

I consider the Adidas brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

New Balance

Please respond to the following statements with respect to the New Balance brand of athletic footwear:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the New Balance brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the New Balance brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the New Balance brand.	1	2	3	4	5	6	7	8	9

I consider the New Balance brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Nike

Please respond to the following statements with respect to the Nike brand of athletic footwear:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Nike brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Nike brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Nike brand.	1	2	3	4	5	6	7	8	9

I consider the Nike brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Please indicate the athletic footwear brands you have owned:

	Currently Owned	Owned in last two years	Never Owned
Adidas	☐	☐	☐
New Balance	☐	☐	☐
Nike	☐	☐	☐

Gender: Male _____ Female _____ **Age_____**

APPENDIX D

SURVEY BOOKLET USED IN STUDY THREE

(Includes all logo variations; respondents only received one logo in one condition)

Marketing Study about Athletic Footwear Logos

Thank you for participating in this study. This survey is divided into three parts:

- First, you will be asked questions about the Adidas brand of athletic footwear
- Next, you will be asked to compare different Adidas logos and answer questions about them
- Finally you will be asked a series of general questions

There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

Adidas

Please respond to the following statements with respect to the <u>ADIDAS</u> brand of athletic footwear:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the <u>Adidas</u> brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the <u>Adidas</u> brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the <u>Adidas</u> brand.	1	2	3	4	5	6	7	8	9

I consider the <u>Adidas</u> brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

New Balance

Please respond to the following statements with respect to the NEW BALANCE brand of athletic footwear:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the New Balance brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the New Balance brand of athletic footwear.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the New Balance brand.	1	2	3	4	5	6	7	8	9

I consider the New Balance brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Version A	Version B
	

Please compare the two logos above. Compared to version A, how would you rate version B of the logo:

Like	☐	☐	☐	☐	☐	☐	☐	Dislike
Good	☐	☐	☐	☐	☐	☐	☐	Bad
Distinctive	☐	☐	☐	☐	☐	☐	☐	Not distinctive
Interesting	☐	☐	☐	☐	☐	☐	☐	Not interesting
High quality	☐	☐	☐	☐	☐	☐	☐	Low quality

Version A	Version B
	

Please compare the two logos above. Compared to version A, how would you rate version B of the logo:

Like	☐	☐	☐	☐	☐	☐	☐	Dislike
Good	☐	☐	☐	☐	☐	☐	☐	Bad
Distinctive	☐	☐	☐	☐	☐	☐	☐	Not distinctive
Interesting	☐	☐	☐	☐	☐	☐	☐	Not interesting
High quality	☐	☐	☐	☐	☐	☐	☐	Low quality

In light of this logo version, please respond to the following statements about <u>Adidas</u>

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

In light of this logo version, please respond to the following statements about <u>Adidas</u>

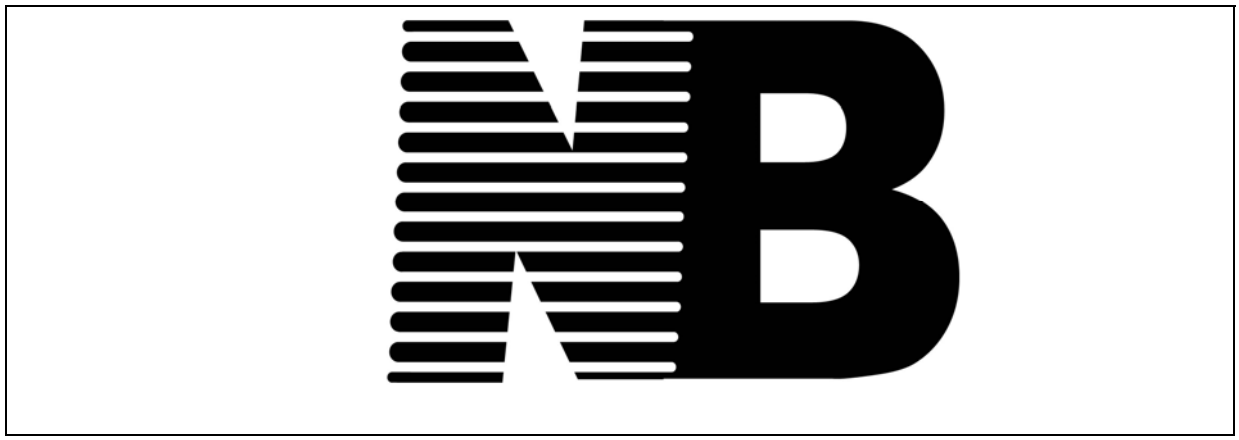
Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

In light of this logo version, please respond to the following statements about <u>Adidas</u>

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

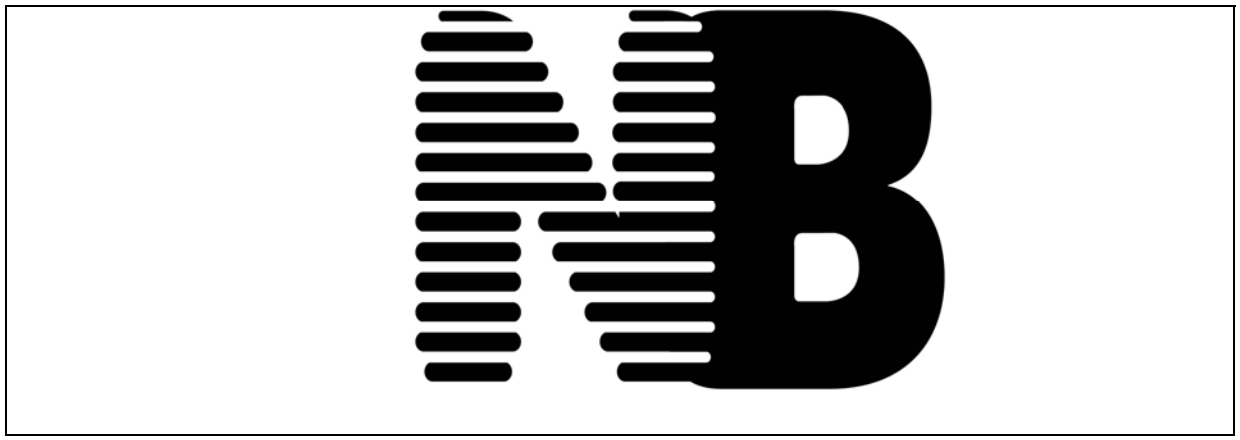
In light of this logo version, please respond to the following statements about <u>New Balance</u>

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful



In light of this logo version, please respond to the following statements about <u>New Balance</u>

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful



In light of this logo version, please respond to the following statements about <u>New Balance</u>

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Please indicate the athletic footwear brands you have owned during the last 2 years:

	Currently Owned	Owned in last two years	Never Owned
Adidas	☐	☐	☐
New Balance	☐	☐	☐
Nike	☐	☐	☐

Gender: Male _____ Female _____ **Age_____**

APPENDIX E

BOOKLET USED FOR STUDY FOUR PRE TEST

Marketing Study about Bottled Water

Thank you for participating in this study. In this survey, you will be asked to compare versions of bottled logos. Following this, you will be asked questions relating to your attitudes towards these brands.

There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

	
Version A	Version B

Please compare the two logos above. Compared to version A, how would you rate version B:

Little Difference	☐	☐	☐	☐	☐	☐	☐	Very Different
Minor Modifications	☐	☐	☐	☐	☐	☐	☐	Extensive Modifications
No Change	☐	☐	☐	☐	☐	☐	☐	Completely Changed

Aquafina

Please respond to the following statements with respect to the AQUAFINA brand of bottled water:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Aquafina brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Aquafina brand of bottled water.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Aquafina brand.	1	2	3	4	5	6	7	8	9

I consider the Aquafina brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Dasani

Please respond to the following statements with respect to the Dasani brand of bottled water:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Dasani brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Dasani brand of bottled water.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Dasani brand.	1	2	3	4	5	6	7	8	9

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Deer Park

Please respond to the following statements with respect to the Deer Park brand of bottled water:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Deer Park brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Deer Park brand of bottled water.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Deer Park brand.	1	2	3	4	5	6	7	8	9

I consider the Deer Park brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Please indicate your average weekly consumption of bottled water by brand:

	8+ Bottles	5-7 Bottles	1-4 Bottles	None
Arrowhead	☐	☐	☐	☐
Aquafina	☐	☐	☐	☐
Dasani	☐	☐	☐	☐
Deer Park	☐	☐	☐	☐
Poland Spring	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐

Gender: Male _____ Female _____ **Age_____**

Thank you for completing this survey

APPENDIX F

SURVEY BOOKLETS USED IN STUDY FOUR MAIN STUDY

(Dasani unchanged version; Aquafina used same form but with brand name and logos changed)

Marketing Study about Bottled Water Logos

Thank you for participating in this study. This survey is divided into three parts:

- First, you will be asked questions about the Dasani brand of bottled water
- Next, you will be asked to compare different Dasani logos and answer questions about them
- Finally you will be asked a series of general questions

There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

Dasani

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Please respond to the following statements with respect to the DASANI brand of bottled water:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Dasani brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Dasani brand of bottled water.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Dasani brand.	1	2	3	4	5	6	7	8	9

Version A	Version B
	

Please compare the two logos above. Compared to version A, how would you rate version B of the logo:

Like	☐	☐	☐	☐	☐	☐	☐	Dislike
Good	☐	☐	☐	☐	☐	☐	☐	Bad
Distinctive	☐	☐	☐	☐	☐	☐	☐	Not distinctive
Interesting	☐	☐	☐	☐	☐	☐	☐	Not interesting
High quality	☐	☐	☐	☐	☐	☐	☐	Low quality

For the next **two minutes**, please think about your initial reactions to this logo. Please write all your thoughts on this page.

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

When evaluating the logo, did you feel:

Excited	☐	☐	☐	☐	☐	☐	☐	Unexcited
Interested	☐	☐	☐	☐	☐	☐	☐	Uninterested
Entertained	☐	☐	☐	☐	☐	☐	☐	Dulled
Stimulated	☐	☐	☐	☐	☐	☐	☐	Tired
Engaged	☐	☐	☐	☐	☐	☐	☐	Bored

Would you say that while looking at the logo, you:

Paid a lot of attention	☐	☐	☐	☐	☐	☐	☐	Did not pay much attention
Examined the logos carefully	☐	☐	☐	☐	☐	☐	☐	Skimmed the logos very quickly
Found it easy to understand	☐	☐	☐	☐	☐	☐	☐	Found it difficult to understand
Found it easy to process	☐	☐	☐	☐	☐	☐	☐	Found it difficult to process
Was very involved	☐	☐	☐	☐	☐	☐	☐	Was not at all involved
Was very interested	☐	☐	☐	☐	☐	☐	☐	Was not interested

Please indicate your response to the following statements.

	Strongly DISAGREE (1)	**2**	**3**	**4**	**5**	**6**	**Strongly AGREE (7)**
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.							
I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.							
I only think as hard as I have to.							
The idea of relying on thought to make my way to the top appeals to me.							
The notion of thinking abstractly is appealing to me.							
Change to products and services is upsetting to me							
I keep an open mind toward change in products and services							
I can adapt to changes in products and services without difficulty							
It's wrong to change products and services. If it isn't broken, don't fix it							
I believe changes to products and services are done for a good reason even if its not immediately clear why a change occurred							

Please indicate your average weekly consumption of bottled water by brand:

	8+ Bottles	5-7 Bottles	1-4 Bottles	None
Dasani	☐	☐	☐	☐
Aquafina	☐	☐	☐	☐
Arrowhead	☐	☐	☐	☐
Deer Park	☐	☐	☐	☐
Poland Spring	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐

Gender: Male _____ Female _____ **Age_____**

Education: Attended High School _____ **Zip Code where you live _____**

Graduated High School _____

Attended College _____

Graduated College _____

Thank you for completing this survey

2-1

(Dasani incrementally changed version)

Marketing Study about Bottled Water Logos

Thank you for participating in this study. This survey is divided into three parts:

- First, you will be asked questions about the Dasani brand of bottled water
- Next, you will be asked to compare different Dasani logos and answer questions about them
- Finally you will be asked a series of general questions

There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

Dasani

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Please respond to the following statements with respect to the DASANI brand of bottled water:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Dasani brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Dasani brand of bottled water.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Dasani brand.	1	2	3	4	5	6	7	8	9

Version A	Version B
	

Please compare the two logos above. Compared to version A, how would you rate version B of the logo:

Like	☐	☐	☐	☐	☐	☐	☐	Dislike
Good	☐	☐	☐	☐	☐	☐	☐	Bad
Distinctive	☐	☐	☐	☐	☐	☐	☐	Not distinctive
Interesting	☐	☐	☐	☐	☐	☐	☐	Not interesting
High quality	☐	☐	☐	☐	☐	☐	☐	Low quality

For the next **two minutes**, please think about your initial reactions to this logo. Please write all your thoughts on this page.

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

When evaluating the logo, did you feel:

Excited	☐	☐	☐	☐	☐	☐	☐	Unexcited
Interested	☐	☐	☐	☐	☐	☐	☐	Uninterested
Entertained	☐	☐	☐	☐	☐	☐	☐	Dulled
Stimulated	☐	☐	☐	☐	☐	☐	☐	Tired
Engaged	☐	☐	☐	☐	☐	☐	☐	Bored

Would you say that while looking at the logo, you:

Paid a lot of attention	☐	☐	☐	☐	☐	☐	☐	Did not pay much attention
Examined the logos carefully	☐	☐	☐	☐	☐	☐	☐	Skimmed the logos very quickly
Found it easy to understand	☐	☐	☐	☐	☐	☐	☐	Found it difficult to understand
Found it easy to process	☐	☐	☐	☐	☐	☐	☐	Found it difficult to process
Was very involved	☐	☐	☐	☐	☐	☐	☐	Was not at all involved
Was very interested	☐	☐	☐	☐	☐	☐	☐	Was not interested

Please indicate your response to the following statements.

	Strongly DISAGREE (1)	**2**	**3**	**4**	**5**	**6**	**Strongly AGREE (7)**
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.							
I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.							
I only think as hard as I have to.							
The idea of relying on thought to make my way to the top appeals to me.							
The notion of thinking abstractly is appealing to me.							
Change to products and services is upsetting to me							
I keep an open mind toward change in products and services							
I can adapt to changes in products and services without difficulty							
It's wrong to change products and services. If it isn't broken, don't fix it							
I believe changes to products and services are done for a good reason even if its not immediately clear why a change occurred							

Please indicate your average weekly consumption of bottled water by brand:

	8+ Bottles	5-7 Bottles	1-4 Bottles	None
Dasani	☐	☐	☐	☐
Aquafina	☐	☐	☐	☐
Arrowhead	☐	☐	☐	☐
Deer Park	☐	☐	☐	☐
Poland Spring	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐

Gender: Male _____ Female _____ **Age_____**

Education: Attended High School _____ **Zip Code where you live _____**

Graduated High School _____

Attended College _____

Graduated College _____

Thank you for completing this survey

2-2

(Dasani considerably changed version)

Marketing Study about Bottled Water Logos

Thank you for participating in this study. This survey is divided into three parts:

- First, you will be asked questions about the Dasani brand of bottled water
- Next, you will be asked to compare different Dasani logos and answer questions about them
- Finally you will be asked a series of general questions

There is no correct answer to any question. This information will be used for academic purposes only and is completely confidential. We appreciate your participation and thank you for your time.

Dasani

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

Please respond to the following statements with respect to the DASANI brand of bottled water:

	Strongly Disagree				Neither Agree nor Disagree				Strongly Agree
If the Dasani brand was not available at the store, it would make little difference to me if I had to choose another brand.	1	2	3	4	5	6	7	8	9
I consider myself to be highly loyal to the Dasani brand of bottled water.	1	2	3	4	5	6	7	8	9
When another brand is on sale, I will generally purchase it rather than the Dasani brand.	1	2	3	4	5	6	7	8	9

Version A	Version B
	

Please compare the two logos above. Compared to version A, how would you rate version B of the logo:

Like	☐	☐	☐	☐	☐	☐	☐	Dislike
Good	☐	☐	☐	☐	☐	☐	☐	Bad
Distinctive	☐	☐	☐	☐	☐	☐	☐	Not distinctive
Interesting	☐	☐	☐	☐	☐	☐	☐	Not interesting
High quality	☐	☐	☐	☐	☐	☐	☐	Low quality

For the next **two minutes**, please think about your initial reactions to this logo. Please write all your thoughts on this page.

I consider the Dasani brand to be:

Good	☐	☐	☐	☐	☐	☐	☐	Bad
Beneficial	☐	☐	☐	☐	☐	☐	☐	Harmful
Desirable	☐	☐	☐	☐	☐	☐	☐	Undesirable
Nice	☐	☐	☐	☐	☐	☐	☐	Awful

When evaluating the logo, did you feel:

Excited	☐	☐	☐	☐	☐	☐	☐	Unexcited
Interested	☐	☐	☐	☐	☐	☐	☐	Uninterested
Entertained	☐	☐	☐	☐	☐	☐	☐	Dulled
Stimulated	☐	☐	☐	☐	☐	☐	☐	Tired
Engaged	☐	☐	☐	☐	☐	☐	☐	Bored

Would you say that while looking at the logo, you:

Paid a lot of attention	☐	☐	☐	☐	☐	☐	☐	Did not pay much attention
Examined the logos carefully	☐	☐	☐	☐	☐	☐	☐	Skimmed the logos very quickly
Found it easy to understand	☐	☐	☐	☐	☐	☐	☐	Found it difficult to understand
Found it easy to process	☐	☐	☐	☐	☐	☐	☐	Found it difficult to process
Was very involved	☐	☐	☐	☐	☐	☐	☐	Was not at all involved
Was very interested	☐	☐	☐	☐	☐	☐	☐	Was not interested

Please indicate your response to the following statements.

	Strongly DISAGREE (1)	**2**	**3**	**4**	**5**	**6**	**Strongly AGREE (7)**
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.							
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I only think as hard as I have to.							
The idea of relying on thought to make my way to the top appeals to me.							
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Change to products and services is upsetting to me							
I keep an open mind toward change in products and services							
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Please indicate your average weekly consumption of bottled water by brand:

	8+ Bottles	5-7 Bottles	1-4 Bottles	None
Dasani	☐	☐	☐	☐
Aquafina	☐	☐	☐	☐
Arrowhead	☐	☐	☐	☐
Deer Park	☐	☐	☐	☐
Poland Spring	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐
Other (please list the brand)	☐	☐	☐	☐

Gender: Male _____ Female _____ **Age_____**

Education: Attended High School _____ **Zip Code where you live _____**

Graduated High School _____

Attended College _____

Graduated College _____

Thank you for completing this survey

BIBLIOGRAPHY

(1996), "New Logo: More Mixed Reviews," Sunset (September), 10.

Aaker, David A. (1996), Building Strong Brands. New York City: Free Press.

Ahluwalia, Rohini, H., H. Roa Unnava and Robert Burnkrant (2000), Consumer Response to Negative Publicity: The Moderating Role of Commitment," Journal of Marketing Research, 37 (May), 203-214.

Anand, Punam and Brian Sternthal (1990), "Ease of Message Processing as a Moderator of Repetition Effects in Advertising," Journal of Marketing Research, 26 (August), 345-353.

Aron, Arthur and Elaine N. Aron Eds. (1996), Self and Self Explanation in Relationships. Hillsdale, NJ: Erbaum.

Baron, Reuben and David A. Kenny (1986), The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic and Statistical Considerations," Journal of Personality and Social Psychology, 51(6), 1173-1182.

Beatty, Sharon E., Lynn R. Kahle and Pamela Homer (1988), "The Involvement-Commitment Model: Theory and Implications," Journal of Business Research, 16 (2), 149-67.

Bennett, Peter D. (1995), Dictionary of Marketing Terms. Lincolnwood, IL: NTC Business Books.

Berlyne, Daniel E. (1970), "Novelty, Complexity and Hedonic Value," Perception and Psychographics, 8 (November), 279-86.

Bird, Laura (1992), "Eye Catching Logos All Too Often Leave Fuzzy Images in Minds of Consumers," Wall Street Journal, December 5, B1.

Bornstein, Robert F. (1990), "Exposure and Affect: Overview and Meta Analysis of Research, 1968-1987," Psychology Bulletin, 106 (September), 265-89.

Bornstein, Robert F. and Paul R. D'Agostino (1992), "Stimulus Recognition and the Mere Exposure Effect," Journal of Personality and Social Psychology, 63 (October), 545-552.

Bowlby, John. (1979), Loss: Sadness and Depression. New York: Basic Books.

Brennan, K.A., C.L. Clark, and P.R. Shaver (1998), "Self Report Measurement of Adult Attachment: An Integrative Overview," in Attachment Theory and Close Relationships, J. A. Simpson and W. S. Rholes, Eds. New York: Guilford Press.

Cacioppo, John T. and Richard E. Petty (1979), "Effect of Message Repetition and Position on Cognition, Response, Recall and Persuasion," Journal of Personality and Social Psychology, 39 (January), 97-109

Cacioppo, John T. and Richard E. Petty (1982), The Need for Cognition," Journal of Personality and Social Psychology, 4 116-131.

Calder, Bobby and Brian Sternthal (1980), "Television Commercial Wearout: A Information Processing View," Journal of Marketing Research, 17 (May), 173-186.

Craig, C. Samuel, Brian Sternthal and Clark Leavitt (1976), "Advertising Wearout: An Experimental Analysis," Journal of Marketing Research, 13 (November), 365-372.

Collins, N.L. and S.J. Read (1990), "Adult Attachment, Working Models and Relationship Quality in Dating Couples," Journal of Personality and Social Psychology, 58, 644-63.

Costa Jr., P. T., & McCrae, R. R. (1991). *NEO PI-R*. Lutz, Florida: Psychological Assessment Resources, Inc.

Crandall, James E., Victor E. Montgomery and Willis W. Rees (1973), "'Mere" Exposure versus Familiarity with Implications for Response Competition and Expectancy Arousal Hypotheses," Journal of General Psychology, 88 (January), 306-340.

Gorn, Gerald J., Amitava Chattopadhyay, Tracey Yi, and Darren W. Dahl (1997), "Effects of Color as an Executional Cue in Advertising: There in the Shade," Management Science, 43 (10), 1387-400.

Haugtvedt, Curtis P., Richard E. Petty, and John T. Cacioppo (1992), "Need for Cognition and Advertising: Understanding the Role of Personality Variables in Consumer Behavior," Journal of Consumer Psychology, 1(3), 239-260.

Henderson, Pamela W. and Joseph A. Cote (1998), "Guidelines for Selecting or Modifying Logos," Journal of Marketing, 62 (April), 14-30.

Henderson, Pamela W., Joan L. Giese, and Joseph A. Cote (2004), "Impression Management Using Typeface Design," Journal of Marketing, 68 (October), 60-72.

Inman, J. Jeffrey, Leigh McAllister, and Wayne D. Hoyer (1990), "Promotion Signal, Proxy for a Price Cut?" Journal of Consumer Research, 17 (June), 74-81.

Irwin, Julie R. and Gary H. McClelland (2003), "Negative Consequences of Dichotomizing Continuous Predictor Variables," Journal of Marketing Research, 40 (August), 366-371.

Jacoby, Larry L, Jeffrey P. Toth, D. Stephen Lindsay and James A. Debner (1992), "Lectures for a Layperson: Methods for Revealing Unconscious Processes," in Perception with Awareness: Cognitive, Clinical and Social Perspectives, ed, Robert P. Bornstein and Thane S. Pittman, New York, Gulford, 81-120.

Kahney, Leander (2003), "Apple Doin the Logo Motion," www.wired.com, accessed October, 14, 2004.

Kail, Robert V. and Harvey R. Freeman (1973), "Sequence Redundancy, Rating Dimensions and the Exposure Effect," Memory and Cognition, 1 (October), 454-458.

Klink, Richard R. (2003), "Creating Meaningful Brands: The Relationship Between Brand Name and Brand Mark," Marketing Letters, 14 (3), 143-57.

Koslow, Scott (2002), "Can the Truth Hurt? How Honest and Persuasive Advertising Can Unintentionally Lead to Increased Consumer Skepticism," Journal of Consumer Affairs, 34 (2), 245-267.

Lazich, Robert S. (2005), Market Share Reporter. Detroit: Thompson/Gale.

Lee, Angela Y. and Jennifer L. Aaker (2004), "Bringing the Frame Into Focus: The Influence of Regulatory Fit on Processing Fluency and Persuasion," Journal of Personality and Social Psychology, 86 (2), 205-218.

Madden, Thomas J., Kelly Hewett, and Martin S. Roth (2000), "Managing Images in Different Cultures: A Cross-national Study of Color Meanings and Preferences," Journal of International Marketing, 8 (4), 90-107.

Mandler, George, Yoshio Nakamura and Billie Jo Shebo Van Zandt (1987), Non Specific Effects of Exposure on Stimuli that Cannot Be Recognized," Journal of Experimental Psychology: Leaning, Memory and Cognition, 13 (October), 646-648.

McCrae, R. R., & Costa Jr., P. T. (1987). Validation of the five factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81-90.

Moorman, Christine, Gerald Zaltman and Rohit Despande (1992), "Relationships Between Providers and Users of Marketing Research: The Dynamics of Trust Between Organizations," Journal of Marketing Research, 29 (August), 314-329.

Nordhielm, Christie L. (2002), "The Influence of Level of Processing on Advertising Repetition Effects," Journal of Consumer Research, 29 (3), 371-83.

Ratneshar, S. and Shelly Chaiken (1991), "Comprehension's Role in Persuasion: The Case of Its Moderating Effect on Persuasion Impact of Source Cues," Journal of Consumer Research, 18 (1), 18-36.

Schumann, David, Richard Petty and D. Scott Clemons (1990), "Predicting the Effectiveness of Different Strategies of Advertising Validation: A Test of the Repetition-Variation Hypotheses," Journal of Consumer Research, 17 (September), 192-202.

Schumann, Mark (2004), "Mega Brands," Advertising Age (July 19, 2004), S1-S5.

Slater, Jan S. (2000), "Collecting Brand Loyalty: A Comparative Analysis of How Coca Cola and Hallmark Use Collecting Behavior to Enhance Brand Loyalty," in Annual Conference of the Association of Consumer Research. Salt Lake City, UT.

Speath, Tony (2002), "The Name Game," Across the Board, 39 (2), 27-32.

Tavassoli, Nader T. (2001), "Color Memory and Evaluations for Alphabetic and Logographic Brand Names," Journal of Experimental Psychology, 7 (2), 104-11.

Traylor, Mark B. (1981) "Product Involvement and Brand Commitment," Journal of Advertising Research, 21 (6), 51-56.

Thomson, Matthew, Deborah MacInnis, and C. Whan Park (2005), "The Ties That Bind: Measuring the Strength of Consumer's Emotional Attachments to Brands," Journal of Consumer Psychology, 15 (1), 77-91.

Zajonc, Robert, Rick Crandall, Robert V. Kail and Walter Swap (1974), "Effect of Extreme Exposure Frequencies on Different Affective Ratings of Stimuli," Perceptual and Motor Skills, 38 (April), 667-678.