

Perceptions of Symmetry and Color in Environmental Logos

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SYMMETRY AND COLOR IN ENVIRONMENTAL LOGOS

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Abstract

Logos are an important visual representation of an organization or brand. Therefore they need to be processed quickly and produce positive responses toward the product or service being offered. One emerging brand category whose logo characteristics may generate a unique class of consumer responses is environmental organizations, which may rely on logo characteristics to best portray environmentally friendly connotations and associations. Color and symmetry may also have unique effects on responses to environmental organizations as both may elicit consumer associations with environmental concepts. It has long been argued that symmetry contributes to good design, and that it is processed faster than asymmetry. In addition, color can also provide positive affect and emotions toward a brand. Therefore, the present study examined whether the logo design elements of symmetry and color contribute to quick processing and positive emotions as applied to environmental and non-environmental organizations. To accomplish this, an online experiment used a 2 (design: symmetrical vs. asymmetrical) X 2 (color: blue vs. green) X 2 (organization: environmental vs. non-environmental) factorial design with eight conditions, varying the logo design elements and company type to measure effects on logo and company perceptions, recall, and response. While the pattern of effects of the factors on outcomes was generally inconsistent and incongruent with expectations, some findings include a general preference among participants for green logos regardless of symmetry or company type and a number of higher-order interactions between factors in effects on other outcomes. One notable higher-order interaction was a three-way interaction effect on perceptions of

company environmentalism wherein the environmental company was perceived as consistently more environmental than the non-environmental company regardless of logo attributes, but the non-environmental company was perceived as more environmental with a green and asymmetrical logo than with other logo characteristics. While in some ways exploratory, this study provides some possible insight into how environmental and non-environmental companies can use these findings to better design their logos if they wish to be perceived as more popular, profitable, or environmental.

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Introduction

The term “logo” refers to a graphic design that serves to identify an organization, product, service, or brand. Logos are a key component in marketing and provide instant recognition for a brand. Therefore it is essential that logos are processed quickly and effortlessly. Businesses invest significant amounts of time and money when creating and selecting their logos (Colman, Wober, & Norris, 1995). However, there have been relatively few empirical studies concerning logo design and the elements used to create them.

In recent decades, environmental concern and awareness have increased substantially. According to GfK Group’s 2011 survey on environmental attitudes, seventy-three percent of Americans say they know a lot or fair amount about environmental issues and problems, which is up 20 percentage points since 1995. This calls for environmental stewardship and a responsibility on the part of organizations to do their part in preserving the environment. There are countless organizations and products dedicated to conservation and sustainability that serve to reduce environmental impact. However, it is up to consumers to seek out these products and choose them over non-environmental competitors. Therefore, it is beneficial for environmental organizations and products to have strategically designed logos that are easily processed so that consumers can quickly identify and remember them. In addition, emotional interest theory states that an attractive design can elicit positive emotions and increase interest towards a subject (Norman, 2004). Therefore, logo design is an important process concerning an organization’s environmental mission, as it might lead to an increase in awareness, interest, and responsiveness.

According to Gestalt theory, the human brain has self-organizing tendencies (Humphrey, 1924) and uses shortcuts to organize visual data in order to perceive objects quickly and easily. Therefore, Gestalt theory states that the brain prefers symmetry to asymmetry because it can

effortlessly process the visual data. In addition, much research has shown that adults process symmetrical visual patterns faster than asymmetrical patterns (Bornstein, Ferdinandsen, & Gross, 1981; Wagemans, 1995). Furthermore, Gestalt theory argues that symmetry is favorable to memory (Attneave, 1955) and produces positive affect (Clement, 1964). A study by Attneave (1955) confirmed this theory when it was found that participants more easily remembered and reproduced symmetrical patterns over asymmetrical ones across three experiments. Finally, it has been shown that humans find symmetrical patterns more attractive than asymmetrical ones (Enquist & Arak, 1994) due to evolutionary biological processes (Zaidel, Aarde, & Baig, 2005). Therefore, this study measured the preference for symmetry in assessment of logo designs for environmentally-focused companies as compared to companies without an environmental focus to determine whether responses to symmetry in logos differs between the types of companies.

In addition to symmetry, color is also an important factor regarding logo design. Color is a powerful medium through which humans view the world, and it influences many perceptions and preferences. Colors impact everyday life as humans decide what to wear, where to eat, and what to buy. Colors have many different meanings and associations, and they also have psychological and physiological effects. Therefore, colors are extremely influential in the marketing of companies and products. For example, researchers have conducted many color psychology studies across age groups and have found that red is the most stimulating and exciting to the human brain (Clynes, 1977), which is why many fast-food restaurants use red to quickly grab the attention of passing consumers. In addition, blue and green have been found to be the two most preferred colors across genders and ethnic groups (Eysenck, 1941), and both have connotations of nature through water, sky, trees, and grass (Hemphill, 1996). Therefore, the

present study examined whether the colors blue or green are preferred for companies with environmental logo designs, as compared to companies that are not environmental.

There have been many studies regarding the preference for symmetry and the pervasiveness of color psychology. However, there have been few empirical studies regarding these design elements when applied to logos. Research has also examined environmental marketing and consumer motivations. However, none specifically target logo design. Therefore, this study examined the logo design elements of symmetry and color in the context of environmental organizations, in order to gain insight into whether there is an overall and context-specific best practice for designing logos aiming to attract consumers to environmentally conscious organizations and brands.

Literature Review

Consumer Responses to Logos

Logos are a key component of marketing and brand identity, and they provide an easily identifiable, visual representation of a company. The term “logo” is often used to refer to a variety of graphic and typeface elements used by companies to identify themselves and their brand (Pittard, Ewing, & Jevons, 2007). Logos provide instant recognition for a brand, and therefore businesses invest significant amounts of time and money into their logos (Colman et al., 1995). According to Henderson, Cote, Leong, and Schmitt (2003), visual stimuli play a critical role in building brands, creating loyalty, and protecting against competition. Logos are considered to be the visual repositories of brand associations (Pittard et al., 2007). However, there have been relatively few empirical studies concerning logo design.

Well-designed logos should be easily recognizable, familiar, elicit meanings, and evoke positive affect and desired associations (Cohen, 1986; Peter, 1989; Robertson, 1989). Logos can induce both positive and negative affect, and they may transfer to the company or product with little or no processing of information (Schechter, 1993). Product choices made with low levels of involvement can be strongly influenced by brand awareness, and the affect attached to the logo may be the only clue to differentiate the company or product (Pittard et al., 2007). In addition, emotional interest theory states that an attractive design can elicit positive emotions and increase interest towards a subject (Norman, 2004). As design and logo aesthetics have become an essential component of marketing, it is important to determine the extent to which design elements like symmetry and color create positive affect towards a logo.

Logos should prompt quick recognition of a company or brand (Peter, 1989) because pictures are perceived faster than words (Edell & Staelin, 1983). This is extremely important because many logos are only seen briefly in advertisements, magazines, or billboards (Henderson & Cote, 1998). In addition, research shows that memorable logos can enhance memory of accompanying material such as the company name (Barrett, 1985). This is also important for organizations because if their logo is memorable, consumers may also remember their name and brand for the next time consumers need to buy a product.

Not only do logos need to be memorable, but they must also elicit positive affect. Henderson and Cote (1998) claim, “The extent of affect transfer depends on the nature of the affect (positive or negative), how intense the affective reactions are, and how closely the logo is associated with the product or company” (p. 15). Positive affect can increase over time with repeated exposure (Zajonc, 1968) but may also be evoked by the initial design of the logo

(Henderson & Cote, 1998). In addition, the logo should evoke the same intended meaning across people (Durgee & Stuart, 1987; Kropp, French, & Hilliard, 1990).

According to Kohli and Suri (2002), “Despite their importance and the investments made in logos, however, there are no well established guidelines for creating them. It is not surprising, then, that many logos are unrecognizable or even viewed negatively, which could end up hurting the brand or company image” (p. 59). Therefore, organizations must choose their logo carefully, as logos are an important factor in the marketing of a company.

Symmetry and Logos

Symmetry is a basic element of design that originates from early evolutionary biological processes and contributes to liking, memory, and attention in humans. The law of symmetry states that the mind perceives objects as forming around a center point (Soegaard, 2005). Treder, (2010) claims, “Symmetry detection is a visual process that is constantly applied to any visual input and it affects the way we perceive our visual environment” (p. 1514). Furthermore, Gestalt theory states that the human brain has self-organizing tendencies, and it is perceptually pleasing to divide objects into symmetrical parts (Humphrey, 1924). In other words, the brain uses shortcuts to organize visual data so that it can perceive objects faster and easier.

There is overwhelming evidence that indicates that symmetry is processed effortlessly and automatically in a wide variety of conditions. Symmetry is a powerful heuristic tool that reduces the information required to describe or retrieve a pattern (Lin, 1996). Cohen and Zaidi (2013) note that if the process of shape formation were random, symmetric shapes would be extremely rare, yet symmetric shapes are often found in nature, manmade objects, and ornamentation. Therefore, as Wagemans (1995) notes, “the biological vision system has evolved

adaptive strategies for perceiving such symmetries and utilizing them in all kinds of tasks” (Wagemans, 1995, p. 9). For example pigeons discriminate and classify shapes on the basis of symmetry (Delius & Nowak, 1982). Furthermore, in nature many animal species use symmetry detection to identify potential mates. Symmetry implies health and good genes, while deviations from symmetry imply the opposite (Zaidel, Aarde, & Baig, 2005). A study by Jones and colleagues (2001) found that both facial symmetry and attractiveness in humans are mediated by judgments of apparent health, and that facial symmetry cues perceived health, which is consistent with previous findings (Jones, Little, Penton-Voak, Tiddeman, Burt, & Perrett, 2001). This shows the relationship between symmetry and health, confirming that evolutionary processes have led animals and humans to seek symmetry in faces as a determinant of attractiveness and health. In addition, experimental evidence from infants and young children demonstrates a preference for vertical symmetry resulting from innate processing abilities (Wagemans, 1995).

Since the detection of symmetry results from evolutionary biological processes, it is no surprise that humans detect symmetrical objects faster than asymmetrical ones. Symmetry research has shown that symmetry can be detected preattentively that is, perceived when the stimulus is briefly presented, under 160 milliseconds (Wagemans, 1995). It has been shown that humans can perceive symmetry in brief presentations of simple random shapes (Carmody, Nodine, & Locher, 1977), in dot patterns (Barlow & Reeves, 1979; Wagemans, Van Gool, & D’ydewalle, 1991), in dynamic dot textures (Hogben, Julesz, & Ross, 1976), in other discrete patterns (Locher & Wagemans, 1993), as well as in complex art displays (Locher & Nodine, 1989).

Researchers have also found that symmetrical patterns are more easily remembered and reproduced than asymmetrical ones. Attneave (1955) conducted three experiments investigating the effect of symmetry on memory and found that in all three studies symmetrical patterns were more easily remembered than asymmetrical ones. Attneave's (1955) study confirmed the Gestalt doctrine that symmetry contributes to 'figural goodness', which is also favorable to memory. Gestalt psychology has long argued that symmetry is the prime determinant of "pattern goodness" (Henderson & Cote, 1998), which also produces positive affect (Clement, 1964; Garner & Clement, 1963). In addition, Rossi-Arnaud (2012) and colleagues conducted four experiments examining the impact of symmetry on visuospatial memory in which it was found that recall advantage of vertical symmetrical patterns persisted over all conditions. This is most likely due to the abundance of vertical objects seen in everyday life, beginning with the human face for newborns (Rossi-Arnaud, Pieroni, Spataro, & Baddeley, 2012).

There is little empirical research concerning the effectiveness of specific design principles that go into a logo. Specifically, there is limited research examining the effects of symmetry when designing a logo, and what is best for certain types of companies. Tuck (2010) states that many people felt the new asymmetrical Pepsi logo diverged too strongly from the symmetry of the earlier design. In addition, Bizcovering (2007) reviewed 10 logos from some of the most successful companies around the world, and posed the question that symmetry may have something to do with the effectiveness of the logo, and perhaps the success of the company itself. In addition to symmetry, color is also an important design element.

Color and Logos

Color is an extremely influential cue used to effect people's perceptions, preferences, and psychology in everyday occurrences. When applied intentionally, color can be very influential and evokes specific desired emotions in people. Color has a functional role in marketing as people attach meaning and importance to its application. For example, the color green has come to be associated with nature and the environment (Labrecque, Patrick, & Milne, 2013), but when applied to humans it can mean sickness and disease. Therefore, the context in which colors are presented is important. Taft (1997) identifies responses to objects and color as "generalized conceptions of colour-object appropriateness" (p .48), which are influenced by culture and stereotypes of how an object "should" be colored.

Studies have shown that some psychological responses to color are innate, while some are learned through experience. In a study conducted by Crozier (1999) infants who were exposed to different colors looked longest at red followed by yellow, blue, and green. This is because red is the most stimulating and exciting to the human brain (Clynes, 1977), due to the longer wavelength of the color (Labrecque et al., 2013) that in turn produces automatic physiological responses, such as increased heart rate (Crowley, 1993). However, variation in color response across demographics suggests that much of adult color preference is learned through experience (Crozier, 1999).

Researchers have conducted many color psychology studies and have found that adults prefer the color blue the most (Crozier, 1999). In addition, Eysenck (1941) established a color hierarchy, which has been generally found accurate since its inception. Eysenck stated that general color preferences are as follows: blue, green, red, purple, orange, and yellow. These preferences were found to be true across both genders and ethnic groups (Rider, 2010). That is

not to say that gender and ethnicity have no effect on color preference, however those findings are most consistent across color psychology literature.

Crozier (1999) offers some explanations for the consistent reporting of preference for the color blue. The author states that the preference for the color blue may simply be conventional as people learn other's preference for the color blue, they adopt this view themselves. Another explanation might be that it is an emotionally neutral color, while red and green evoke stronger reactions (Crozier, 1999). Blue is also a commonly worn color, due to the prevalence of blue denim jeans and is the most frequently worn color for both men and women (Hemphill, 1996). Blue has also been found to lower blood pressure (Birren, 1997), stimulate creativity (Mehta & Zhu, 2009), and even stifle hunger (Bleicher, 2005). In addition, colors have acquired connotations for which blue tends to be associated with pleasantness, while others are more vibrant or exciting (Crozier, 1999). Wexner (1954) found that blue is associated with security, comfort, and tenderness. Furthermore, the color blue has been found to be inherently relaxing and soothing, and is associated with terms such as peace, love, and happiness (Burriss-Meyer, 1940). Hemphill (1996) also reported that blue attracted the most positive and least negative emotional associations compared to other colors. Blue is also associated with the ocean and sky, which contributes to ideas of calmness and serenity (Hemphill, 1996). Wieggersma and Van Loon (1989) refer to the consistent reporting of the preference for blue as the "blue phenomenon."

Although blue has been found to be the most preferred color and is often associated with calmness, it also has other learned associations. Blue is used in American politics to represent the Democratic Party. Blue can also be associated with coldness (Labrecque et al., 2013) and sadness or tragedy (Crozier, 1999). Therefore, in certain contexts blue may be seen as neutral

and calming, or cold and sad. For example, although blue is the most preferred color and yellow is the least, people would most likely prefer yellow in the context of a banana or lemon.

According to Eysenck (1941) the color green was found to be the second most favored color. Along with blue, green is also on the low wavelength end of the color spectrum (Crozier, 1999). The color green has come to be associated with stoplights in the United States and also with money (Hynes, 2009). According to Rider (2010), the color green's psychological effects vary widely according to tone. Dark green tends to connote wealth and status (Berman, 2007), while pea green is associated with nausea (Fehrman & Fehrman, 2004). Green was also found to be associated with nature, forests, and trees (Hemphill, 1996). The color green has strong environmental connotations and is often used for companies or products offering environmentally responsible benefits.

In addition to context, colors also have cultural implications. According to Madden, Hewett, and Roth (2000), blue is associated with wealth, trust, and security. According to Danger (1968) blue is associated with coolness, water, sea, summer, and men. Danger (1968) also states that green is associated with country, coolness, restfulness, and spring. Jacobs and colleagues (1991) studied four cultures of students' perceptions of color associations (Japan, People's Republic of China [PRC], South Korea, and United States) and found that all four cultures associated blue with high quality. According to their study, blue also means sincere, trustworthy, and dependable in Japan and the United States, and sincere and trustworthy in South Korea. They also found that in China these same three characteristics are associated with the color green. In addition, their study found that green is moderately identified with being pure in all societies tested other than the United States, and it also connotes good-tasting and adventurous in Japan and the United States. Furthermore, green was connected to schools in all four nations,

with particularly strong associations in China and South Korea. Finally, their study found that over 50 percent of respondents in all four countries associated green with the label on a can of vegetables.

Unique Responses to Symmetry and Color in Logos of Environmental Companies

Logos are an important marketing component for any organization. However, there are further implications when considering logos for environmental organizations. Whether it is an environmental company working to reduce energy consumption, a product that is environmentally conscious, or a service provided that minimizes environmental impact, all need to have recognizable logos that are easily processed and identified as environmental. This is an important social issue because the future of the environment depends on consumers to choose products and companies that provide environmental benefits, or reduce environmental impact.

It is especially important for environmental companies to consider logo selection carefully, as environmental issues and awareness increases. In order to successfully market their company and have consumers remember their brand, environmental companies need to choose a logo that is both memorable and easily identifiable. This is also a consumer issue because environmental companies need to market themselves well so that people who care about the environment can choose environmentally conscious brands over non-environmental brands.

During the past few centuries, the Earth's environment has suffered major destructive changes, such as depletion of natural resources, damage to the ozone layer, and loss of agricultural land. Mainieri and colleagues (1997) state, "Traditionally, Americans have relied on technological innovations, such as development of alternative fuels, to resolve such dilemmas, rather than changing their behavior patterns and lifestyle choices" (p. 189). The environment has

endured increasing degradation and the time has now come that consumers must start altering their behavior instead of relying on technology to provide solutions for environmental issues. In order to accomplish this, some consumers have become more environmentally conscious and seek products and services that minimize environmental harm.

According to national opinion polls, over the last two decades there have been major increases in environmental concern among Americans (Gallup and Newport, 1990; GfK Group, 2011; Kohut & Shriver, 1989). About seven in ten Americans now say they know a lot or a fair amount about environmental issues and problems, which is up from about five in 10 during the mid-1990s (GfK Group, 2011). Furthermore, surveys by GfK Group (2011) indicate, “Compared with 20 years ago, twice as many Americans recycle (58% in 2011 say they do so on a regular basis), buy green products (29%), and commute in an environmentally friendly manner (18%)” (p. 6). In addition, McCarty and Shrum (2001) state the environment has become an increasingly visible social and political concern in the last 20 years, and issues concerning the environment have attracted researchers in marketing and the social sciences. Some of these issues include understanding underlying consumer motivations and intentions when purchasing environmental products (Bagozzi & Dabholkar, 1994), as well as how environmental companies and products market themselves in order to be seen as “green” (Gázquez-Abad, Jiménez-Guerrero, Mondéjar-Jiménez, & Cordente-Rodríguez, 2011). McCarty and Shrum (2001) conclude, “For the most part, understanding and predicting pro-environmental behavior has proved to be remarkably difficult” (p. 93).

In order to understand environmental marketing, Polonsky (1994) provides a definition stating, “Green or Environmental Marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of

these needs and wants occurs, with minimal detrimental impact on the natural environment” (p. 2). Polonsky (1994) also states that green marketing is important for environmental reasons, as well as consumer and economic reasons, by simply providing the definition of economics. “Economics is the study of how people use their limited resources to try to satisfy unlimited wants” (McTaggart, Findlay, & Parkin, 1992, p. 24). Thus, Polonsky (1994) makes the argument that since organization’s natural resources are limited, they must develop new or alternative ways to satisfy unlimited human wants. Therefore, organizations may turn to environmentally conscious practices in order to fulfill the organization’s selling objectives, while utilizing limited resources and simultaneously satisfying consumers.

In addition to the social pressure of providing environmentally responsible products or services, there is also governmental and competitive pressure. “Governmental regulations relating to environmental marketing are designed to protect consumers in several ways, 1) reduce production of harmful goods or byproducts; 2) modify consumer and industry's use and/or consumption of harmful goods; or 3) ensure that all types of consumers have the ability to evaluate the environmental composition of goods” (Polonsky, 1994, p. 4). For example, the U.S. government places restrictions on organizations’ pollution output in order to protect the environment. In addition, the government attempts to protect consumers by creating regulations on how companies may advertise “green” products, and it helps ensure consumer’s ability to make informed decisions. Furthermore, there is also the added competitive pressure coming from other organizations trying to sell similar products and services. “In many cases firms observe competitors promoting their environmental behaviors and attempt to emulate this behavior. In some instances this competitive pressure has caused an entire industry to modify and thus reduce its detrimental environmental behavior” (Polonksy, 1994, p. 5). Organizations must stay

competitive in their industry. Therefore, many organizations are mimicking the behaviors of others and have begun using environmental marketing tactics to promote their products. This is generally a positive thing for the environment, assuming the products and services advertised are actually providing an environmental benefit or reducing environmental impact. Therefore, it is important for these organizations to create a logo that is fitting for their company and easily recognizable to consumers. If trends are seeing more organizations turning to environmental marketing, it is even more important that the company or product logo is quickly and easily processed so that their product gets chosen over competitors. Environmental marketing has seen a recent rise in popularity. Therefore, organizations need to create easily identifiable logos in order to distinguish themselves from both environmental and non-environmental competitors.

In the present study, it was predicted that symmetrical designs would be preferred over asymmetrical designs because they are processed more quickly and are associated with environmental health. In addition, as much research has suggested, blue is the most preferred color by adults and has implications of nature through associations with the ocean and sky. Furthermore, green is the second most preferred color and is associated with the environment and nature. Thus, green was predicted to prime environmental cues, which would cause participants to prefer the green logo for the environmental company. Therefore, the following were predicted:

H1a: Participants who view symmetrical logo designs will pay more attention to them than participants who view asymmetrical logo designs.

H1b: Participants who view symmetrical logo designs will be more likely to remember them than participants who view asymmetrical logo designs.

H1c: Symmetrical logo designs will be preferred over asymmetrical designs.

H2a: Participants who view green logo designs will find them more appropriate for the environmental company than participants who view blue logo designs.

H2b: Participants who view green logo designs for the non-environmental company will perceive the company more negatively than participants who view blue logo designs.

Method

Design

An online experiment used a 2 (design: symmetrical vs. asymmetrical) X 2 (color: blue vs. green) X 2 (organization: environmental vs. non-environmental) factorial design to assess whether the design elements of symmetry and color create different responses to logos and the organizations they represent, and if any such responses are specific to environmental organizations. Manipulations of the three independent factors were accomplished by varying the logo design elements and company descriptions. Measures of participants' perceptions of the logos and companies were collected using an online questionnaire (see Appendix A).

Participants

Participants ($N = 302$) in the experiment were recruited from the Virginia Tech Department of Communication Research Participation System, which is comprised of undergraduate students from various majors. Participants' age range was 17-28 ($M = 19.74$, $SD = 1.38$), and 52.32% ($N = 158$) of participants were female. Participants received course credit in exchange for taking part in the online experiment.

Stimulus Materials and Independent Variables

Four different versions of a logo design were created for the study, shown in Figures 1-4. Symmetrical and asymmetrical logo designs were created and then colored blue or green according to conditions. An abstract logo design using lines and dots was used because of its plausibility as a logo for a variety of organizations and ability to be easily manipulated into symmetrical and asymmetrical forms. In addition, the organizational logo was described as representing either an environmental or non-environmental organization, with company names and descriptions below each logo. The chosen company names were Infinity Wind Energy and Infinity Coal Energy, and they were described using the same wording with minor substitutions for wind or coal, indicating whether the company was environmental or non-environmental (See Appendix B). Participants were randomly assigned to view one of the eight logo conditions.

Figure 1. Symmetrical green logo.

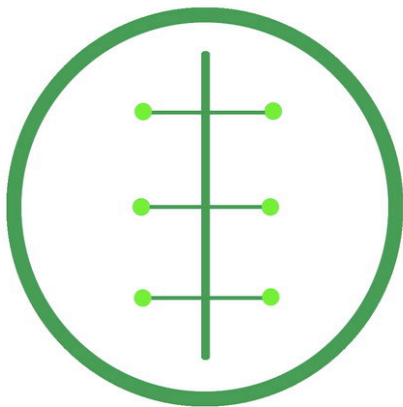


Figure 2. Asymmetrical green logo.

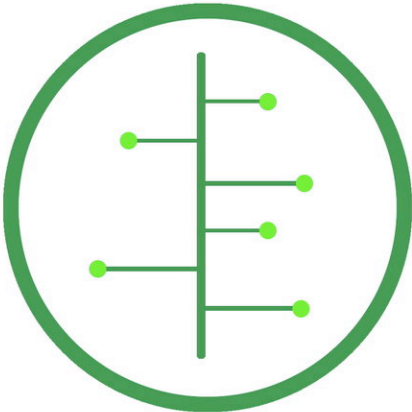


Figure 3. Symmetrical blue logo.

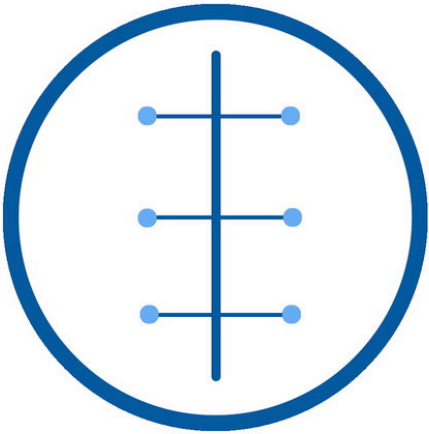
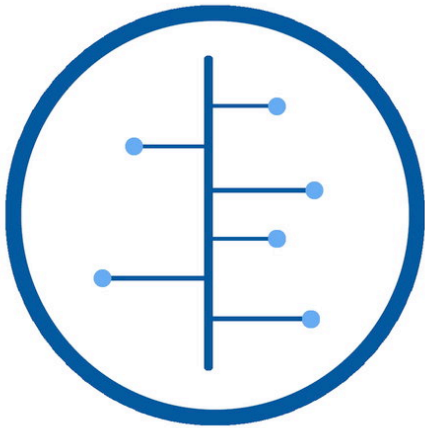


Figure 4. Asymmetrical blue logo.



Dependent Measures

After viewing the logo, participants responded to a series of 7-point Likert type items (1 = strongly disagree, 7 = strongly agree) comprising several indices indicating how strongly they agreed or disagreed with statements about their perceptions of the logo and company. Each index was comprised of multiple items, with indices ranging from two to twenty-six items in length.

Attention Paid. A two-item index measuring the amount of attention paid to the logo and company message ($r = 0.87$) was given following exposure to both the logo and company description. The questionnaire was adapted from Spack, Board, Crighton, Kostka, and Ivory (2012).

Memory. An original four-item memory test was created to measure logo memorability. Participants were asked a series of multiple-choice questions at the end of the study to identify the logo and company they were previously exposed to. Three questions had four possible answers, and one had only two possible answers ($M = 3.87$, $SD = 0.38$).

Logo Liking. An original two-item index asked participants whether they liked or disliked the logo they were exposed to ($r = 0.90$).

Logo Perceptions. A 26-item index measuring reactions to the logo was given following the exposure to the logo (Cronbach's $\alpha = .93$). The questionnaire was based on the Reaction Profile developed by Wells (1964). An additional 26-item index assessed perceptions of the logo (Cronbach's $\alpha = .95$) and was adapted from Leavitt's (1970) Commercial Profile. Both questionnaires asked participants to rate their perceptions on a scale measuring attitudes towards the logo such as attractiveness, meaningfulness, familiarity, etc.

Company Perceptions. Six questionnaires measuring perceptions of the company were given following the exposure to the logo and company description. A ten-item index measured company credibility (Cronbach's $\alpha = 0.84$), a six-item index measured company quality (Cronbach's $\alpha = 0.86$), a six-item index measured company trust (Cronbach's $\alpha = 0.86$), a two-item index measured company popularity ($r = 0.75$), and a 20-item index measured company profitability (Cronbach's $\alpha = 0.95$), all of which were adapted from Newell and Goldsmith (2001), except for the company popularity index which was developed based on information from Wiium, Aarø, and Hetland (2009). Lastly, an original two-item index measured whether the company was environmentally friendly ($r = 0.93$).

Logo and Company Appropriateness. An original two-item index measured whether the logo was appropriate for the given company ($r = 0.88$).

Environmental Appraisal Inventory. An 11-item index designed to collect information on participants' environmental beliefs and attitudes (Cronbach's $\alpha = 0.93$), was adapted from Fridgen's (1994) environmental appraisal inventory.

Other Measures. Participants filled out demographic questions at the beginning of the study regarding age, major, gender, class year, and ethnic group.

Procedure

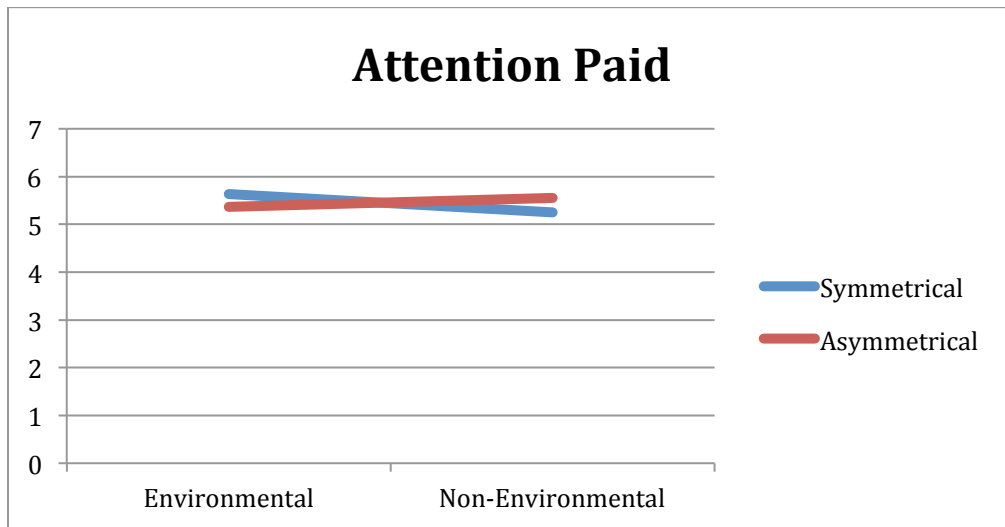
Participants took part in the experiment online. Participants signed up for the study using a departmental research participation website and received course credit for participating. Participants were only allowed to complete the study once and were only exposed to their assigned condition. Participants were able to complete the study from any location and use any computer at their convenience. Consent, debriefing, and assignment of credit were all conducted online according to procedures approved by the university's Institutional Review Board. Participants began the study by answering demographic questions such as age, major, gender, class year, and ethnic group. Participants were randomly assigned to one of eight conditions and first exposed to one of the four logo designs. Participants then answered questions on a 7-point Likert scale about their perceptions of the logo design. Participants were then exposed to the same logo design along with a description of an environmental company or non-environmental company. Participants then answered questions on a 7-point Likert scale about their perceptions of the company. Lastly, participants answered questions concerning their environmental beliefs and attitudes. Participants were then debriefed and thanked for their participation in the study. Course credit was assigned after data collection was complete.

Results

To test the study's hypotheses, a series of analysis of variance (ANOVA) tests were conducted to examine the main and interaction effects of the three experimental factors on each outcome measure, with experiment condition (logo symmetry, logo color, and company type) serving as the independent variables for various ANOVA tests and each questionnaire index included as the dependent variable in separate ANOVA tests. Two-way ANOVA tests examined

the effects of the first three logo perception indices (logo liking, reaction profile, and commercial profile), because participants were not yet exposed to company condition. Three-way ANOVA tests were conducted for the remaining indices after participants had been exposed to company condition.

Logo Attention Paid. H1a predicted that participants who viewed symmetrical logo designs would pay more attention to them than participants who viewed asymmetrical logo designs. An ANOVA with the attention paid index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.01, p = 0.9230$, color $F(1, 294) = 0.77, p = 0.3812$, or company $F(1, 294) = 0.42, p = 0.5180$. Therefore, H1a was not supported. However, there was a significant interaction effect between symmetry and company, $F(1, 294) = 3.96, p = 0.0475$, where the symmetrical environmental produced the highest attention paid scores ($M = 5.63, SE = 0.14$), followed by asymmetrical non-environmental ($M = 5.55, SE = 0.14$), asymmetrical environmental ($M = 5.36, SE = 0.14$), and symmetrical non-environmental ($M = 5.25, SE = 0.14$). (See Figure 5.) All other interaction effects were not significant ($ps > 0.05$).

Figure 5. Interaction effect between symmetry and company type for attention paid.

Memory. H1b predicted that participants who viewed symmetrical logo designs would be more likely to remember them than participants who viewed asymmetrical logo designs. An ANOVA with the memory score index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.03, p = 0.8682$, color $F(1, 294) = 3.67, p = 0.0564$, or company $F(1, 294) = 0.23, p = 0.6302$. Therefore, H1b was not supported. All interaction effects were not significant ($ps > 0.05$).

Logo Perceptions

Logo Liking. H1c predicted that symmetrical logo designs would be preferred over asymmetrical logo designs. An ANOVA with the logo liking index as the dependent measure and logo symmetry and logo color as independent factors found no significant main effects of

symmetry, $F(1, 298) = 1.06, p = 0.3029$, or color $F(1, 298) = 2.83, p = 0.0937$. Therefore, H1c was not supported. The interaction effect was not significant ($p > 0.2404$).

Reaction Profile. While there were no hypotheses about logo perceptions, additional analyses examined general perceptions of the logos. An ANOVA with the logo reaction index as the dependent measure and logo symmetry and logo color as independent factors found no significant main effects of symmetry, $F(1, 298) = 2.34, p = 0.1272$. However, there was a significant effect of color, $F(1, 298) = 12.37, p = 0.0005$ with green ($M = 3.91, SE = 0.07$) perceived more favorably than blue ($M = 3.56, SE = 0.07$). The interaction effect was not significant ($p > 0.3815$).

Commercial Profile. The same pattern of effects was found for the second logo perception measure. An ANOVA with the logo perception index as the dependent measure and logo symmetry and logo color as independent factors found no significant main effects of symmetry, $F(1, 298) = 2.25, p = 0.1343$. However, there was a significant effect of color, $F(1, 298) = 17.79, p < 0.0001$ with green ($M = 2.57, SE = 0.05$) scoring higher than blue ($M = 2.26, SE = 0.05$). The interaction effect was not significant ($p > 0.9883$).

Company Perceptions

Company Credibility. An ANOVA with the company credibility index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.19, p = 0.6668$, color $F(1, 294) = 3.45, p = 0.0644$, or company $F(1, 294) = 1.87, p = 0.1727$. All interaction effects were not significant ($ps > 0.05$).

Company Quality. An ANOVA with the company quality index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.31, p = 0.5770$, color $F(1, 294) = 0.44, p = 0.5055$, or company $F(1, 294) = 1.67, p = 0.1977$. All interaction effects were not significant ($ps > 0.05$).

Company Trust. An ANOVA with the company trust index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.23, p = 0.6310$, color $F(1, 294) = 0.03, p = 0.8550$, or company $F(1, 294) = 0.03, p = 0.8527$. All interaction effects were not significant ($ps > 0.05$).

Company Popularity. An ANOVA with the company popularity index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 1.18, p = 0.2791$, color $F(1, 294) = 0.72, p = 0.3977$, or company $F(1, 294) = 3.45, p = 0.0644$. However, there was a significant interaction effect for symmetry and company, $F(1, 294) = 5.99, p = 0.0150$ where symmetrical non-environmental produced the highest company popularity scores ($M = 4.22, SE = 0.13$), followed by asymmetrical environmental ($M = 3.84, SE = 0.13$), asymmetrical non-environmental ($M = 3.76, SE = 0.13$), and symmetrical environmental ($M = 3.66, SE = 0.13$). (See Figure 6.) There was also a significant interaction effect for color and company, $F(1, 294) = 5.44, p = 0.0204$ where green non-environmental produced the highest company popularity scores ($M = 4.09, SE = 0.13$), followed by blue environmental ($M = 3.95, SE = 0.13$), blue non-environmental ($M = 3.89, SE = 0.13$), and green environmental ($M = 3.54, SE = 0.13$). (See Figure 7.) All other interaction effects were not significant ($ps > 0.05$).

Figure 6. Interaction effect between symmetry and company type for company popularity.

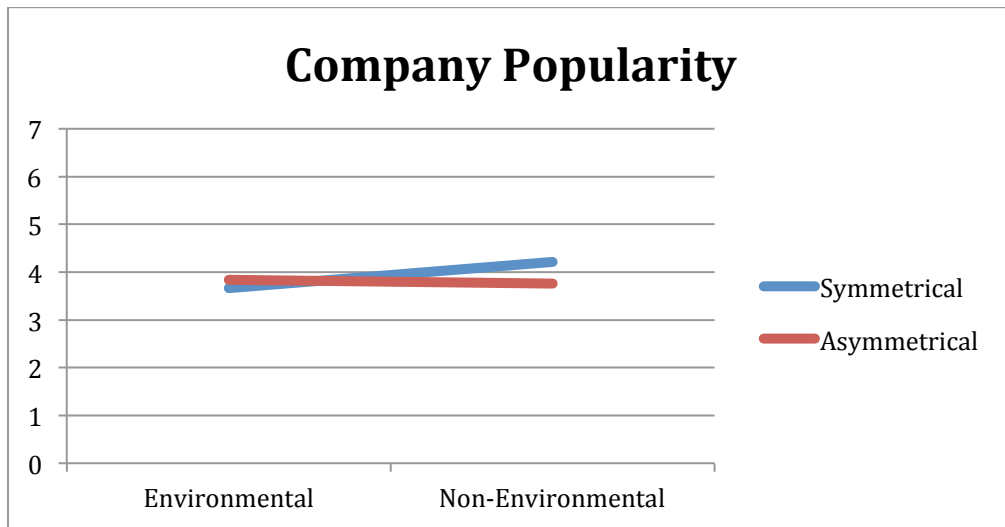
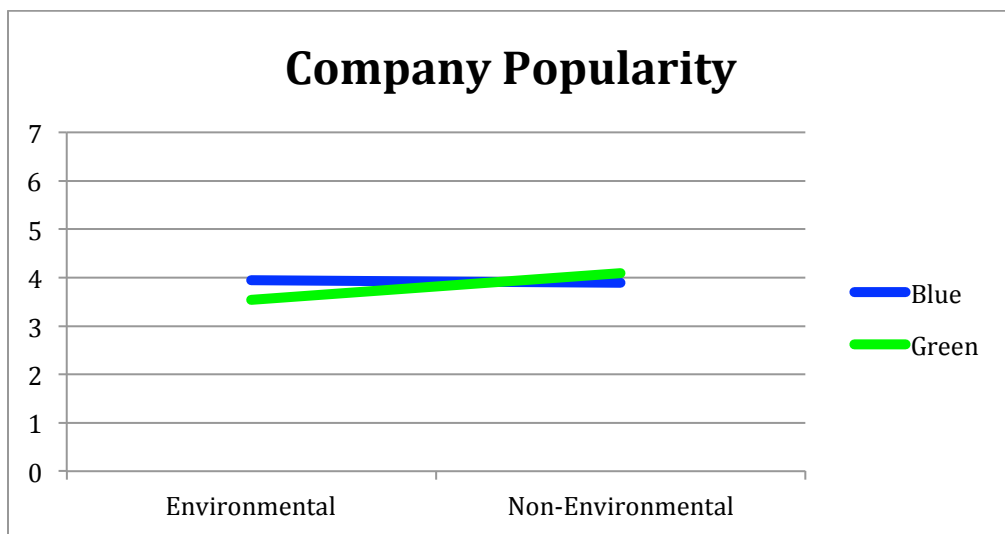


Figure 7. Interaction effect between color and company type for company popularity.



Company Profitability. An ANOVA with the company popularity index as the dependent measure and logo symmetry, logo color, and company type as independent factors

found no significant main effects of symmetry, $F(1, 294) = 0.19, p = 0.6654$, or color $F(1, 294) = 0.22, p = 0.6391$. However, there was a significant effect of company, $F(1, 294) = 10.61, p = 0.0013$ with environmental ($M = 4.46, SE = 0.06$) scoring higher than non-environmental ($M = 4.17, SE = 0.06$). All other interaction effects were not significant ($ps > 0.05$).

Company Environmentalism. An ANOVA with the company environmentalism index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.20, p = 0.6538$, or color $F(1, 294) = 0.54, p = 0.4619$. However, there was a significant effect of company, $F(1, 294) = 142.11, p = 0.001$ with environmental ($M = 5.84, SE = 0.11$) scoring higher than non-environmental ($M = 3.94, SE = 0.11$). There was also a significant interaction effect for symmetry and color, $F(1, 294) = 8.37, p = 0.0041$ where asymmetrical green produced the highest company environmentalism scores ($M = 5.21, SE = 0.16$), followed by symmetrical blue ($M = 5.02, SE = 0.16$), symmetrical green ($M = 4.68, SE = 0.16$), and asymmetrical blue ($M = 4.63, SE = 0.16$). (See Figure 8.) There was also a significant three-way interaction effect for symmetry, color, and company, $F(1, 294) = 4.99, p = 0.0263$ where symmetrical blue environmental produced the highest company environmentalism scores ($M = 5.91, SE = 0.22$), followed by asymmetrical green environmental ($M = 5.87, SE = 0.22$), symmetrical green environmental ($M = 5.82, SE = 0.22$), asymmetrical blue environmental ($M = 5.75, SE = 0.22$), asymmetrical green non-environmental ($M = 4.55, SE = 0.22$), symmetrical blue non-environmental ($M = 4.14, SE = 0.23$), symmetrical green non-environmental ($M = 3.54, SE = 0.2246$), and asymmetrical blue non-environmental ($M = 3.51, SE = 0.23$). (See Figure 9.) The other interaction effect was not significant ($p > 0.05$).

Figure 8. Interaction effect between symmetry and color for company environmentalism.

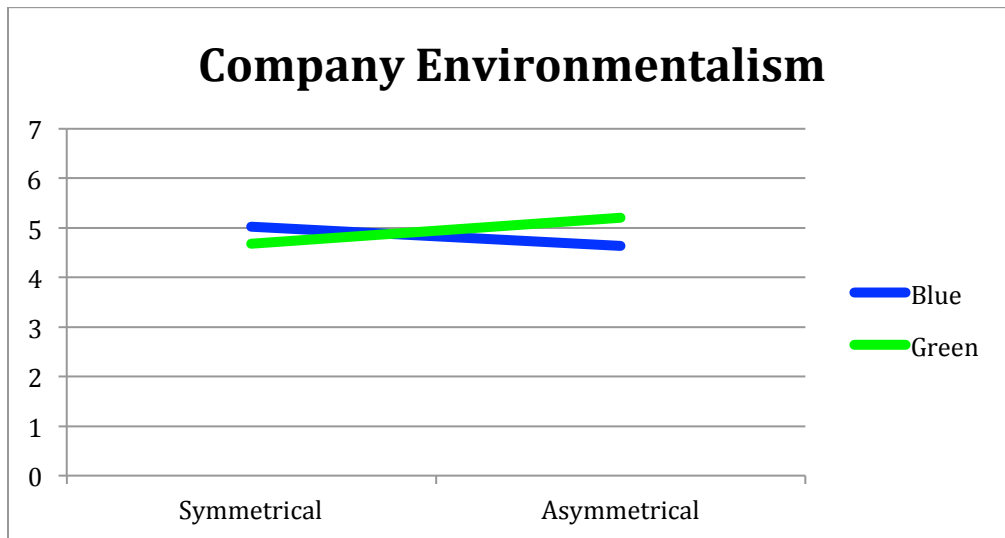
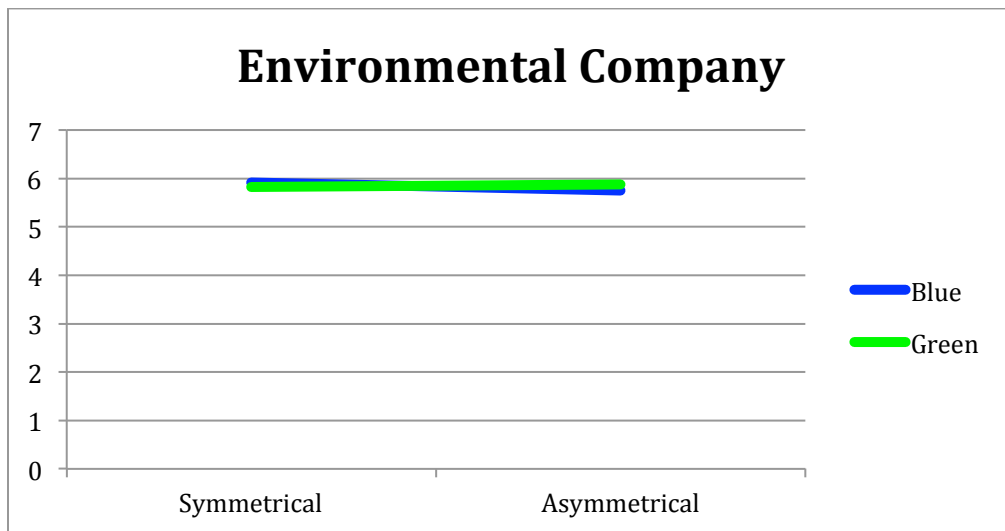
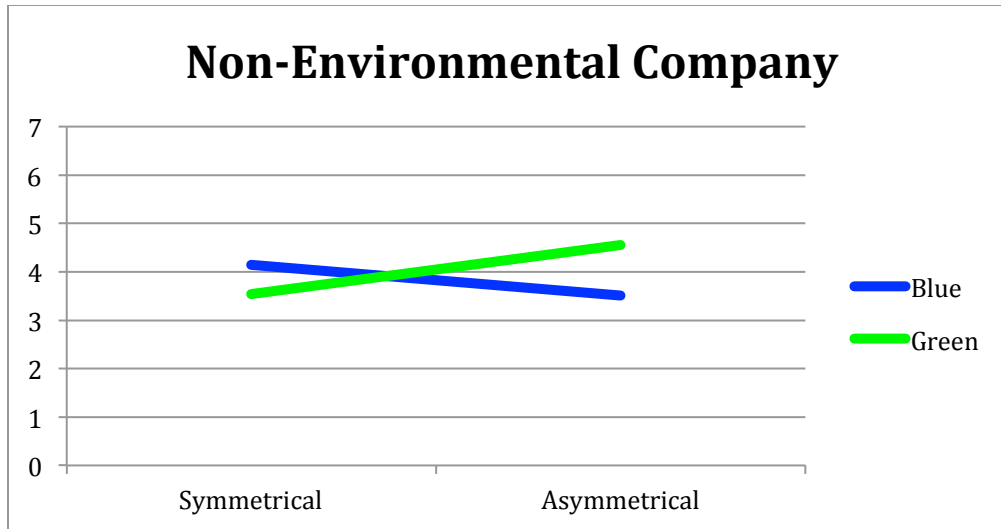


Figure 9. Interaction effect between symmetry, color, and company type for company environmentalism.





Logo and Company Appropriateness. H2a predicted that participants who viewed green logo designs would find it more appropriate for the environmental company than participants who viewed blue logo designs. H2b predicted that participants who viewed green logo designs for the non-environmental company would perceive the company more negatively than participants who view blue logo designs. An ANOVA with the logo and company appropriateness index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.28, p = 0.5970$, or color $F(1, 294) = 2.44, p = 0.1195$. Therefore, H2a and H2b were not supported. However, there was a significant effect for company, $F(1, 294) = 18.03, p = 0.001$ with environmental ($M = 4.58, SE = 0.12$) perceived as more appropriate than non-environmental ($M = 3.84, SE = 0.12$). All other interaction effects were not significant ($ps > 0.05$).

Environmental Appraisal Inventory. While there were no hypotheses about environmental beliefs, additional analyses examined personal responsibility for environmental harm in order to examine whether participants' environmental perceptions were evenly distributed across conditions to rule out alternative explanations for effects of factors observed in

results above. An ANOVA with the environmental appraisal inventory index as the dependent measure and logo symmetry, logo color, and company type as independent factors found no significant main effects of symmetry, $F(1, 294) = 0.97, p = 0.3252$, color $F(1, 294) = 0.32, p = 0.5700$, or company $F(1, 294) = 0.35, p = 0.5520$. Scores tended to be evenly distributed ($M = 3.57, SE = 1.31$). All interaction effects were not significant ($ps > 0.05$).

Summary of Findings

Previous research has examined symmetry, color, and logo design, but has not applied research on those factors in an environmental context. Therefore, the present research expands on this body of knowledge by examining the effects of these variables as applied to environmental logos and non-environmental logos, rather than perceptions of well-known logos or logos with no organizational context as used in previous research. This study provides evidence that effective logo design is difficult to reduce to specific design elements. However, environmental and non-environmental companies can apply some of this research to their logos when attempting to be perceived as more popular, profitable, or environmental.

While much research has suggested that symmetry is processed more quickly than asymmetry (Humphrey, 1924), this study did not find effects of symmetry on the conceptually related measures of self-reported attention or memory. Additionally, research has shown that adults prefer the colors blue and green the most (Eysenck, 1941), but this study found that the green logo was preferred over blue, according to the logo perception indices. Although no hypotheses were supported, this study found other effects that may be valuable to logo designers for both environmental and non-environmental companies.

Seeing as H1a was not supported, this study does not confirm the theory that symmetry is processed more quickly than asymmetry, although there were significant limitations regarding the logo attention paid index, which are addressed in the limitations section. However, there was a significant interaction effect between symmetry and company type that revealed that for the environmental company, if the logo was symmetrical, more attention was paid to the logo and company description. In addition, if the company was non-environmental, more attention was paid if the logo was asymmetrical. This interaction effect is difficult to interpret; therefore there are no conclusive conjectures as to why this pattern occurred.

H1b was not supported; therefore this study did not find evidence that symmetry contributes to more memorability in logos. Memory scores tended to be high, so it can be speculated that the immediacy of answering the memory test questions after recently viewing the logo contributed to high memorability overall.

H1c was not supported; therefore it can be noted that symmetry and color do not necessarily lead to higher likability of a logo. Although the effect of the color manipulation on perceptions of logos was not significant, the numbers indicate an approach to significance with the green logos scoring higher than the blue logos. Furthermore, there was an effect of color on both logo perception indices consisting of the logo reaction profile and logo commercial profile, with green scoring higher than blue for both. Therefore, green logos tend to be perceived more favorably than blue logos, perhaps because the color green primes health and environmentalism, which could be considered trendy topics in a collegiate setting.

Although there were no hypotheses for effects of the experiment factors on company credibility, quality, or trust, additional analyses revealed no significant effects on these outcome

measures, supporting the notion that logo symmetry, color, and company type have a negligible effect on perceptions of company credibility, quality, or trust.

Company popularity was found to be affected by the type of company and whether the logo was symmetrical or asymmetrical. The results indicate that for an environmental company, the company is perceived to be more popular if the logo is asymmetrical, and for a non-environmental company, the company is perceived to be more popular if the logo is symmetrical, which was also found to be the highest scoring symmetry condition for company popularity within this interaction effect. Furthermore, company popularity was found to be affected by the type of company and whether the logo was colored blue or green. Thus, the results suggest that for an environmental company, the company is perceived to be more popular if the logo is colored blue, but for a non-environmental company, the company is perceived to be more popular if the logo is colored green. Therefore, as these results imply, non-environmental companies are perceived to be more popular if their logo is symmetrical, and additionally if their logo is green. However, there were no significant findings suggesting logos should be both symmetrical and green. It is not clear why a symmetrical logo was preferred for the non-environmental condition, but perhaps the green color made the company seem more environmental and thus more popular due to the trendiness of environmental companies and products. In addition, environmental companies are considered to be more popular when their logo is asymmetrical, and additionally if their logo is blue. However, there were no significant findings suggesting logos should be both asymmetrical and blue. It may be that the asymmetrical logo was preferred for the environmental condition due to a more natural looking pattern resembling an actual setting in nature. Furthermore, it is possible that if a company is already considered to be environmental, using a green logo does not further enhance positive

associations of the company, as blue was considered more popular for the environmental company condition.

In addition to the significant effects found for company popularity, the results also indicate a significant main effect of company type on perceptions of company profitability. These results indicate that the environmental company was perceived to be more profitable than the non-environmental company, perhaps because college students believe that companies that participate in environmental initiatives may be more successful or more trendy.

Possibly the most interesting findings in this study were the complex pattern of effects on participants' perceptions of companies' environmentalism. Firstly, there was a predictable main effect for company type, with the environmental company scoring higher than the non-environmental company for perceived company environmentalism. Secondly, there was a two-way interaction effect between symmetry and color, indicating that companies with blue logos are perceived to be more environmental when logos are symmetrical, and companies with green logos as more environmental when theirs are asymmetrical. Finally, there was a three-way interaction effect between symmetry, color, and company type for perceived company environmentalism, which also further explains the previous interaction effect. The results indicate that for environmental companies, all logos elicited consistently high perceptions of company environmentalism. In addition, for non-environmental companies, green asymmetrical logos led to the highest perceptions of company environmentalism. Thus, environmental companies may be seen as slightly more environmental when their logo is blue and symmetrical, and non-environmental companies may be seen as slightly more environmental when their logo is green and asymmetrical. However, it should be noted that perceptions of environmentalism were consistently high regardless of logo design, suggesting that logo characteristics are not

needed to elicit perceptions of environmentalism if a company is already environmental in nature, but for a company that is not environmental in nature, logo characteristics may be able to influence perceptions of environmentalism. It is possible that the green color primes thoughts of nature (i.e., trees and grass) and is also perceived to be more environmental when it is asymmetrical because of a more natural looking pattern that parallels an actual environmental setting. It is not clear why the blue logo was perceived as more environmental when symmetrical.

There was a significant main effect of company type on the extent to which a logo was seen as appropriate for a company, indicating that all logos were found to be more appropriate for the environmental company. Therefore, H2a and H2b were not supported because participants did not perceive the green logo as more appropriate for the environmental company, and did not view a green logo as less appropriate for a non-environmental company. The environmental appraisal inventory index did not find any significant effects of strong or weak environmental attitudes influencing perceptions of the logos or companies. Scores tended to be evenly distributed, indicating participants were a mix of people who feel a strong responsibility of environmental harm and vice versa. Therefore, it can be concluded that participants were not strongly biased in one direction or the other considering environmentalism.

Although no main effects were found for the preference for symmetry on any outcome measures, there were several interaction effects indicating that symmetry is preferred in some logo contexts and for different colors. In addition, there does not appear to be a consistently applicable defining rule for the use of color in logos, as blue was preferred in some conditions and green in others, although green was found to be preferred overall, which may indicate that the use of green is generally beneficial in logo design.

Implications

The results of this research provide useful implications for logo designers and both environmental and non-environmental companies. The present study found that green logos were preferred over blue logos, so logo designers may want to consider the use of green in their logo designs, although blue was preferred in other contexts.

For higher perceived company popularity, environmental companies should consider an asymmetrical logo, for which it can be theorized that asymmetry resembles nature more so than a symmetrical logo. It was also found that if a company is already perceived as environmental, its logo doesn't need to be colored green, as blue was found to be preferred over green in the environmental company condition, but it is not clear as to why. Furthermore, non-environmental companies should consider symmetrical logo designs, as the non-environmental company was perceived as more popular when their logo was symmetrical, for which the cause of this is not clear. In addition, non-environmental companies may consider using a green logo, as the non-environmental company was perceived as more popular when their logo was green, perhaps due to a priming of nature implying that the company may be involved in environmental initiatives, even if not explicitly stated. Additionally, environmental companies were found to be perceived as more profitable in general, which may cause non-environmental companies to consider adding environmental initiatives to their agenda if they wish to be seen as more profitable, which could also potentially lead to more business.

For higher perceived environmentalism, environmental companies should consider using a blue symmetrical logo design. It is theorized that the reason for this is because if a company is already considered environmental, coloring its logo green doesn't make them seem more environmental. This study did not take into account viewing a logo without an organizational

context, so these suggestions are directed at companies using a logo in addition to a company message. Furthermore, non-environmental companies may exploit the use of green asymmetrical logo designs in order to be perceived as more environmental. The reasoning for this may be that the asymmetry leads to perceptions of nature, as well as the green color priming nature cues. However, consumers should beware of this tactic, as non-environmental companies may alter their logo in order to be perceived as more environmental than they are. In this situation, it is important for consumers to read company messages in addition to viewing its logo.

Finally, since all logos were considered to be appropriate for the environmental company more so than the non-environmental company, it can be hypothesized that environmental companies are liked more than non-environmental companies in general. Therefore, as stated previously, companies without environmental initiatives should consider more environmental business practices, as it could lead to more positive perceptions of the company in addition to reducing environmental impact.

Limitations and Future Research

While this research has some interesting findings, limitations are important to consider. Firstly, the logo attention paid index did not really measure the amount of attention paid to the logo alone but was more so aimed at the company message. Therefore, it was difficult to measure whether the symmetrical logos were easier to process than the asymmetrical logos as suggested by previous research. A better measure is needed in order to gauge the amount of time it takes to process symmetry and asymmetry. In addition, the memory index produced relatively high scores for all conditions. Therefore, it was difficult to measure whether the symmetrical logos were more memorable than the asymmetrical logos. Perhaps future studies could conduct a

memory test after a significant amount of time has passed, such as a week, in order to find out if symmetrical logos are more memorable than asymmetrical logos. Furthermore, the logo and company appropriateness index may have limitations regarding the exact definition of appropriate. For this study, the word “appropriate” was intended to mean suitable or fitting for a particular purpose (i.e., the logo is fitting for the company). However, participants may have thought the word “appropriate” had alternate meanings. Future studies should consider choosing different wording or be more specific concerning definitions. Finally, the company credibility, quality, trust, and profitability indices may have measured other concepts than intended due to inclusion of items that may assess other concepts. Future studies should perhaps use original measures in order to examine these variables more specifically, rather than within indices.

This research used fictional logos and companies. Therefore, future research may consider using real logos and companies in order to measure perceptions of professional logo designs and company messages for different types of organizations. In addition, the logos in this study were accompanied by a company message, which may have affected perceptions of the logo or company. Therefore, future studies could attempt to measure perceptions of the logo and company without a description to see if the logo by itself produces different company perceptions.

Another notable limitation was the online experimental setting. Perhaps if participants were in a real purchasing situation, their perceptions of the logos and companies would be different in a more realistic context.

Finally, this study only used blue and green colors found on the generic color palette in Adobe Photoshop. Therefore, color saturation, tone, shade, and hue were not taken into account. In addition to measuring effects of other colors besides blue and green, future research should

take into account the saturation, tone, shade, and hue of the colors being used, as previous research has suggested (Labrecque et al., 2013).

Conclusion

Logos are a very important part of marketing for organizations and have the potential to make all the difference when attracting consumers. Although many studies have discussed the design elements of symmetry and color, this study attempted to contribute to these existing areas of research by applying these design elements to logos. In addition, this study has specific implications for environmental organizations, because it tested these elements as applied to environmental and non-environmental logos, in order to see which are preferred. Although no hypotheses were supported, environmental and non-environmental companies can still use this knowledge to better design their logos if they wish to be perceived more popular, profitable, or environmental. It is also useful to see the implications for non-environmental companies and that coloring their logo green has an effect on their brand or image. If nothing else, this study has provided some insight into logo design elements and how logos are processed by consumers.

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Appendix A: Experiment Questionnaire

To begin the study, please answer the questions below.

1. What is your age?
2. What is your major?
3. What is your gender?
4. What is your class year at Virginia Tech (Freshman, Sophomore, Junior, Senior)?
5. What is your race/ethnicity?

Please rate (1-7) your level of agreement with the following statements:

Logo Reaction Profile:

The logo I viewed was:

1. Attractive
2. Easy to understand
3. Exciting
4. Strong
5. Appealing
6. Sharp, bright, clear
7. Interesting
8. Common
9. New, different, lively
10. Meaningful
11. Worth looking at
12. Easy to remember
13. Important to me
14. In good taste
15. Fascinating
16. Simple
17. Convincing
18. Comforting
19. Gentle
20. Funny
21. Beautiful
22. Worth remembering
23. Pleasant
24. Fresh
25. Colorful
26. Honest

Logo Commercial Profile:

The logo I viewed was:

1. Exhilarating
2. Vigorous
3. Enthusiastic
4. Energetic
5. Excited
6. Merry
7. Jolly
8. Playful
9. Joyful
10. Amusing
11. Humorous
12. Important for me
13. Helpful
14. Valuable
15. Meaningful for me
16. Worth remembering
17. Convincing
18. Lovely
19. Beautiful
20. Gentle
21. Serene
22. Tender
23. Sensitive
24. Familiar
25. Well-known
26. Saw before

Logo Liking:

1. I like this logo
2. I dislike this logo

Company Credibility:

1. The information the company presents is useful
2. The information presented is clear and easy to understand
3. The information presented is trustworthy
4. This information is convincing
5. The information presented makes me want to buy this company's product
6. The information the company presents is not useful
7. The information presented is difficult to understand
8. I do not trust the information presented

9. This information is not convincing
10. The information presented does not make we want to buy this company's product

Company Quality:

1. This is a high-quality product
2. I would buy this product
3. I would recommend this product to others
4. This product is low-quality
5. I would not buy this product
6. I would not recommend this product to others

Company Trust:

1. This company demonstrates expertise in their industry
2. This company is trustworthy
3. This company is honest
4. This company is not an expert in their industry
5. I do not trust this company
6. This company is dishonest

Company Popularity:

1. This company's product is popular
2. This company's product is unpopular

Company Profitability:

1. I feel good about this company
2. I admire and respect this company
3. I trust this company
4. This company's products are high quality
5. This company's products are innovative
6. This product is a good value for the money
7. This company stands behind its products and services
8. This company has excellent leadership
9. This company capitalizes on market opportunities
10. This company has a clear vision for the future
11. This company is well-managed
12. This company is an appealing workplace
13. This company's employees are talented
14. This company could out-perform its competitors
15. This company has a record of profitability
16. This company is a low risk investment
17. This company has good growth prospects
18. This company supports good causes

19. This company is an environmental steward
20. This company treats people well

Company Environmentalism:

1. This company is environmentally friendly
2. This company is not environmentally friendly

Attention paid:

1. I looked carefully at this company's message
2. I didn't pay much attention to the company's message

Logo and Company Appropriateness:

1. This logo is a good fit for this company
2. This logo is not a good fit for this company

Memory Test:

1. What type of organization did you previously view?
 - A. Coal company
 - B. Solar company
 - C. Electric Wind
 - D. Oil company

2. What color was the logo you previously viewed?
 - A. Blue
 - B. Red
 - C. Green
 - D. Yellow

3. What shape was the logo you previously viewed?
 - A. Circle
 - B. Square
 - C. Rectangle
 - D. Octagon

4. Was the logo you viewed symmetrical?
 - A. Yes
 - B. No

Environmental Appraisal Inventory:

Please rate how much personal responsibility you feel for the existence of each hazard (mark one response): No Responsibility, Minimal, Mild, Moderate, Strong, Very Strong, Extreme

1. Chemical dumps
2. Pollution from factories
3. Pesticides and herbicides
4. Radioactive fallout
5. Water pollution
6. Change to the ozone caused by pollution
7. Pollution from burning rubbish
8. Pollution from cars
9. Impure drinking water
10. Acid rain
11. Fumes or fibers from synthetic materials (e.g. asbestos, carpets, plastics)

Appendix B: Company Descriptions

Environmental Company: We are Infinity Wind Energy. Our company provides energy using wind power. We specialize in using wind power to produce electricity for the surrounding areas, and hope to expand to more regions soon.

Non-environmental Company: We are Infinity Coal Energy. Our company provides energy using coal power. We specialize in using coal power to produce electricity for the surrounding areas, and hope to expand to more regions soon.