

THE IMPORTANCE AND EFFECT OF COLOR IN PRINT ADVERTISING

A THESIS

Presented to

The Faculty of the Department of Economics and Business

The Colorado College

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Arts

By

Meredith Ballard

May 2012

THE IMPORTANCE AND EFFECT OF COLOR IN PRINT ADVERTISING

Meredith Ballard

May 2012

Economics

Abstract

Advertising plays a huge role in the society that is present today. Advertising has evolved as society and technology have evolved, catering to what pleases the product's audience best. In just one lifetime the strategies used within the advertising industry have changed tremendously, one of the biggest changes seen within the past century was the introduction of color into print advertisements. The importance of using color in print advertisements as well as what colors are most effective is explored in this study. This study specifically looks at how large of a role an individual's age, gender, socio-economic status, and geographic affiliation plays in color preferences. A survey was taken by 254 participants from different backgrounds both geographically and socio-economically. The data collected from the survey was then analyzed both quantitatively and qualitatively. An analysis of variance was conducted on the quantitative data, as well as t-tests. Coding and categorizing was used to analyze the qualitative data. The aim of this study was to provide practical information about what colors are most effective in advertisements today.

KEYWORDS: (Advertising, Color, Print Advertisements)

I would like to thank my thesis advisory, Larry Stimpert, for all of his help and support during this project. I would also like to thank the statistical coordinator, Jeff Moore, for his help. Lastly I would like to thank all individuals who participated in this study.

TABLE OF CONTENTS

ABSTRACT

ACKNOWLEDGEMENTS

1	INTRODUCTION	1
2	LITERATURE REVIEW	4
2.1	Why is studying color important?.....	4
2.2	Why Color Matters vs. Black and White Advertisements.....	6
2.3	The Use of Color in Packaging, Brand Logos, and Store Front Design.....	8
2.4	Color in Advertisements.....	11
2.5	Gaps in Research.....	16
2.6	Gender Difference.....	16
2.7	Geographic Regions.....	18
2.8	Socio-Economic Status.....	20
2.9	Age.....	20
2.10	This Study.....	21
3	METHODOLOGY	22
3.1	Similar Studies Methodology: The Model.....	23
3.2	Sample Population.....	26
3.3	Analysis of the Survey Data.....	35
4	DATA AND RESULTS	37
4.1	Quantitative Analysis.....	38
4.2	Question 1.....	38
4.3	Question 2.....	39
4.4	Question 3.....	41
4.5	Question 4.....	42
4.6	Question 5.....	43

4.6	Question 7.....	43
4.7	Question 8.....	45
4.8	Question 11.....	45
4.9	Question 12.....	46
4.10	Question 13.....	47
4.11	Tables of Significant Findings.....	49
4.12	Tables of Findings – Not Necessarily Significant In An ANOVA.....	52
4.13	Qualitative Analysis.....	53
4.14	Color Association.....	53
4.15	Orange.....	54
4.16	Red.....	56
4.17	Blue.....	57
4.18	White.....	59
4.19	Green.....	60
4.20	Heat Maps.....	61
	4.20.1 Lego Heat Maps.....	62
	4.20.2 Nike Heat Maps.....	67
4.21	Most Memorable Advertisements.....	70
4.22	Conclusion.....	72
5	CONCLUSION.....	76
5.1	Summary of Findings.....	79
5.2	Future Research.....	81
5.3	Practical Implications.....	83
5.4	Conclusion.....	84

LIST OF TABLES

4.1	Analysis of Variance: Age 23-32 – Green, White, Red, & Blue.....	39
4.2	Analysis of Variance: Northeast Region of the United States – Green vs. Blue.....	40
4.3	Analysis of Variance: Ages 46-60 – Green vs. Blue	41
4.4	Analysis of Variance: Western Region of the United States – Red vs. Green	44
4.5	Analysis of Variance: Lower Class Economic Group – Red vs. Green.....	44
4.6	Analysis of Variance: Ages 23-32 – Red vs. Green.....	45
4.7	Analysis of Variance: Gender Preferences – Mascara Advertisements.....	46
4.8	Analysis of Variance: Southern Region of the United States – iPod Advertisements.....	48
4.9	Analysis of Variance: Midwest Region of the United States – iPod Advertisements.....	48
4.10	Statistically Significant Color Preferences: Economic Groups.....	49
4.11	Statistically Significant Color Preferences: Geographic Affiliation.....	50
4.12	Statistically Significant Color Preferences: Age Groups.....	51
4.13	Statistically Significant Color Preferences: Gender.....	51
4.14	Popular Colors: Geographic Affiliation.....	52
4.15	Popular Colors: Economic Groups.....	52
4.16	Popular Colors: Gender.....	52
4.17	Popular Colors: Age.....	53
4.18	Words Highly Associated with Orange.....	55

4.19 Words Highly Associated with Red..... 57

4.20 Words Highly Associated with Blue..... 58

4.21 Words Highly Associated with White..... 59

4.22 Words Highly Associated with Green..... 61

LIST OF FIGURES

2.1 Dimensions of Arousal.....	13
3.1 Participant Information Collection Questions.....	28
3.2 Marlboro Advertisement 1: Green, Red, White, & Blue.....	29
3.3 Nike Advertisement 1: Most Appealing Area.....	30
3.4 Marlboro Advertisement 2: Color vs. Black & White.....	31
3.5 Lego Advertisement Part 1: Most Appealing Area.....	32
3.6 Lego Advertisement Part 2: Most Memorable Part.....	33
3.7 Most Memorable Advertisement.....	33
3.8 Color Association – Red.....	34
3.9 iPod Advertisement – Pink, Blue, Green, & Red.....	35
4.1 Female Heat Map – Highly Focused on Boys Face.....	62
4.2 Male Heat Map – Focused on both Face and Car.....	63
4.3 Lower Class Heat Map – focused Heavily on Car and Face.....	64
4.4 Working Class Heat Map – Increased Number of Focal Points.....	64
4.5 West Coast Heat Map – Focused on Car, Face, & Duplo Symbol.....	65
4.6 Southern Region Heat Map.....	66
4.7 Heat Map: Ages 18-22.....	68
4.8 Heat Map: Ages 23-32.....	68
4.9 Heat Map: Midwestern Region of the United States.....	69
4.10 Heat Map: Southwest Region of the United States.....	69

CHAPTER I

INTRODUCTION

Advertising has been around for as long as people have been consumers, although taking shape in many different forms. Advertising has evolved as society and technology have evolved, catering to what pleases the product's audience best. In just one lifetime the strategies used within the advertising industry have changed tremendously, one of the biggest changes seen within the past century was the introduction of color into print advertisements.

Studies have documented the importance of color in advertising effectiveness. While many studies highlight the effectiveness of using color in an advertisement, there has been a lack of research regarding color preference across gender, socio-economic status, and geographic regions. The purpose of this study is to determine how effective the use of color is in advertisements, and why certain colors are more effective to use in advertisements than others. This study asked if certain colors are more appealing to certain audiences and if there is difference in color preference depending on gender, socio-economic status, and geographic location. In the final results, participant's age was included as well.

This study used a survey to capture the data needed. Individuals took part in different sections of the survey, all with different purposes. One section of the survey asked participants to submit one word that they most associate with the colors; green,

blue, white, red, and orange. The purpose of this was to see if particular individuals have different meanings for a specific color. In a study done by Trueman, it was concluded that individuals from different cultures had different color preferences because they had different meanings for different colors.¹ This study also looked to see if preferences between black and white or color advertisements are influenced by gender, socio-economic status, or geographic affiliation. Sparkman and Austin note the importance of using color in an advertisement as it attracts viewers more than a black and white advertisements do, but does this finding apply to people from different regions or socio-economic backgrounds?² Luckiesh points out that women are more attracted to red while men prefer blue.³ While his study was done in 1927 it is interesting to see from this study's results if this finding is still applicable to modern society. Many different advertisements that are for the same product but have different color schemes are shown in the survey, asking the participants to choose which one they like more. Hoyenga and Wallace found that different genders choose to pick out specific colors in an advertisement.⁴ The survey in this study will show participants an advertisement, then ask them to write down what they remember about it, with the purpose of looking at different color meanings that differ based on gender, socio-economic status, or geographic affiliation. Another type of question asked participants

¹ Trueman, John. "Existence and Robustness of the Blue and Seven Phenomena." *Journal of General Psychology* 101, no. 1 (1979): 23.

² Sparkman, Richard, Jr., and Larry M. Austin. "The Effect on Sales of Color in Newspaper Advertisements." *Journal of Advertising* 9, no. 4 (1980): pp. 39-42.

³ Luckiesh, M. *Light and Color in Advertising and Merchandising*. New York: D. Van Nostrand Company, Inc., 1927.

⁴ Hoyenga, Katherine Blick, and Benjamin Wallace. "Sex Differences in the Perception of Autokinetic Movement of an Afterimage." *Journal of General Psychology* 100, no. 1 (1979): 93.

to click on the part of an advertisement that appealed to them most. Finally participants were asked to write down what advertisement they remember most from the entire survey and what about that advertisement they specifically remembered.

This study aims to find if people from different areas of the United States, coming from different socio-economic backgrounds and different genders will like different advertisements with the sole reason being color preference.

The results of this study build upon the previous research that is presented in the next chapter and while some results are consistent with previous studies new findings are highlighted, specifically the importance of the color green in the population of participants. The implications to the business world that results from this will allow advertising agencies better target the correct audience as well as more effectively gain the attention of a larger population.

CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to review the literature that has examined the importance of color use in advertisements. This chapter first identifies why studying this particular characteristic of an advertisement is important. It then goes on to review the literature that explains the differences between advertising with color as opposed to only black and white. This section then looks further into other mediums in which color is important, such as packaging, brand logo, and storefront designs. Next the importance of color in advertisements today is examined. The last three sections of this chapter review the literature that directly pertains to this study's research question, specifically to determine the significance of specific colors to certain individuals. There is a substantial literature about the importance of using color in an advertisement, but little research has been done on what effect gender, geographic background, socio-economic standing, or a combination of these variables could have on color preference in advertisements.

Why is studying color important?

The reason why certain companies choose to advertise their products is to gain recognition from the public, which will hopefully lead to an increase in sales. So if an advertising company wants to increase attention given to a product it will try whatever it can to do so. When color printing was first introduced this was a new way for

advertising agencies to increase attention to a product. Color isn't only pleasing to look at but it is proven that it can create a biological response that can produce emotional responses and increase attention being given to the advertisement.¹

Color is incredibly important in not only the advertising world, but the corporate world as well. This is apparent in the Lanham Act, which protects specific product colors in the United States as trademarks.² Colors can be very brand specific and therefore hold a lot of meaning to a specific company, for example the color red is highly associated with the Coca-Cola and McDonalds. Color is one of the means that a company can create, maintain and change its brand image in the consumer's eye.³ One way that companies can use color to alter their brand image is to look at the meanings associated with specific colors, and by choosing colors whose meaning best correlates with the brand image is a way a company can use color to its advantage.⁴ For example, a study done by Cimbalò, Beck, and Sendziak examined how second and third grade students associated colors with specific meanings. They found that the students associated yellow, blue, and orange with happiness, and red, black, and brown with sadness.⁵ Interestingly enough, another study done by Madden, Hewett, and Roth suggested that colors run along a spectrum ranging from active, hot, vibrant, to calming,

¹ Bellizzi, Joseph A., Ayn E. Crowley, and Ronald W. Hasty. "The Effects of Color in Store Design." *Journal of Retailing* 59, no. 1 (1983): 21.

² Madden, Thomas J., Kelly Hewett, and Martin S. Roth. "Managing Images in Different Cultures: A Cross-National Study of Color Meanings and Preferences." *Journal of International Marketing* 8, no. 4 (2000): pp. 90-107.

³ Ibid.

⁴ Ibid.

⁵ Cimbalò, Richard S., Karen L. Beck, and Donna S. Sendziak. "Emotionally toned pictures and color selection for children and college students." *Journal of Genetic Psychology* 133, no. 2 (1978): 303-304.

gentle, and peaceful.⁶ Colors didn't necessarily have to be placed at one extreme but could gain meaning within the middle as well. The important point being that colors have specific meanings, and advertisers need to be aware of those meanings and use them to their advantage. Along similar lines, Edell and Staelin found that the use of pictures in ads is inevitable.⁷ If such use is inevitable, advertisers need to be aware of that and must pay attention to how to create their advertisements with pictures in the best way possible. Color can be used in more than just conveying a meaning or message, it has been suggested that certain colors are also capable of getting the attention of individuals. This is defined as the approach orientation of a color and how well a color is able to encourage attention both during and after it has been exposed.⁸

Why Color Matters vs. Black and White Advertisements.

As mentioned above, different meanings are attached to different colors. This section will jump further into why agencies should decide on using color over black and white advertisements. Sparkman and Austin found that using color as opposed to black and white in specific advertisements was effective. The problem that was introduced in this study was quantifying how effective color actually was, and if it was effective enough that it was worth the extra cost of printing in color.⁹ While most people find color to be prevalent in advertisements they see on a daily basis, what most individuals forget are

⁶ Madden, Hewett, and Roth, 90-107.

⁷ Edell, Julie A., and Richard Staelin. "The Information Processing of Pictures in Print Advertisements." *Journal of Consumer Research* 10, no. 1 (1983): pp. 45-61.

⁸ Bellizzi, Crowley, and Hasty, 21.

⁹ Sparkman, Richard, Jr., and Larry M. Austin. "The Effect on Sales of Color in Newspaper Advertisements." *Journal of Advertising* 9, no. 4 (1980): pp. 39-42.

the many color-less advertisements in the newspaper. At what point is paying that extra money for a color advertisement in a newspaper worth the return you're going to get out of it?

Gardner and Cohen specifically studied the impact of color in newspaper advertising and concluded that 74% of women preferred color ads to black and white advertisements, and 70% of those women associated color ads with higher status stores.¹⁰ It was decided that even in newspapers where there are many black and white advertisements, that color makes the product more interesting and attractive. It should also be noted that their study found that the status of an object would increase if it were advertised in color.¹¹ It is also suggested that the amount of color used in an advertisement is dependent upon the viewer. For example in a study done by Meyers-Levy and Peracchio, it was found that there are three options for color in an advertisement. First the advertisement can be plain black and white. Second it could be in full color and lastly, it could be in black and white and be highlighted with just a little color.¹² It was suggested that one should use color in advertisements when that color will help the advertisement with the message it is trying to get across and therefore reinforces the ad.¹³ If it does not reinforce the message or attitude of the ad then the color should be used wisely. The use of highlighting in an advertisement is also

¹⁰ Gardner, Burleigh B., and Yehudi A. Cohen. "ROP Color and Its Effect on Newspaper Advertising." *Journal of Marketing Research* 1, no. 2 (1964): pp. 68-70.

¹¹ Ibid.

¹² Meyers-Levy, Joan, and Laura A. Peracchio. "Understanding the Effects of Color: How the Correspondence between Available and Required Resources Affects Attitudes." *Journal of Consumer Research* 22, no. 2 (1995): pp. 121-138.

¹³ Ibid.

discussed. This is when an advertisement uses only some color within a black and white advertisement. This use of color is beneficial because it removes the distraction that color can have on an advertisement, while at the same time still reduces the effort that the viewer has to put in to pick out what is important in the ad, it essentially “highlights” what needs to be paid attention to.¹⁴

The Use of Color in Packaging, Brand Logos, and Store Front Design.

Not only has the impact of using specific colors been studied in advertising, but it has been suggested that colors can impact consumer choice in other realms such as packaging, brand logos, and in store front design. Ronald Alsop found that when Microsoft changed its packaging from forest green to a bright red with blue to catch consumers’ eyes better he discovered that most consumers didn’t associate green with software but rather vegetables.¹⁵ Microsoft’s design director Patricia McGinnis was quoted saying, “Packaging is where the software war may be won or lost.”¹⁶ It is also suggested that people “taste with their eyes,” making color decisions on packaging even more important in the food industry.¹⁷

An example of this is when Barrelhead Sugar-Free Root Bear changed the color of its cans from beige to blue and consumers were convinced the beverage tasted more like old-fashioned root beer even though nothing changed except the packaging.¹⁸ The

¹⁴ Ibid.

¹⁵ Alsop, Ronald. "Color Grows More Important In Catching Consumers' Eyes." *The Wall Street Journal* (1984): 1.

¹⁶ Ibid

¹⁷ Ibid.

¹⁸ Ibid.

designers who revamped the root beer can were also responsible for changing Canada Dry's sugar-free ginger ale can to green and white from the red can it was in before. Sales shot up more than 25%, and Berni Corp, the designers, believed that the red can was unsuccessful because it was too much like a cola can.¹⁹ Using colors to target a specific audience is also a reason why color on packaging is so important. For example, most women are the ones in a household who are doing the grocery shopping, so creating packaging that appeals to that target audience is something companies are doing. For example, while Mrs. Field's cookies could have made its logo brown and beige, the color of most of their cookies, they decided on a red logo that seemed more stylish and would appeal to their target audience, women.

Different colors mean different things to consumers as stated before, but it is interesting to look at what different colors mean in the context of packaging. For example, black has become a popular color to use in packaging in recent years because it suggests quality and elegance.²⁰ Another example of how changing a product's packaging color can be beneficial is looking at Ty-D-Bol's toilet bowl cleanser. The bottle was changed from light blue and green to white letters on a dark background. The color consultant in charge of that change, James Mandle, believed that the color change would exude characteristics of strength and cleanliness and that the previous package was weak.²¹ The results seemed to show that Mandle was right, in an 18 month time

¹⁹ Ibid.

²⁰ Ibid.

²¹ Laney, R. "Does orange mean cheap?" *Forbes* 148, no. 14 (1991): 144-147.

period after the packaging was changed, sales jumped 40%.²² Another example of how color on packages can have an impact on sales is one that involves Nabisco's Honey Maid Graham Bites. The new product's sales were slow when first introduced, the packaging was identified as the source of the poor sales and once the package was changed from blue to yellow, sales began to skyrocket.²³

Color choice has also been proven to be important in brand logos as well. A good example of this is the McDonald's brand logo. Many people associate the fast food chain with red and yellow, and those colors have been so successful that it has gotten to the point where consumers think that restaurants that don't have at least some red and yellow in their logo don't serve fast food.²⁴ One downfall of associating a specific brand with a certain color or combination of colors is that the meaning of colors can change in different cultures. For example the red and yellow logo in the United States can remind consumers of McDonalds, but red and yellow separately or together can have a different meaning in a different culture.²⁵ This is a warning to certain companies to make sure that their brand logo maintains a positive image no matter what culture it is introduced into.

Retail store design is another area where color can have a huge effect on consumer attitudes. Bellizzi, Crowley, and Hasty concluded that color was associated

²² Ibid.

²³ Ramirez, Anthony. "Lessons in the Cracker Market, How Nabisco Saved New Graham Snack." *New York Times* (1990)

²⁴ Alsop, Ronald. "Color Grows More Important In Catching Consumers' Eyes." *The Wall Street Journal* (1984): 1.

²⁵ Madden, Hewett, and Roth, 90-107.

with physical attraction.²⁶ They found that despite what colors an individual prefers, people are physically drawn to warm colors, but find environments with plenty of warm colors to be overbearing and unpleasant.²⁷ Red environments were seen as being negative and tense, so the suggested method for store fronts was to use warm colors like red to draw the customer into the store, but that the interior of the store needs to have cool colors like blue and green because they are more relaxing.²⁸

While all of these studies on packaging, brand logos, and store front design are interesting, the most important part is how the research can be used in this study. Packaging colors need to appropriately compliment their product, for example green didn't work out well with Microsoft as most people associated that color with vegetables instead of software. It is interesting to see how participants in the study reacted to warm and cool colors, if they disliked advertisements with too much red because it causes tension, or were drawn to more cool color advertisements that suggest relaxation.

Color in Advertisements

The importance of color in an advertisement today is inescapable. It has gotten to the point where companies are paying color consultants thousands of dollars to tell them what colors they should use in their advertisements and which colors will make their products stand out from the competition.²⁹ One of the most important characteristics of

²⁶ Bellizzi, Crowley, and Hasty, 21.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Alsop, 37.

color is that it is capable of bringing forward different emotions, and if used correctly color can elicit a certain kind of attitude toward the product that is being advertised.³⁰ Since color is so vital in advertisements it is important for a company to know how to use it to its advantage. For example, how important hue is when considering an advertisement. According to Bellizzi et al. red backgrounds in an advertisement bring forth feelings of arousal more so than blue backgrounds.³¹ While the consumer is aroused and more excited around red colored backgrounds, blue colored backgrounds are better liked compared to products that are placed on a red-colored background.³² In a study done by Gorn et al. it is suggested that there are two different dimensions of arousal one may feel when looking at an advertisement. One dimension goes from boredom to excitement, while the other goes from tension to relaxation. The following figure, Figure 2.1, is one presented by Gorn et al. to show the different dimensions of arousal

³⁰ Lee, Seonsu, and James H. Barnes. "Using color preferences in magazine advertising." *Journal of Advertising Research* 29, no. 6 (1989): 25-30.

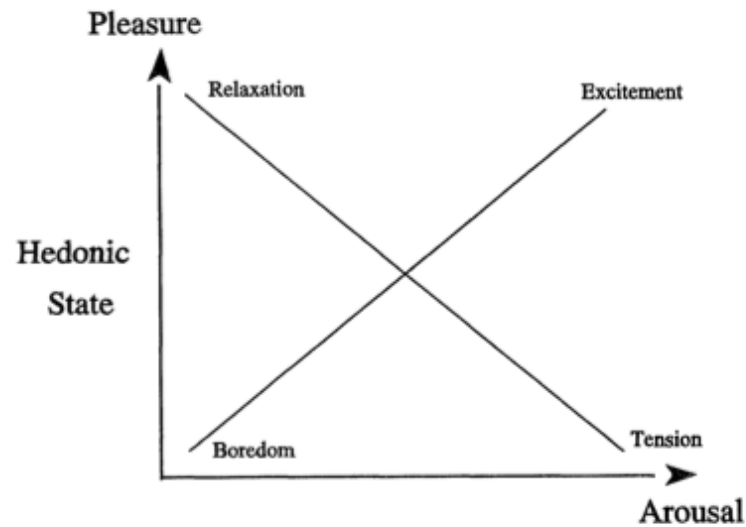
³¹ Bellizzi, Crowley, and Hasty, 21.

³² Ibid.

FIGURE 2.1

Dimensions of Arousal

Figure 1 Apter's Two-Dimensional Framework of Arousal: Excitement, Relaxation, and Hedonic State



Source: Gorn, Gerald J., Amitava Chattopadhyay, Tracey Yi, and Darren W. Dahl. "Effects of Color As an Executional Cue in Advertising: They're in the Shade." *Management Science* 43, no. 10 (1997): pp. 1387-1400.

Gorn et al. also suggest that higher levels of value in a color will increase levels of relaxation. They also suggest that chroma levels in a color affect excitement.³³ The following are the definitions given by Gorn et al. for value and chroma levels.

"Chroma refers to saturation; highly saturated colors have a greater proportion of pigment in them. Low chroma colors are dull and high chroma colors are rich and deep."³⁴ "Value is the degree of darkness or lightness of the color and relative to a

³³Gorn, Gerald J., Amitava Chattopadhyay, Tracey Yi, and Darren W. Dahl. "Effects of Color As an Executional Cue in Advertising: They're in the Shade." *Management Science* 43, no. 10 (1997): pp. 1387-1400.

³⁴ Ibid.

neutral scale that extends from pure black to white. Low value are “blackish” as if the color black was mixed into the pigment.”³⁵ Their study proposes if advertisers want to make the viewer of an advertisement feel relaxed, for a resort advertisement as an example, the advertisement should have a higher value color but one that is also not lower chroma.³⁶ To create excitement in an advertisement high chroma colors should be used. It is also stated that white has a very calming effect as it produces the least amount of tension. This is one of the reasons why Gorn et al. suggest that pastels have a very relaxing effect on the viewer.³⁷ The best dimension that a viewer can be in is to be both excited and relaxed at the same time, this state allows the viewer to be intrigued by what they see without the tension that some excitement creates. With that being said, Gorn et al. found that high levels of chroma influence feelings of excitement, while high value levels influence feelings of relaxation and the combination of the two is the ideal color to use in advertisements.³⁸ This means that most colors can elicit that desired feeling of being excited while still being relaxed if they have the appropriate chroma and value levels.

Keeping the viewer in a relaxed state is very important because tension that the viewer feels while observing the advertisement can be translated into a negative attitude about the product. One of the biggest mistakes that an advertising agency can make is to create an ad that just attracts attention. While attracting attention to the advertisement is important, it is even more important to not only use colors that attract the viewer to the

³⁵ Ibid.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

advertisement, but choose colors that are appropriate to use with the product. Focusing in on how the color works with the actual product separates a good advertisement from a mediocre advertisement that just attracts viewers.³⁹

Hue and brightness are also two very important characteristics of a color to take into consideration, as they are the two biggest determinants of contrast and impact.⁴⁰ In a study done by Schindler the importance of contrast is examined. It is pointed out that hue and brightness are important because they can either increase or decrease legibility and contrast.⁴¹ It is also noted that advertisements need to start taking advantage of contrast more, as it is a device they can use to catch consumers' attention.⁴² A study done by Moore et al. points out a similar finding. Their study looks at online banner advertisements and points out that text color contrast is a very important variable that needs to be considered because it captures the attention of the viewer.⁴³ While colors have different meanings in different cultures, Madden et al. found all eight countries in their study associated blue, green, and white with peaceful, gentle, and calming.⁴⁴ It will be interesting to see if people from all different geographic locations will find those three colors to have similar meanings.

³⁹ Fernandez, Karen V., and Dennis L. Rosen. "The Effectiveness of Information and Color in Yellow Pages Advertising." *Journal of Advertising* 29, no. 2 (2000): pp. 61-73

⁴⁰ Schindler, Pamela S. "Color and Contrast in Magazine Advertising." *Psychology & Marketing* 3, no. 2 (1986): 69-78.

⁴¹ Ibid.

⁴² Ibid.

⁴³ Moore, Robert S., Claire Allison Stammerjohan, and Robin A. Coulter. "Banner Advertiser-Web Site Context Congruity and Color Effects on Attention and Attitudes." *Journal of Advertising* 34, no. 2 (2005): pp. 71-84.

⁴⁴ Madden, Hewett, and Roth, 90-107.

Gaps in the Research

Color is very important to study in advertising. It is critical for advertisements to use color in the best possible way to elicit the greatest response. As stated in the sections above color is important to use in advertisements, and the meanings associated with a color should be considered. Since research suggests that color is important diving deeper into how the effect of color in advertisements can change between individuals is necessary. While some research has been done on the following topics, there is a significant gap in the research, and therefore few conclusions about the importance of each of the following factors in advertisements today. The factors this study examines in a more focused way are gender, geographic location, socio-economic status, age and how they affect color preferences among individuals' interpretations of print advertisements.

Gender Differences

Men and women react differently to many aspects of life, and advertisements are no different. Men and women are very different in what causes them to want to purchase a product that is being advertised. For example, women are more likely to purchase a product if the advertisement is more verbal, meaning that it has explanations and details, it is harmonious (without conflict), it is somewhat complex, and is category oriented.⁴⁵ Putrevu categorizes those behaviors as women having a relationship processing style.⁴⁶

⁴⁵ Putrevu, Sanjay. "Communicating with the Sexes." *Journal of Advertising* 33, no. 3 (2004): 51-62.

⁴⁶ Ibid.

Men on the other hand are very different. A male's purchasing intent increases if the advertisement is comparative, simple, and attribute oriented.⁴⁷ Putrevu categorizes those behaviors as men having a more item-specific processing style.⁴⁸ It was also found that men and women can and will act differently to identical print advertisements.⁴⁹

While it was stated that men and women look for different things in print advertisements and will therefore react differently to different advertisements, it should be noted that there was no mention of color in Putrevu's study. The difference in color preference between genders is examined in more detail in this study. Hopefully this will build off of that gap in Putrevu's study and further support Lee and Barnes' finding that a color can be more masculine or feminine.⁵⁰

Another study found that when looking at college age students, females preferred red over all colors, with blue coming in second, whereas with males the reverse was true, Blue was the favorite with red coming in second.⁵¹ While that finding about gender differences is interesting, the study was published in 1927 so the relevancy of that study today is in question. It is also interesting that men and women don't only like specific colors more than others, but they choose to pay attention to specific colors

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Lee and Barnes, 25-30.

⁵¹ Luckiesh, M. *Light and Color in Advertising and Merchandising*. New York: D. Van Nostrand Company, Inc., 1927.

more than others.⁵² One study found that after looking at an image and recalling what they saw men tend to see more blues and greens while women tended to see more reds, pinks, and yellows.⁵³ A conflicting study done by Garth and Eysenck stated men and women were both equally attracted to blue, red and green.⁵⁴

Geographic Regions

Another factor that hasn't been examined in previous research done on the importance of color in advertisements is how much geographic location plays into an individual's color preferences. This study also examines the geographic region that participants consider their home, or where they have spent the most time in their lives. The regions will be divided into the following sections; Northeast, East Coast, South, Southwest, Midwest, West, West Coast, and International. The purpose of this is to see if individuals from different parts of the country have different color preferences in advertisements. This could be incredibly beneficial if a trend is seen for specific regions so advertisers could change their design to better attract individuals from the region they are targeting. There has been a small amount of research done on this particular topic, but most of it has not been directly connected to looking at different regions of the United States. Rather some of the research that has been done looks at different cultures, but even that research is still minimal.⁵⁵ One study proved that different

⁵² Hoyenga, Katherine Blick, and Benjamin Wallace. "Sex Differences in the Perception of Autokinetic Movement of an Afterimage." *Journal of General Psychology* 100, no. 1 (1979): 93.

⁵³ Ibid.

⁵⁴ Birren, F. *Color and Human response*. New York: Von Nostrand Reinhold, 1978.

⁵⁵ Madden, Hewett, and Roth, 90-107.

cultures have different color preferences.⁵⁶ For example it was shown that red and white represent celebration in Japan while in Mexico is represents the Catholic Church and a serious religious practice.⁵⁷ It was suggested that the affect a color can have on an individual is dependent upon the beliefs and customs of a society.⁵⁸

One study surveyed over 300 college students and found interesting correlation between joggers and people who prefer green.⁵⁹ This is particularly interesting because in previous research green was one of the more popular colors like blue and red were. This could be tied with the fact that individuals who enjoyed the outdoors were joggers, and therefore liked green because it reminded them of their natural surroundings. Although that study is interesting, not much research has been done and is the reason why this study aims to look deeper into if geographical location has anything to do with color preference. It may be that individuals who live on the coasts prefer blue because they are closer to water, or that individuals who are in the Midwest prefer yellow because they are around more fields of wheat and corn. This study aims to find out if there are color preference trends associated with each region.

⁵⁶ Trueman, John. "Existence and Robustness of the Blue and Seven Phenomena." *Journal of General Psychology* 101, no. 1 (1979): 23.

⁵⁷ Madden, Hewett, and Roth, 90-107.

⁵⁸ Luckiesh, M. *Light and Color in Advertising and Merchandising*. New York: D. Van Nostrand Company, Inc., 1927.

⁵⁹ Feucht, Fred. "Which Hue is Best? Test Your Color I.Q." *Advertising Age*, September 14 1987.

Socio-Economic Status

The final characteristic that is studied is socio-economic status. The Wagner Color Research Institute concluded that colors are associated with specific images such as wealth, strength, cheapness, etc....⁶⁰ Below are the findings for 3 of the colors studied.

Blue → Wealth, Trust, Security

Gray → Strength, Exclusivity, Success

Orange → Cheapness

Wagner, the creator of the Wagner Color Research Institute that originally did this study used these findings in working with Wienerschnitzel, a hot dog restaurant with locations throughout the United States. Wienerschnitzel was advised to put more orange on its buildings and its logo to convey cheapness. While most companies don't want to convey that message, for Wienerschnitzel it was important to get the message across to their customers that their product was inexpensive, and it worked. Sales rose 7% after the color change.⁶¹ It is clear that there are different levels of status' associated with different colors based on that study. There is a lack of research that specifically looks at socio-economic groups and what colors or color combinations people from specific groups are drawn to. This study is aiming to fill that gap and examine what socio-economic groups are drawn to specific colors.

Age

After the data was collected it was apparent that age was also important so this variable was added to the study.

⁶⁰ Laney, 144-147.

⁶¹ Ibid.

This Study

Much like the literature reviewed above, this study will survey participants to collect data. The survey provided questions looking for color preference differences between men and women, people of different levels of socio-economic status, and people from different regions of the United States as well as foreign countries. This study will try to further fill that gap where research on the importance of color in advertising is lacking.

The following hypotheses are based on the literature that has been reviewed here:

H1: Individuals of different gender will have different color preferences in print advertisements.

H2: Individuals from different regions of the United States will have different color preferences in print advertisements.

H3: Individuals from different socio-economic groups will have different color preferences in print advertisements.

While there is an abundant amount of research done on the importance of using color in advertisements and the effect certain colors can have within an advertisement, there is a lack of research done on the difference in color preference between genders, individuals from different parts of the United States and different foreign countries and socio-economic groups. This study aims to fill this gap in past research and determine if these three characteristics have an impact on color preference in advertisements. This study also aims to determine if certain combinations of those factors, i.e. an upper class woman from the west coast, influences color preference as well.

CHAPTER III

METHODOLOGY

This chapter presents the methods by which this study is conducted. There will be an overview of studies that are similar to this one and what methods were used to conduct those studies. An in depth description of how subjects are recruited and the characteristics of the sample population will also be described. The survey that was created for this study integrates multiple different methods used in other successful studies to gauge individuals' color preferences. The survey asks participants questions about color preference in multiple different ways. These types of questions include the following.

- Asking participants to look at a group of print advertisements for the same product and to choose which advertisements appeals to them most.
- Asking participants to click on an area of a print advertisement that they find most appealing.
- Asking participants to rank a group of 9 pairs of sunglasses, all of the same brand but different color.
- Asking participants to look at 5 different print advertisements for Sharpie Permanent Markers and rank the advertisement from most to least appealing.
- Asking participants to rank 8 different colors from most to least appealing.

- Asking participants to recall advertisements and state what they remember most about the specific print advertisement.
- Asking participants to assign a meaning to the following colors: red, blue, green, white, and orange.

While all of these questions are in the survey with the intention of helping identify which colors are more appealing to specific individuals, the array of different questions are all in the survey because they have been proven effective in previous studies.

Similar Studies Methodology: The Model.

While this study is unique in that it looks at 3 different characteristics that might influence an individual's color preference: gender, socio-economic status, and geographic affiliation, there are studies that have looked at similar factors whose methodology has helped to shape this study. In a study conducted by Bellizzi et al., subjects were asked to fill out a questionnaire that corresponded with pictures of a furniture store that was being projected. This questionnaire asked the subjects for their responses with the main goal of deciding whether or not color had a large influence on storefront design.¹ While this study is not about storefront design the survey that corresponds with this study is very similar as both surveys/questionnaires were designed with the purpose of deciding if individuals are drawn to specific colors. While Bellizzi used his questionnaire with storefronts, this study uses the survey for print advertisements.

¹ Bellizzi, Joseph A., Ayn E. Crowley, and Ronald W. Hasty. "The Effects of Color in Store Design." *Journal of Retailing* 59, no. 1 (1983): 21.

In a study conducted by Putrevu, subjects were exposed to a number of print advertisements. After looking at the advertisements they were asked questions about what they had just seen with the purpose of deciphering whether or not men and women remembered different things.² This is replicated in this study as subjects are asked what they remember about an advertisement that they had just seen, and what they remember about any advertisement they had seen throughout the duration of the survey. The purpose of this question for this study is to see if not only different genders remembered different aspects of a print advertisement, but if people from different socio-economic backgrounds or geographic backgrounds remembered different characteristics of the advertisement. This method of recalling what one had seen in an advertisement was also used in a study done by Fernandez and Rosen.³ Moore et al. used the method of asking participants to recall banner advertisements they had just seen as well in their study.⁴ Meyers-Levy and Peracchio also used the recall method in their study when looking at what subjects remembered about bicycle advertisements.⁵

Putrevu's study examined purchase intent that an individual had after looking at the product as well.⁶ This is replicated in this study as subjects are asked to rank a group

² Putrevu, Sanjay. "Communicating with the Sexes." *Journal of Advertising* 33, no. 3 (2004): 51-62.

³ Fernandez, Karen V., and Dennis L. Rosen. "The Effectiveness of Information and Color in Yellow Pages Advertising." *Journal of Advertising* 29, no. 2 (2000): pp. 61-73.

⁴ Moore, Robert S., Claire Allison Stammerjohan, and Robin A. Coulter. "Banner Advertiser-Web Site Context Congruity and Color Effects on Attention and Attitudes." *Journal of Advertising* 34, no. 2 (2005): pp. 71-84.

⁵ Meyers-Levy, Joan, and Laura A. Peracchio. "Understanding the Effects of Color: How the Correspondence between Available and Required Resources Affects Attitudes." *Journal of Consumer Research* 22, no. 2 (1995): pp. 121-138.

⁶ Putrevu, 51-62.

of sunglasses from most to least appealing, with the most appealing being the pair of sunglasses the subjects would be most likely to purchase. Lastly, Putrevu's study had participants measure their like or dislike of an advertisement. This is replicated in this study as participants are asked to rank 5 different Sharpie Permanent Marker advertisements from the one they most like to the one they most dislike. As mentioned earlier, the survey for this study has been split up into different questions that gauge an individual's color preference in different ways. The purpose of splitting the survey up into different kinds of questions is so individuals who choose to participate in the survey remain engaged instead of getting bored with the same kind of question.

The survey for this study will also look at the impact of color in an advertisement compared to a black and white advertisement. In a study done by Gardner and Cohen women were the subjects and a questionnaire was used to decide if color had an effect on attitude toward the product.⁷ Four different print ads were examined in *The Chicago Daily News*, two of which were printed in color.⁸ While this study proved to be effective with a sample group of all women, it will be interesting to see if preference for color will be different between genders, socio-economic group, or geographic group. The study done by Gardner and Cohen is the reason why the survey in this study includes a question asking participants to look at two advertisements for the same product, one in color and one in black and white, and choose the advertisement that is most appealing to them.

⁷ Gardner, Burleigh B., and Yehudi A. Cohen. "ROP Color and Its Effect on Newspaper Advertising." *Journal of Marketing Research* 1, no. 2 (1964): pp. 68-70.

⁸ Ibid.

In their study, Kay and Li printed three editions of an advertisement with three different locations printed on them to see if injecting a local feel into the advertisement had an effect on the reader.⁹ While this study isn't looking at the effect of an advertisement being "local," it is the reason the iPod advertisements have been included in the survey for this study. The iPod advertisements are essentially the same advertisement, an all black figure dancing upon a background of one color. In this study four different iPod advertisements are viewed with pink, blue, green, and red backgrounds. In a sense, the iPod advertisements are "injecting color" rather than something local in order to see if people respond more to a specific color.

The survey conducted for this study also asks participants to give a meaning for the following colors; red, blue, green, white, and orange. As in Madden et al.'s study, the purpose is to see if individuals from different cultures associate different meanings with different colors, and therefore have different color preferences.¹⁰ In the study done by Madden et al., participants were asked to evaluate different colors and assign meanings to different colors.¹¹ While this study doesn't have a large number of participants from other countries, the survey includes sections where participants assign different meanings to different colors and asks participants to rank colors to see if Madden et al.'s theory applies to not only individuals of different cultural backgrounds but also different socio-economic and geographic backgrounds as well.

Sample Population

⁹ Kay, Herbert, and Dan E. Clark Li. "Effects of Injecting "Local Color" into Advertisements." *The Journal of Marketing* 23, no. 1 (1958): pp. 56-58.

¹⁰ Madden, Thomas J., Kelly Hewett, and Martin S. Roth. "Managing Images in Different Cultures: A Cross-National Study of Color Meanings and Preferences." *Journal of International Marketing* 8, no. 4 (2000): pp. 90-107.

¹¹ Ibid.

The sample population in this study includes several broad categories of individuals. First, this study was distributed among all individuals; student, faculty, and staff, at Colorado College that I was able to reach out to. The reason this study is not limited to only Colorado College students is that I also wanted to obtain as many participants as possible from different backgrounds, both socio-economically and geographically. The survey was also distributed to all adults who I am capable of reaching. This includes parents, aunts and uncles, friends' parents, parents' friends, and other non-collegiate acquaintances. The reason it is so important to reach out to the non-collegiate population is that they are more likely to have different socio-economic and geographic backgrounds than a group of individuals who all attend the same institution. It was also requested that individuals who take the survey pass it along to any individuals they believe would be willing to take it. In short, there is no single target audience for this study. The reason why this study needs to reach as many individuals as possible is that as more people from different places take the survey, the variety of individuals from different socio-economic groups and geographic locations increases allowing for more variation in the data.

The following figures are samples of each type of question in the survey. Each participant received the same survey. Figure 3.1 is the first set of questions seen by all participants asking for information about themselves, the purpose of this page is to collect all necessary information about the participant's age, gender, socio-economic status, and geographic affiliation.

FIGURE 3.1 - Participant Information Collection Questions

COLORADO COLLEGE

Please Identify Your Gender

Male

Female

Please identify which geographic region you most associate yourself with.

Northeast

East Coast

South

West

West Coast

Midwest

Southwest

International

Please Identify which socio-economic group you most associate yourself with.

Lower Class

Working Class

Lower Middle Class

Upper Middle Class

Upper Class

Which age group do you fall under.

Less than 18 years old

18-22 years old

23-32 years old

33-45 years old

46-60 years old

More than 60 years old

>>

FIGURE 3.2

Marlboro Advertisement 1: Green, Red, White, and Blue

COLORADO COLLEGE

You will see four Marlboro advertisements, please choose the Marlboro advertisement that you find most appealing.

The figure displays four distinct Marlboro advertisements arranged in a 2x2 grid. Each advertisement is framed with a thin white border and a small square icon in the top-left corner. The top-left ad, 'Marlboro Lights', features a serene forest scene with a person on horseback near a pond, and two packs of cigarettes are shown in the foreground. The top-right ad shows a close-up of a cowboy in a red jacket and white hat, with the slogan 'Come to where the flavor is.' and a Marlboro logo. The bottom-left ad, 'Marlboro Country', depicts a cowboy on a horse in a snowy landscape with a fence, and two packs of cigarettes are at the bottom. The bottom-right ad shows a cowboy on a horse in a field with a fence, with the slogan 'Marlboro Country' and a Marlboro logo. A 'Close' button is located at the bottom right of the entire advertisement selection area.

Figure 3.2 is one of the questions that participants were asked to answer. They were able to choose from a variety of advertisements for the same product and pick their favorite one. Each advertisement was included because of its color scheme.

FIGURE 3.3

Nike Advertisement 1: Most Appealing Area

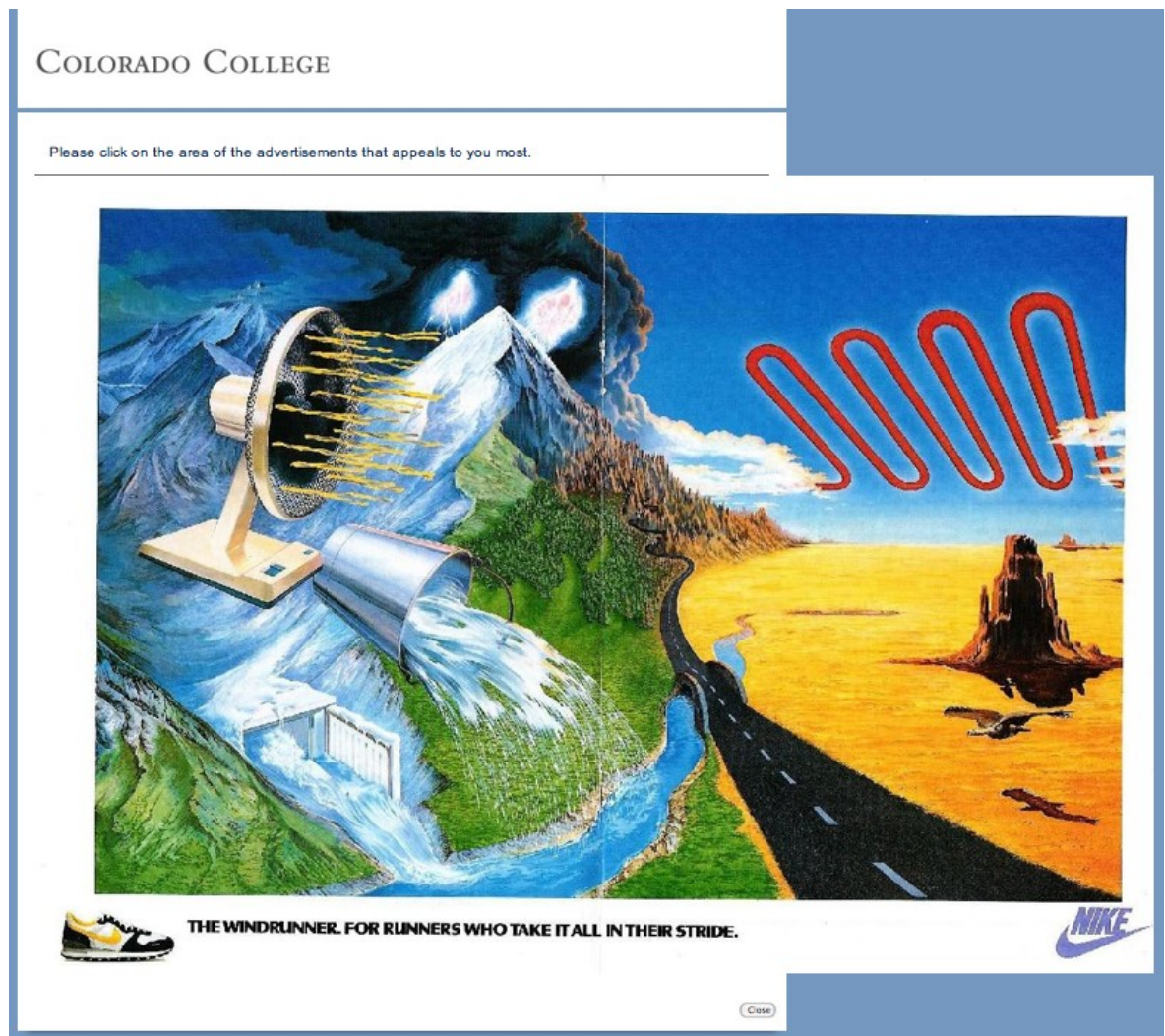



Figure 3.3 is of one of the question in the survey distributed where participants were asked to click on the area of the advertisement that appealed to them most. The purpose of this type of question is to look at the different places that participants from different socio-economic groups, geographic regions, and genders chose.


FIGURE 3.4

Marlboro Advertisement 2: Color vs. Black & White

COLORADO COLLEGE

You will now see two Marlboro advertisements, please choose the advertisement that appeals to you most.





Close

Figure 3.4 was used in the survey to gauge how appealing color is to different participants and to see if there is a pattern in the types of individuals who preferred color to black and white or vice-versa.

FIGURE 3.5

Lego Advertisement Part 1: Most Appealing Area

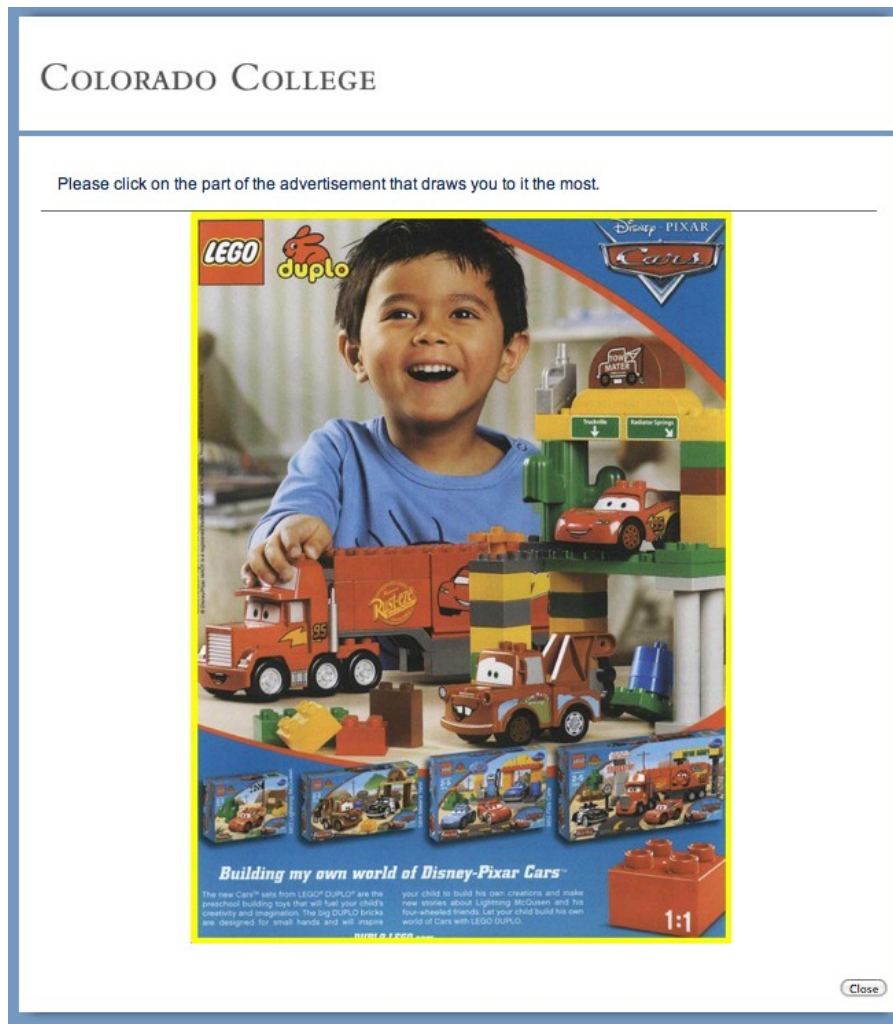
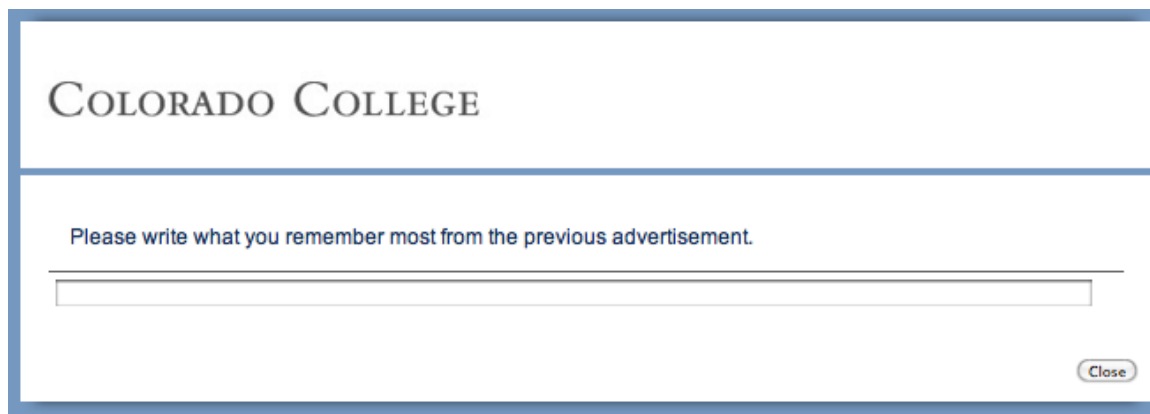


Figure 3.5 is similar to Figure 3.3 in the sense that the participant is asked to click on the area of the advertisement that draws them to it the most. The difference between the two questions is that the advertisement seen in Figure 3.5 was followed up with the question, “Please write what you remember most about the previous advertisement”. The purpose of this question is to see which participants remember what part of an advertisement. Figure 3.6 shows the following question just mentioned.

FIGURE 3.6

Lego Advertisement Part 2: Most memorable part



COLORADO COLLEGE

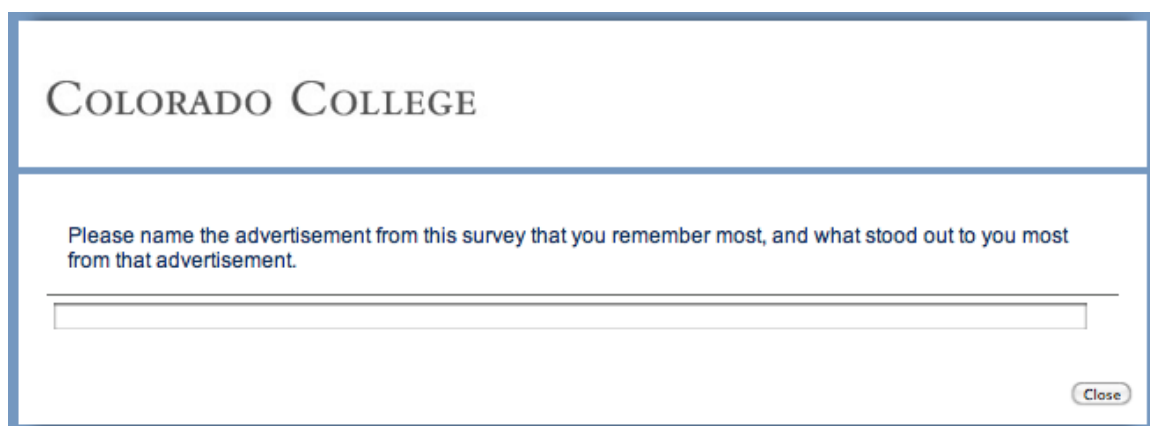
Please write what you remember most from the previous advertisement.

Close

Along similar lines, participants were asked to recall an advertisement from the survey once they've reached the end. They were also be asked what stood out most from that advertisement, with the intention of having the participants ask themselves why they remember that specific advertisement. Figure 3.7 is the question that participants saw at the end of the survey.

FIGURE 3.7

Most memorable advertisement

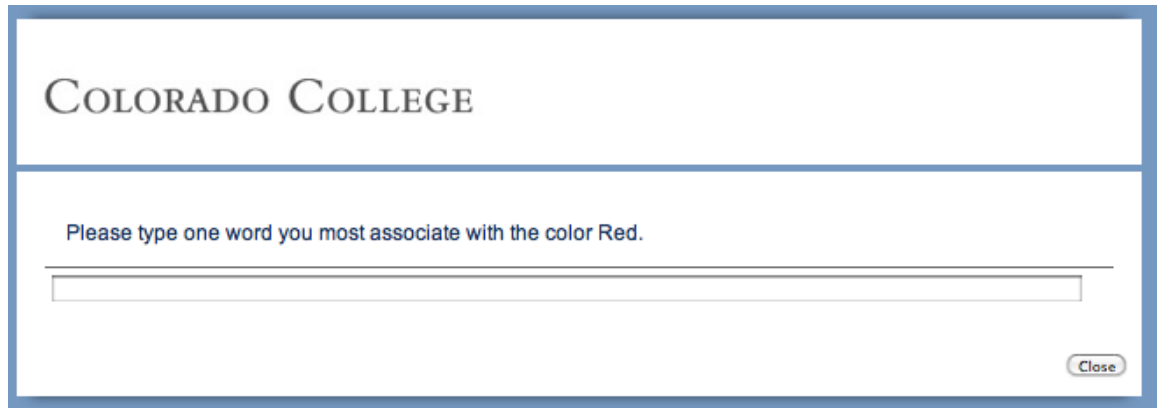


COLORADO COLLEGE

Please name the advertisement from this survey that you remember most, and what stood out to you most from that advertisement.

Close

FIGURE 3.8
Color association – Red



COLORADO COLLEGE

Please type one word you most associate with the color Red.

Close

Figure 3.8 is an example where the participants were asked to assign a meaning to the color red, other colors that appear in this survey asking participants to do the same thing were blue, green, white, and orange.

FIGURE 3.9

iPod Advertisement – Pink, Blue, Green, and Red.

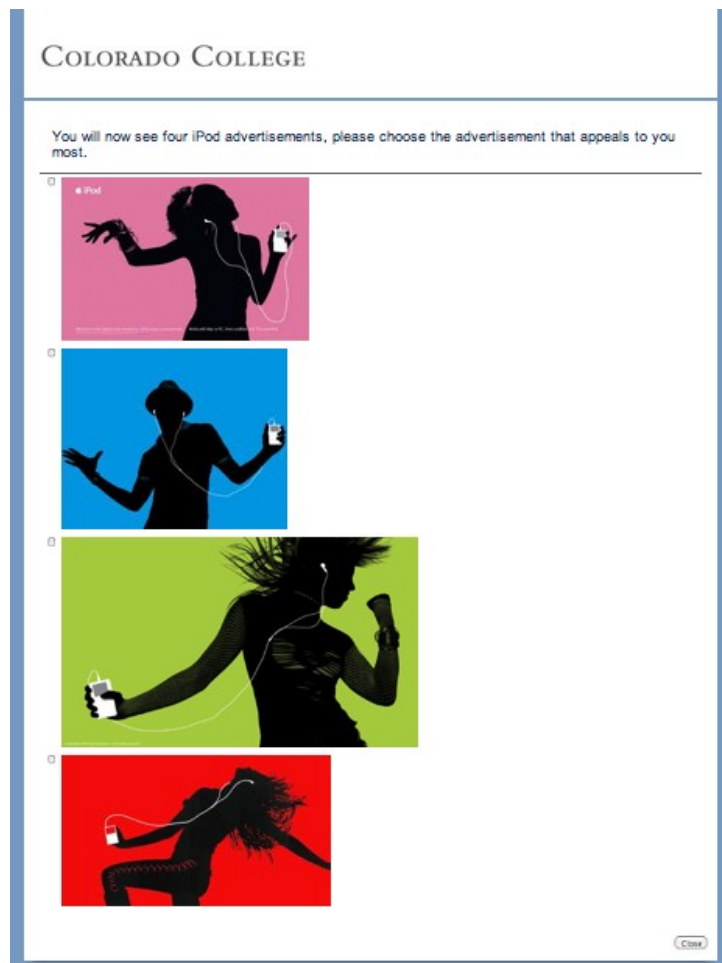


Figure 3.9 is another example of a question where participants were asked to choose the print advertisement that is most appealing to them. This specific question is very indicative of color preference since each advertisement is so similar except for the background color.

Analysis of the Survey Data

Due to the unique layout of the survey used in this study, each question is analyzed differently and independently. The questions that ask respondents to choose the

advertisement that is most appealing to them, or rank the advertisements, products, or colors in order of most to least appealing were quantitatively analyzed. With those types of questions this study looked at each different option that the respondent had to choose from and compare it against each factor that the respondent could be associated with: gender, socio-economic status, or geographic affiliation. An analysis of variance (ANOVA) was conducted on those specific questions looking for statistically significant differences in color choice.

While about half of the questions in this survey are analyzed in a quantitative manner, other questions were analyzed qualitatively. For example, questions that ask respondents to assign a meaning or word to go with a specific color were analyzed in a qualitative manner. Other similar questions are those asking the respondent to click an area of the advertisement that appeals to them most. The heat map of where most individuals click will be provided in the Results chapter

The next chapter will summarize the analysis of the data pulled from the survey. The questions where an analysis of variance (ANOVA) was performed are presented first in the quantitative analysis section. The questions that are analyzed in a qualitative manner are presented second. A summary of all results is provided at the end.

CHAPTER IV

DATA AND RESULTS

Many studies have examined the importance of using color in advertising. There have also been many studies suggesting that different genders are attracted to different colors. While those studies are beneficial to the advertising industry, there has been a lack of work done to decide what else might attract an individual to a specific color. This study's aim is to fill that gap and look further into the difference in color preference associated with gender as well as look at difference in color preference based on socio-economic status and geographic affiliation. As mentioned in the previous chapter, this study uses both quantitative and qualitative methods to analyze the survey data.

The data came from a survey that was distributed and taken by 254 individuals. All responses were anonymous and will remain so. The previous studies that have used quantitative methods for analyzing their surveys or questionnaires that have been successful used an ANOVA, analysis of variance, to look at how significant a specific factor was in deciding color preference. This study also used ANOVA to analyze the quantitative data, looking for significance in specific independent variables such as gender, socio-economic status, or geographic affiliation. Other data was analyzed qualitatively and will be discussed in more depth later in this chapter. It became apparent when looking through the data that age also plays an important role in what

color an individual prefers so that data will be included in this section as well. Please note that analysis of data from each question run with an ANOVA is included as well as looking at the raw data from the survey and deciding which color was preferred. The way a color or advertisement was chosen as the favorite was if the next closest favorite was receiving less than half of the votes compared to the favored color or advertisement. T-tests were also conducted to determine which colors show a statistically significant preference toward them.

Quantitative Analyses

Each question that was distributed in the survey was analyzed separately. Nine of the questions showed significance for a specific color and variable when an ANOVA was run on it. Subsequent t-tests were run on all questions to determine which color or colors show a statistically significant preference toward them. The following are the results from each question.

Question 1

Question 1 asked participants to look at 4 different Marlboro advertisements. All four advertisements showed significance in the 23-32 year old age group. Green was significant at 0.0016, white was significant at 0.0006, red was significant at 0.0008, and blue was significant at 0.0030. Below is Table 4.1 displaying this information.

TABLE 4.1

Analysis of Variance: Ages 23-32 - Green, White, Red, and Blue.

Source	Partial SS	df	MS	F	Prob > F
Model	.288546563	4	.072136641	3.16	0.0152
q1_m_green	.233136166	1	.233136166	10.21	0.0016
q1_m_white	.276285865	1	.276285865	12.10	0.0006
q1_m_red	.264338849	1	.264338849	11.58	0.0008
q1_m_blue	.205888099	1	.205888099	9.02	0.0030
Residual	4.59009421	201	.02283629		
Total	4.87864078	205	.023798248		

T-tests run on this also showed that participants from the southwest as well as participants in the lower class have a statistically significant preference toward green.

Question 2

Question two asked participants to choose the advertisement that was most appealing to them. Their options were two very similar Cartier advertisements, one with a green bag and the other with the same bag in blue. Respondents from the northeast showed a significance level of 0.0006 for green and 0.0001 for blue. The data shows that green was a clear favorite for individuals from the northeast. This is consistent with the data that I found when looking through the questions in the survey results. 60% of the time the northeast chose a shade of green over any other color. It can be concluded that green is a color that is preferred by most individuals who associate themselves with being from the northeast region of the United States. Below is Table 4.2 which shows the ANOVA that was run for question 2 and people from the northeast. As one can see both blue and green are statistically significant. This is showing that one was a clear

favorite while another was not. In this case green was the clear favorite for people from the northeast and blue was not favored. This is not to say that people from the northeast do not like blue, in fact it's the second most popular color amongst respondents from that region but is only preferred when it is not compared to a shade of green.

TABLE 4.2

Analysis of Variance: Northeast Region of the United States – Green vs. Blue

Source	Partial SS	df	MS	F	Prob > F
Model	1.67680863	2	.838404314	8.39	0.0003
q2_c_green	1.22727273	1	1.22727273	12.28	0.0006
q2_c_blue	1.58677735	1	1.58677735	15.88	0.0001
Residual	20.2892108	203	.099946851		
Total	21.9660194	205	.107151314		

Question two also shows that people who are in the 46-60 year old category also prefer green. When an ANOVA was run on this question and this specific age group green was statistically significant at 0.0180 while blue was statistically significant. This data is also supported when looking at the raw data on its own. When looking at all of the questions that a color was clearly preferred by this age group green was the clear favorite 66% of the time. That being said, it can be concluded that individuals between the ages of 46-60 years old will prefer green most of the time in advertisements. Table 4.3 below shows the significance for this conclusion.

TABLE 4.3

Analysis of Variance: Ages 46-60 – Green vs. Blue

Source	Partial SS	df	MS	F	Prob > F
Model	.381792964	2	.190896482	2.87	0.0593
q2_c_green	.378787879	1	.378787879	5.68	0.0180
q2_c_blue	.363354037	1	.363354037	5.45	0.0205
Residual	13.525974	203	.066630414		

Question 3

Question 3 had the participants ranking in order from favorite to least favorite 9 different pairs of Oakley sunglasses, all different shades and colors.

When the ANOVA was used to analyze the data gathered in question 3 the southwest showed significance and a preference toward green. This conclusion is consistent throughout the entire survey as well. When looking at the data in the survey, people from the southwest preferred green to any other color 55% of the time. Question 3 also shows that people in the age group ranging from 18-22 preferred red to green. Red was the only color that showed significance when analyzed but was the clear favorite for this group of people in this question. Interestingly enough when looking at the data on its own from the survey red is not the preferred color for this age group, green actually is so there might be something about the content of this advertisement that overruled this group's color preference.

Question three also shows significance for teal and purple, at 0.0195 and 0.0047 respectively. It was shown that females preferred teal to any other color. It should be

noted that teal was put into the survey to gauge people's reactions to pastel colors compared to non-pastel colors.

When looking at the t-test results from this specific question the following data was also found. Individuals from the west and Midwest as well as those less than eighteen years old showed a statistically significant preference toward the red sunglasses. Individuals in the upper-middle class showed a statistically significant preference toward orange. Individuals from the east coast as well as those less than eighteen years old showed a statistically significant preference toward the yellow sunglasses. Lastly individuals in the working class showed a statistically significant preference toward the white sunglasses.

Question 4

In question 4, both people from the east coast and individuals between the ages of 18 and 22 preferred the green ad to red and purple. The east coast showed preference for green and people between the ages of 18 and 22 showed preference for green. These data are more consistent with what I found looking at the raw data from the survey. People ages 18-22 chose green over any other color 66% of the time. The two cases where this age group chose red over green there was a trend where almost all groups chose red over their consistently preferred color, this sudden difference in color preference could be attributed to the level of appeal regarding the content or individual in the red advertisement.

Question 5

Statistical significance for question 5 was shown in the following categories; people who associated themselves as working class, and people who were between the ages of 46-60. For both of these groups green was the clear favorite in this question.

Question 7

Question 7 compared red and green. This is the question where most groups show a preference for red even though they have consistently been favoring another color. This section will not look at the raw data but rather describe the groups that show a statistical significance toward a specific color. People from the west preferred red in this question. There was a significance of 0.0170 for red and 0.0270 for green for people from the western region. These findings can be seen in below in Table 4.4. These findings are supported by looking at the raw data from the survey where people from this region chose red a majority of the time as their favorite. People who were between the ages of 33-45 also favored red in question seven. There was a significance of 0.0023 for red and 0.0018 for green. This is supported by looking at the raw data from the survey as people from this age group chose red over any other color 57% of the time. Lower class individuals showed statistical significance in favoring green at 0.0000. These findings can be seen in Table 4.5 below. This is very strongly supported by looking at the raw data from the survey as people from this economic group have chosen green over any other color 90% of the time throughout the survey. Individuals between the ages of 23-32 also preferred green. This can be seen below in Table 4.6. This is also supported by looking at the data from the survey on its own as people from that age group chose green 75% of the time when compared to other colors.

TABLE 4.4

Analysis of Variance: Western Region of the United States – Red vs. Green

	Number of obs =	206	R-squared =	0.0281	
	Root MSE =	.35974	Adj R-squared =	0.0185	
Source	Partial SS	df	MS	F	Prob > F
Model	.758296166	2	.379148083	2.93	0.0557
q7_n_red	.749048415	1	.749048415	5.79	0.0170
q7_n_green	.642554176	1	.642554176	4.97	0.0270
Residual	26.27083	203	.129412956		
Total	27.0291262	205	.131849396		

TABLE 4.5

Analysis of Variance: Lower Class Economic Group – Red vs. Green

	Number of obs =	206	R-squared =	0.1063	
	Root MSE =	.114084	Adj R-squared =	0.0975	
Source	Partial SS	df	MS	F	Prob > F
Model	.314245811	2	.157122905	12.07	0.0000
q7_n_red	.23464746	1	.23464746	18.03	0.0000
q7_n_green	.29696821	1	.29696821	22.82	0.0000
Residual	2.64206487	203	.013015098		
Total	2.95631068	205	.014421028		

TABLE 4.6

Analysis of Variance: Ages 23-32 – Red vs. Green.

Source	Partial SS	df	MS	F	Prob > F
Model	.986946053	2	.493473026	5.15	0.0066
q7_n_red	.260953154	1	.260953154	2.72	0.1004
q7_n_green	.538215106	1	.538215106	5.62	0.0187
Residual	19.4450928	203	.095788634		
Total	20.4320388	205	.099668482		

Question 8

Question number 8 was designed to see if people preferred black and white advertisements over color advertisements. The only group that showed statistical significance towards liking black and white over color were people between the ages of 33 and 45.

Question 11

Question number 11 compared 5 different mascara advertisements. While only three different groups showed statistical significance toward a specific color, this question brought to light a very important finding that was not a focus of this study. Individuals are drawn to and remember a stark contrast in an advertisement. This will be examined in more depth in the qualitative analysis section of this chapter, and this section will show which groups show statistical significance. Individuals from the Midwest showed a statistically significant preference toward the first orange advertisement as well as the last red advertisement, this too is supported in the t-tests. Lastly individuals who described themselves as being from the upper class economic

category preferred the highly contrasting orange and black ad as well and the advertisement that was shown as significant, the gold one, was actually the advertisement that people from the upper class

While only those three groups showed statistical significance toward that specific advertisement, it should be noted that when looking at the data from the survey that the orange and black advertisement that showed a stark contrast between colors was favored by every single region except for the west coast, and by every single economic group except for the lower class.

Gender showed significance toward advertisement number 3 in question eleven as well. Interestingly enough this was the least favorite among both men and women, meaning the significance seen in Table 4.8 is pointing out a preference toward both genders disliking the gold advertisement. This can be seen in Table 4.7 below.

TABLE 4.7

Analysis of Variance: Gender Preference – Mascara Advertisements

Source	Partial SS	df	MS	F	Prob > F
Model	2.49348706	4	.623371765	2.94	0.0215
q11_masca~1	.061263401	1	.061263401	0.29	0.5913
q11_masca~2	.000853184	1	.000853184	0.00	0.9495
q11_masca~3	1.21787846	1	1.21787846	5.75	0.0174
q11_masca~4	.131496461	1	.131496461	0.62	0.4317
Residual	42.1535718	199	.211826994		
Total	44.6470588	203	.21993625		

Question 12

Question 12 had participants choosing between four Camel cigarette advertisements. Individuals who described themselves as lower class statistically

preferred advertisement two, which was primarily green. This color preference was significant at 0.0325. Individuals who were under 18 years old showed preference toward red in question 12. Lastly individuals between the ages of 46-60 showed significance toward the 1st and 3rd advertisements, both being red. When looking further at the data and running t-tests on the data it was shown that individuals between the ages of 46-60 showed a statistically significant preference toward the first advertisement which was very red and orange.

Another t-test run on this question showed that individuals from the lower class showed a statistically significant preference toward the green advertisement.

Question 13

Question 13 asked participants to choose their favorite iPod advertisement with the choices in colors being pink, blue, green, or red. Individuals from the south showed a preference for advertisements two and three, which are blue and green respectively. Instead of individuals from this group preferring blue it was actually the most disliked. This can be seen in Table 4.8. Green was neither favored or disliked.

Participants who indicated that they were from the Midwest showed significance toward advertisement number 3 in question 13. In this case advertisement number 3, which was green, was the clear favorite for people in this group. Table 4.9 shows that.

TABLE 4.8

Analysis of Variance: Southern Region of the United States – iPod Advertisements

	Number of obs =	206	R-squared =	0.0394	
	Root MSE =	.240667	Adj R-squared =	0.0251	
Source	Partial SS	df	MS	F	Prob > F
Model	.479645213	3	.159881738	2.76	0.0433
q13_ipod_1	.009093492	1	.009093492	0.16	0.6924
q13_ipod_2	.260538613	1	.260538613	4.50	0.0352
q13_ipod_3	.388532658	1	.388532658	6.71	0.0103
q13_ipod_4	0	0			
Residual	11.6999664	202	.057920626		
Total	12.1796117	205	.05941274		

TABLE 4.9

Analysis of Variance: Midwest Region of the United States – iPod Advertisements

	Number of obs =	206	R-squared =	0.0377	
	Root MSE =	.48051	Adj R-squared =	0.0234	
Source	Partial SS	df	MS	F	Prob > F
Model	1.82620136	3	.608733788	2.64	0.0508
q13_ipod_1	.006962205	1	.006962205	0.03	0.8623
q13_ipod_2	.199474876	1	.199474876	0.86	0.3537
q13_ipod_3	1.56266589	1	1.56266589	6.77	0.0100
q13_ipod_4	0	0			
Residual	46.6398181	202	.230890188		
Total	48.4660194	205	.236419607		

Question 13 also shows significance toward the green advertisement at 0.0233 for gender. When looking closer at the data this significance represents green being favored by females.

Tables of Significant Findings

Below are Tables 4.10, 4.11, 4.12, and 4.13 showing all of the above-mentioned findings that were statistically significant when analyzed with an ANOVA. It should be noted that an “X” indicates where a group shows a statistically significant preference toward a specific color, and an asterisk “*” indicates that that specific group showed a statistically significant preference toward that color in more than one question on the survey.

TABLE 4.10

Statistically Significant Color Preferences: Economic Groups

Economic Group	Green	Orange (Contrast)	White
Lower Class	X		
Working Class	X		X
Upper Middle Class		X	
Upper Class		X	

As you can see all economic groups show a statistically significant preference toward a specific color except for the lower middle class.

TABLE 4.11

Statistically Significant Color Preferences: Geographic Affiliation

Region	Green	Purple	Red	Orange (Contrast)	Blue	Yellow
Northeast	X					
East Coast	X					X
South			X		X	
West			X*			
West Coast				X		
Midwest	X*		X*	X	X	
Southwest	X*				X	
International		X				

As shown above, all geographic regions including the international category show a statistically significant preference toward a specific color.

TABLE 4.12

Statistically Significant Color Preferences: Age Group

Age Group	Green	Red	Black & White	Blue	Yellow
Under 18		X*			X
18-22	X	X			
23-32	X*				
33-45	X	X	X		
46-60	X*	X		X	
Over 60					

TABLE 4.13

Statistically Significant Color Preferences: Gender

	Teal	Green	Orange (Contrast)
Male			Preference
Female	Preference	Preference	Preference

The following table shows the findings from the survey that are not statistically significant when running an ANOVA but were a chosen favorite by the specific group

under the aforementioned terms. A color was deemed to be a preference if it had received over double the votes compared to the next closest color preference.

Tables of Findings – Not Necessarily Significant In An ANOVA

Below are the following findings concluded by looking at each region, economic group, age group, and gender. While the findings presented here may not have shown significance in an analysis of variance or a t-test, the following color preferences are worth reporting as these choices were only deemed to be the category's preference if they were the favorite with the most votes and the second most popular choice was chosen less than half the number of times that the favorite was picked. The following tables show the information found by looking at the raw data from the survey. The color that is preferred as well as the percentage of the time that a specific group of people chose their preferred color is found in Tables 4.14, 4.15, 4.16, and 4.17 below.

TABLE 4.14

Popular Colors: Geographic Affiliation

Northeast	Preference – Green (60%)
West Coast	Preference – Green (60%)

TABLE 4.15

Popular Colors: Economic Groups

Lower Class	Preference – Green (80%)
Working Class	Preference – Green (62%)

TABLE 4.16

Popular Colors: Gender

Male	Preference - Green (85%)
------	--------------------------

TABLE 4.17

Popular Colors: Age

18-22	Preference – Green (66%)
23-32	Preference – Green (75%)

While these results are pure observations from survey data, the popularity among all different categories for the color green should be noted.

Qualitative Analysis

The following sections will provide an analysis of the qualitative data that were taken from the survey. There are three different types of questions that were asked and are analyzed qualitatively. These three types of qualitative questions include; asking participants to associate a meaning with five different colors, asking participants to recall the advertisement that they most remember, and asking participants to click on an area of an advertisement that draws them to it the most. The data for the last question, asking participants to click on the area of the advertisement that draws them to it the most, is presented in a heat map.

Color Association

Individuals who participated in the survey were asked to associate one word with the following colors; orange, red, white, blue, and green. While there was a wide range of responses, there were multiple different repeated associations. The results for each color are presented below. Some words that were very similar or had similar meanings were put into one group together. For example orange and fruit were grouped together in one group titled fruit. It should be noted that while going through each list of words that the participants provided a separate individual who was not previously involved in the study was present to discuss whether or not two words were close enough in meaning to be grouped as one. The purpose of including this individual was to get a non-biased opinion when grouping words so the results were as accurate as possible.

Orange

The following are a few examples of how words were grouped together into categories for the color orange. All responses of “orange” and “citrus” were put in the “fruit” category. All responses of “neon” were placed in the “bright” category. All responses of “caution” were placed in the “warning” category. The following are the most repeated words that participants submitted for orange, as well as the percentage of respondents who chose that particular word. There were nine different words that were repeated by four or more respondents. These words were fruit, bright, fire, sun, energetic, likeable, warning, dislike, and autumn. The following table shows each word, the number of respondents that submitted that word (or a word deemed similar in meaning), and what percentage of respondents submitted that word.

TABLE 4.18

Words Highly Associated with Orange

ORANGE Total Responses = 186	Number of Participants Who Submitted This Word	Percentage of Participants Who Submitted This Word
Fruit	58	31%
Bright	31	16%
Fire	17	9%
Sun	14	7%
Energetic	11	6%
Likeable	8	4%
Warning	7	4%
Dislike	7	3%
Autumn	4	2%
Other	X	18%

As shown above, fruit was the most prevalent response for the color orange. It should be noted that there is a wide range of different responses that participants submitted for the color orange. Orange actually has the greatest variety of responses compared to the

other four colors meaning the associations people have with this color are much less predictable and much more varying. It should also be noted that the percentage of participants who choose a specific word ranges from 31% to 2%.

Red

The following are a few examples of how responses were grouped together into categories for the color red. All responses of “fierce” and “anger” were put into the “aggressive” category. “Strong” was put into the “power” category, and “passion” was put in the “love” category. The following are the most repeated words that participants submitted for red, as well as the percentage of respondents that chose that particular word. There were eight different words that were repeated by 12 or more respondents. These words were fire, love, aggressive, blood, bold, power, sexy, and apple. The following table shows each word, the number of respondents that submitted that word (or a word deemed similar in meaning), and what percentage of respondents submitted that word.

TABLE 4.19
Words Highly Associated with Red

Red Total Responses = 201	Number of Participants Who Submitted This Word	Percentage of Participants Who Submitted This Word
Fire	36	18%
Love	36	18%
Aggressive	20	10%
Blood	17	9%
Bold	14	7%
Power	14	7%
Sexy	12	6%
Apple	12	6%
Other	X	19%

Fire and love are tied for the most prevalent meaning for red. Red has slightly less variance in the number of meanings than orange with eight instead of nine different meanings. With that being said orange's highest percentage of 31% for fruit is much higher than either of red's highest percentages of 18%.

Blue

The following are a few examples of how responses were grouped together into categories for the color blue. All responses of "tranquility" or "relaxed" were placed in the "peace" category. All responses of "ocean" or "rain" were placed in the "water" category. The following are the most repeated words that participants submitted for

blue, as well as the percentage respondents that chose that particular word. There were six different words that were repeated by 3 or more respondents. These words were; sky, water, peace, cool, sad, and clean. The following table shows each word, the number of respondents who submitted that word (or a word deemed similar in meaning), and what percentage of respondents submitted that word.

TABLE 4.20
Words Highly Associated with Blue

Blue Total Responses = 201	Number of Participants Who Submitted This Word	Percentage of Participants Who Submitted This Word
Sky	52	26%
Water	51	25%
Peace	49	24%
Cool	23	11%
Sad	6	3%
Clean	3	2%
Other	X	9%

As shown above, sky, water, and peace are all very highly associated with the color blue. It should also be noted that the “other” sections percentage is quite a bit lower than orange or red indicating that specific meanings are more strongly associated with blue compared to either of those colors.

White

The following are a few examples of how responses were grouped together into categories for the color white. All responses of “pure,” “purity,” or “sterile” were placed in the “clean” category. The following are the most repeated words that participants submitted for white, as well as the percentage respondents that chose that particular word. There were six different words that were repeated by three or more respondents. These words were; clean, snow, simple, clouds, heaven, and refined. The following table shows each word, the number of respondents that submitted that word (or a word deemed similar in meaning), and what percentage of respondents submitted that word.

TABLE 4.21

Words Highly Associated with White

White Total Responses = 189	Number of Participants Who Submitted This Word	Percentage of Participants Who Submitted This Word
Clean	56	30%
Snow	29	15%
Simple	25	13%
Clouds	22	11%
Heaven	12	6%
Refined	3	2%
Other	X	23%

As shown above, clean is the single most popular response for white. It should be noted that the “other” category is the highest of all colors meaning that, while white is highly

associated with “clean,” people have a lot of other associations with the word white and it is not as easily definable.

Green

The following are a few examples of how responses were grouped together into categories for the color green. All responses of “grass,” “trees,” “outside,” “forest,” and plants were placed in the “nature” category, and all responses of “grows,” “health,” and “fertility” were placed in the “life” category. The following are the most repeated words that participants submitted for green, as well as the percentage respondents that chose that particular word. There were five different words that were repeated by seven or more respondents. These words were nature, money, bright, peace, and life. The following table shows each word, the number of respondents that submitted that word (or a word deemed similar in meaning), and what percentage of respondents submitted that word.

TABLE 4.22

Words Highly Associated with Green

Green Total Responses = 200	Number of Participants Who Submitted This Word	Percentage of Participants Who Submitted This Word
Nature	130	65%
Money	12	6%
Bright	11	6%
Peace	8	4%
Life	7	3%
Other	X	16%

As shown above nature was submitted by 65% of the participants, the highest percentage of any association with any color. This means there is a very strong association between green and nature. The severe drop in percentage between nature and the second highest word, money, should also be noted to further display the strong association individuals have between the color green and nature.

Heat Maps

Another question participants in the survey answered asked them to click on an area of an advertisement that drew them too it the most. There were two different heat map questions throughout the entire survey, one Lego advertisement and one Nike advertisement. Both advertisements have very different characteristics and will therefore be looked at separately.

Lego Heat Map

When comparing different genders and where they found the most appealing area of the advertisement to be, there were some differences between men and women. For example both men and women clicked on the face of the little boy playing with the Lego set, but that was the only area that was highly popular among women. Men chose both the face and one of the red cars. Figures 4.1 and 4.2 below show the difference between men and women.

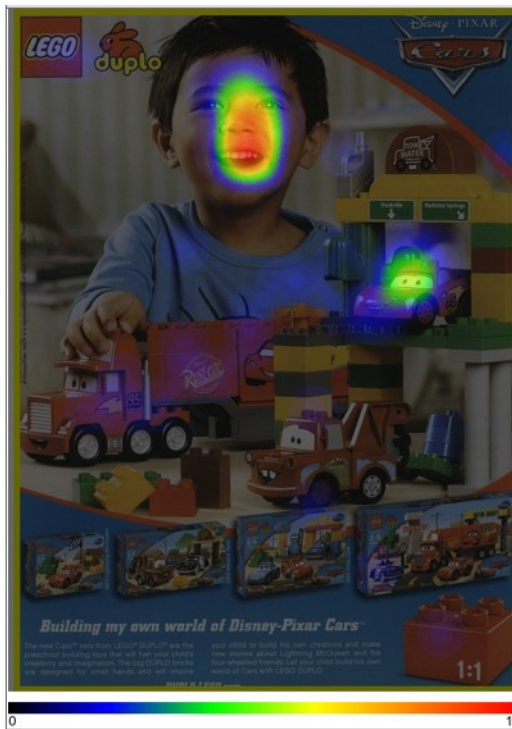
FIGURE 4.1

Female Heat Map – Highly Focused On Boys Face



FIGURE 4.2

Male Heat Map – Focused On Both Face & Car



When looking at the differences between ages almost all of the heat maps are the same. The majority of the individuals chose the boys face as the most appealing area of the advertisement. The only age group that chose more than just the face were individuals between the ages of 33-45. This group chose the face and the largest of the red trucks as the two most appealing places on the advertisement.

When looking at the difference socio-economic groups, almost all groups chose the face of the boy as the most appealing area of the advertisement as well as the car. This can be seen in Figure 4.3 below. The only group that really differed from the rest of the economic groups were individuals in the working class group who actually chose the car more than they did the face, although the face was still a hot spot for this group of individuals. The working class group also showed a greater variation in where they

clicked on the advertisement as the glowing light blue spots indicate areas of interest by a few individuals from this economic group. This can be seen below in Figure 4.4.

FIGURE 4.3

Lower Class Heat Map – Focused Heavily on Car and Face



FIGURE 4.4

Working Class Heat Map – Increased number of focal points.



The working class is the only group where the face wasn't the most appealing area, this group also has the most variance in where individuals from the same group were drawn to.

There are also differences in what was found most appealing between geographic regions as well. There was one similarity across the board and that was all regions were heavily drawn to the boy's face. Individuals who associated themselves with the International, Northeast, West, or Midwest geographic regions all chose the two areas of the advertisements that have been most popular with other groups, that is the face and the car. Individuals from the east and west coast not only highlighted the face and car but also chose the Duplo symbol in the upper left corner as well. An example of this can be seen below in Figure 4.5.

FIGURE 4.5

West Coast Heat Map – Focused on Car, Face, and Duplo Symbol



Figure 4.5 is the heat map from individuals who indicated their geographic region being the east coast.

Another interesting difference between regions is that individuals from the south and southwest regions not only chose the face as a hot spot, but they were the only two regions that clicked on the boy's blue shirt as a hot spot as well. An example of this can be seen below in the heat map for the southern region.

FIGURE 4.6

Southern Region Heat Map



While all of the heat maps for each category are different, some in small and some in large ways, it is interesting to see the similarities between the different categories mentioned above.

In summary, the overall most popular area on the Lego advertisement is the boys face, the following are the differences each group had, keeping in mind that boys face was a very popular focal point for all groups.

- Men: the red car
- All classes except the working class the red car
- Working class: the red car, the red semi-truck, two of the product boxes
- International participants: the red car
- Participants from the Northeast, West, and Midwest: the red car
- Participants from the East and West Coasts: the red car and the Duplo logo
- Participants from the south and southwest: the boys blue shirt

Nike Heat Map

There are differences in preference of what area of the Nike advertisement is most appealing in all four categories: gender, socio-economic group, age, and geographic affiliation.

The biggest difference in preference for the Nike heat map is between the age group 18-22 years old and the age group 23-32 years old. The two areas that are most appealing in the 18-22 year old group are the mountaintop and the bridge. Both of these areas have a very strong contrast, the mountain being white and black and the bridge being black and blue. This can be seen in Figure 4.7 below. This is very different than the areas that are appealing to individuals between the ages of 23-32. Instead the most popular areas for this group are the area by the fan and the area between the forest and the desert. This can be seen in Figure 4.8. While the areas that are most chosen between

these two ages groups differ, both age groups have chosen two areas where the colors are highly contrasting.

FIGURE 4.7

Heat Map: Ages 18-22

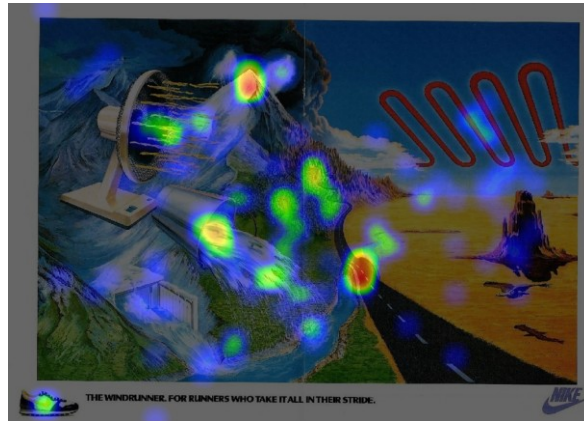
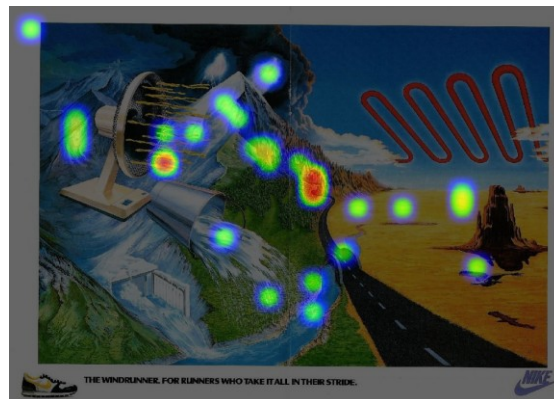


FIGURE 4.8

Heat Map: Age 23-32



For all categories the four most chosen areas of this Nike advertisement are on the bridge, on the mountain slope where the forest meets the yellow part of the hill, on

the top of the mountain, and by the fan. Some groups chose the area where the bucket is pouring out water but that area is not as actively picked as the other four areas.

All of the hot spots are different for each geographic region except for the Midwest and the Southwest which both have very similar hot spots. Both geographic regions indicated the bridge as the most appealing area of the advertisement. This similarity can be seen below in Figures 4.9 and 4.10.

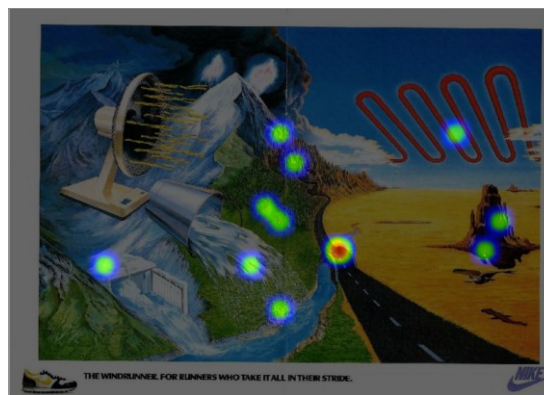
FIGURE 4.9

Heat Map: Midwestern Region of the United States



FIGURE 4.10

Heat Map: Southwest Region of the United States



Individuals from the northeast indicated the water being poured out of the bucket as the most appealing area, while individuals from the south indicated the area where the green forest meets the yellow/orange desert slope of the mountain as the most appealing area. Again, it should be noted that while the most appealing areas are different between most regions, the most popular areas are those where there is a sharp contrast between two different colors.

Most Memorable Advertisements

The last qualitative piece of data taken from the survey designed for this study are the participants' responses to the advertisement they remembered most from the entire survey. This question was asked at the very end of the survey and participant responses are sorted below by category.

One characteristic that made individuals remember one advertisement over another was the sense of creativity. One participant said, [I remember] "The series of Sharpie advertisements because they were clean, colorful, and the content was creative." Also note that this individual points out the importance of an advertisement being clean. The idea that an advertisement is more effective if it does not have a lot of distractions is supported by other participants in this study. One participant said "The iPod ad. I really loved the color, shape and simplicity of it." Another participant also praised the iPod advertisement by saying "the iPod advertisement because it was bright and there was only one woman dancing, not a lot of other distractions." Another important characteristic that can help an advertisement stand out is brightness. The following quotes were said by two different participants. "I remember the bright colored Lego ad the most" and "the mascara advertisement, the colors were bright."

While creativity, simplicity, and brightness all seem important considering what survey participants have said, there is one characteristic that an advertisement can have that participants commented on the most, contrast. The following are all quotes said by a survey participants about contrast in an advertisement. The question being, please say which advertisement you remember most and why?

- “I liked the mascara with the bright blue because of the bright color contrast.”
- “I liked the Queen of Heart ad and how the black and white was contrasted with the little hints of red.”
- “The Color and Contrast from the red iPod ad.”
- “The Nike running shoe with the city backdrop. The contrast between black and yellow was very memorable”.
- “Nike shoes with the skyline. The color contrast.”
- “The Covergirl mascara... the black and white contrast with the orange.”
- “Apple iPod advertisement; contrast between the dancer and the color.”
- “The Nike ad with the city skyline. The contrast of bright colors against the black background was very catchy.”
- “The iPod ads have always stood out to me. I like the movement and the contrast in the ads.”
- “The Camel one, and the contrast of blue eyes against a green pool table.”

The above quotes about contrast are only some of the comments left in the survey, it should be noted that there are more comments about contrast in the results. It should also be noted that all of the quantitative data suggest a strong preference towards the color green, but when participants in the survey were asked to recall the most

memorable advertisement red was remembered most out of any other color so while green may be the most appealing color to many if not most of the participants, red seems to be the most memorable.

Conclusion

While there is a lot of information provided by the analysis of the survey data, there is some key information that was found in both the quantitative and qualitative analysis of the data. Starting with the quantitative information, the color that was preferred most above all other colors was green. The following groups show a statistically significant preference toward green; women, ages 18-22, ages 23-32, ages 33-45, ages 46-60, individuals from the northeast, individuals from the east coast, individuals from the Midwest, individuals from the southwest, individuals from the lower class, and individuals from the working class. This preference to green covers more categories of individuals than any other color tested in this study. The least preferred color in this study was purple with the only group showing statistical significance toward liking purple most being individuals who are international.

The qualitative data also proposed some interesting findings as well. The different words that participants associated with the five colors prove that one color can hold specific meanings. Green has the smallest variance in words associated with it and therefore is very strongly associated with nature and money. The heat maps that were collected through this study's survey also presented some very important information, most notable, that people from different regions, age groups, economic standing, and genders will all have differences in where they chose the most appealing area of an

advertisement to be. That being said there were still similarities among all groups as well, for example contrast was popular.

Lastly the quotes submitted by participants of the survey help to highlight the importance of four major characteristics of an advertisement: brightness, simplicity, creativity, and contrast.

The next chapter will discuss how the findings from this study can be used in the business world too better increase efficiency in product advertising. Limitations of this study will also be examined in Chapter 5.

CHAPTER V

CONCLUSION

The purpose of this study was to decide if individuals from different socioeconomic groups, geographic regions, and genders have different color preferences when looking at advertisements. The study found that age was important as well, so it was also included in the results. The purpose of this chapter is to summarize the findings, outline limitations in the research, describe how these findings contribute to businesses today, and build upon previous research that has studied the importance of color.

Before this chapter continues it is important to point out the limitations of this study. While 254 individuals took the survey distributed for this study, not all of the participants finished so some questions have more information than others. It should also be noted that while this survey was distributed to people of all ages, there was a large number of participants in the 18-22 year old group. It would be ideal have the ages of the participants to be more evenly spread across all groups. There are also more participants from the Midwest than any other region, and it would have been ideal if geographic affiliation was more evenly distributed. Lastly this study was taken by 254 individuals. As with most studies, having more participants would have been ideal.

This study started out with the intent of filling gaps in the research about the importance of color in advertisements. While many studies have been done on the

importance of using color or the color preferences that specific genders have, little research had been done on how much an individual's geographic affiliation or socioeconomic status influences color preference. A survey was distributed and taken by 254 individuals from all over the United States as well as internationally. The survey included many different types of questions to test for color preferences.

The following results to the survey as presented in the previous chapter showed that green was the color that was most preferred across the board. Green was shown to be the statistically significant favorite for women, people between the ages of 18 to 60, individuals from the Northeast, East Coast, Midwest, and Southwest, as well as individuals who are of the lower and working classes. An interesting finding from the quantitative analysis shows that purple was only shown to be a statistically significant favorite for individuals who were international. The analysis of variance also shows that people who are categorized as upper class, individuals from the West Coast and Midwest, as well as both genders show a statistically significant favoring toward highly contrasting advertisements. This is further supported in the qualitative analysis as many of the participants stated that they remembered a specific advertisement because the color contrast caught their eye. This also supports the study done by Moore et al who found that contrast was very important in online banner advertisements as it captures the attention of the viewer.¹ The quotes provided by the participants also suggest that brightness, simplicity, and humor are important components in making an advertisement memorable.

¹ Moore, Robert S., Claire Allison Stammerjohan, and Robin A. Coulter. "Banner Advertiser-Web Site Context Congruity and Color Effects on Attention and Attitudes." *Journal of Advertising* 34, no. 2 (2005): pp. 71-84.

One of the survey questions asked participants to write one word that they most associated with a color. Interestingly green was the dominant color in this type of question as well. While there were specific meanings that continued to repeat for each color such as fruit for orange or love for red, none of the colors got close to the 130 participants who all said nature for green. This data supports Madden, Hewett, and Roth's study concerning the importance of meaning associated with different colors.² The results also support Cimbalò, Beck, and Sendziak's findings that a sample population will associate a color with a specific meaning.³ This study shows that in this sample population the association between the color green and nature is very strong. This study proves that individuals have specific meanings attached to specific colors. This could be a very useful tool for advertising agencies in the future as they can target what kind of meaning a product would like to display to its audience. This also supports what Wagner found in his study about the importance of using a color with a product to imply a meaning, for example how orange was placed into Wienerschnitzel's logo to imply that it is a low cost food.⁴

While other studies have examined differences in color preferences between genders, this study looks at many different characteristics that could influence an individual's color preferences such as socioeconomic status, geographic affiliation, and age. This research has proven quite different from research in the past. For example

² Madden, Thomas J., Kelly Hewett, and Martin S. Roth. "Managing Images in Different Cultures: A Cross-National Study of Color Meanings and Preferences." *Journal of International Marketing* 8, no. 4 (2000): pp. 90-107.

³ Cimbalò, Richard S., Karen L. Beck, and Donna S. Sendziak. "Emotionally toned pictures and color selection for children and college students." *Journal of Genetic Psychology* 133, no. 2 (1978): 303-304.

⁴ Laney, R. "Does orange mean cheap?" *Forbes* 148, no. 14 (1991): 144-147.

Luckiesh looked at color preferences, and found that red and blue are the two dominant colors to use in an advertisement depending on the viewer's gender, but nothing was said about green.⁵ In this study, green was hands down the most preferred color and while different regions, ages, and socio economic groups did show preferences toward different colors, green was the overall favorite. This could be attributed to the fact that Luckiesh's study was done in 1927 and is possibly no longer relevant to today's society. This study helps to fill in the gap in research so the findings are more applicable to today's society.

Summary of Findings

The following is a summary of the most important findings from this study.

- It was pointed out in the literature review that a study done by Schindler showed contrast to be an effective way to catch consumer's attention and should be used more.⁶ This study supports that suggestion. The Nike advertisement used in this study supports this conclusion in particular; while there were differences among groups on what areas were most appealing, all of the areas that were chosen as appealing were either near or right on areas of the advertisement are highly contrasting. The importance of using highly contrasting colors in advertisements is further supported in comments that were made by

⁵ Luckiesh, M. *Light and Color in Advertising and Merchandising*. New York: D. Van Nostrand Company, Inc., 1927.

⁶ Schindler, Pamela S. "Color and Contrast in Magazine Advertising." *Psychology & Marketing* 3, no. 2 (1986): 69-78.

participants of the study after they were asked which advertisement they remembered most and why.

- It is important for advertisements to be clean and to use color carefully as to not distract the viewer but rather enhance where attention should be paid. Many participants point this out when they were asked which advertisement from the study they remembered the most and why. Most participants remembered advertisements that were not distracting with their use of color. This supports the use of highlighting in an advertisement instead of using an all color or all black and white advertisement.
- There is an appeal towards humans. In the Lego advertisement for this study every group clicked on the little boys face as an appealing area. While this has little to do with color, it is interesting to note that there is an appeal towards looking at another human being in an advertisement. It should be noted that this could also have to do with the face in particular as it was a very happy looking young child.
- When looking at color meanings, orange had the greatest variety of meanings, this means that people associate orange with a specific meaning the least out of any of the colors that were in this study. On the contrary, green had the lowest variation in associated meanings. Thus, there is a very strong association between green and a specific meaning. This study shows that green is very strongly associated with nature. It should be noted that the color with the strongest association

with a specific meaning, green, was also the overall most preferred color in the entire study.

- Green is by far the most popular color, with eleven different groups showing a statistically significant preference toward it. The following groups show that preference:
 - Lower and working Class
 - Participants from the Northeast, East Coast, Midwest, and Southwest
 - Participants between the ages of 18-60
 - Females
- Red is the second most popular color with seven different groups showing a statistically significant preference toward it. The following groups showed that preference:
 - Participants from the South, West, and Midwest
 - Participants who were under 18, between the ages of 18-22, and between the ages of 33-45

When looking at the comments that some participants made at the end of the survey it should be noted that it is not a coincidence that green and red were the most popular colors. Participants' comments support the idea that while green is the most likeable color, red is in fact the most memorable, concluding that using a combination of the two different colors would be idea, especially if they were highly contrasting.

Future Research

One area for future research would be to try to figure out why green is so popular today. One possibility is that in the past five years the attention that has been

placed on environmental issues has increased, this could increase individuals' awareness of their surroundings and of nature, which is the word that green was most associated with in this study.

The findings suggest that green may be underused in advertisements today. Red and blue are consistently being used to try to catch the attention of the viewer, but this study supports the use of green in an advertisement if the aim is to get viewers to look at it favorably. That being said it is mentioned in the previous chapter that while green is color that is liked most; there is something to be said for an advertisement that has red or a stark contrast. For example, many of the quotes from survey participants noted that while green was preferred, the most remembered advertisements were consistently red. So while a company might want its advertisements to be visually pleasing, there is something to be said for an advertisement being memorable.

Another area that can be further explored is the importance of using human beings in an advertisement. The Lego advertisement that was used in this study showed that a human's face was a very popular focal point when looking at an advertisement. While the person in this advertisement was a young boy who was looking very happy, further research could examine what kinds of people or emotional expressions are most appealing to a viewer.

The results of this study prove that color preference has indeed changed. As mentioned earlier, blue and red have been the favorite colors in advertisements in the past. While red is still be quite memorable, blue has lost its appeal. Instead, green has become much more popular, pretty much replacing blue as the best color to use in advertisements alongside red. This change in color preference is an area that could be

studied in the future, asking if there are fads in color preferences and why those fads may exist and change between different generations or societies.

Practical Implications

The results presented in this study have many practical implications. First, different colors mean different things to different people and this study proves that, suggesting that it is absolutely necessary for advertisers to know who they are targeting and to choose colors according to how that target audience perceives particular colors.

This study also proves that contrast is very important as it draws the viewer in to an area. This means it would be wise to place the product, idea, or point that is most important in the advertisement in the area with the highest contrast as that is where viewers are most attracted to and are most likely to remember. Along the same lines, highlighting is also very effective as it brings attention to the area of the advertisement that is most important while at the same time keeping the advertisement simple with little distraction.

Lastly, the use of green in advertisements should be increased. Red should also be used. Green proved to be likeable while red was proven to be memorable, and so a combination of the two colors is ideal in advertisements today. That being said, it is also very important to make sure the colors do go along with the product as well, using a vibrant green would not be ideal for an advertisement that is trying to get across a relaxing message.

Conclusion

This study has not only built upon previous research concerning the importance of color in advertising, but has also opened up a new area to be further explored: The role of geographic location, socio-economic status, age, and gender in deciding color preferences today. It can be concluded that all three hypothesis proposed earlier in this study can be confirmed true.

- *Individuals of different gender will have difference color preferences in print advertisements.* While there were some similarities between genders, there are also some differences. For example women showed a statistically significant preference toward green, teal, and highly contrasting images, while men only showed statistical significance toward highly contrasting advertisements. This difference in what was statistically significant proves that gender will influence color preference.
- *Individuals from different regions of the United States have different color preferences in print advertisements.* Again, green was the most popular color with the majority of regions showing a statistically significant preference toward green, these regions being the Northeast, East Coast, Midwest, and Southwest. But this hypothesis is proven to be true as individuals who are international showed a statistically significant preference toward purple, and individuals from the South and West showed a statistically significant preference toward red. Table 4.11 in Chapter IV shows that people from different regions can show preference toward multiple colors, it all depended on what colors were being compared in each questions. Still green remains the most popular color across

different regions. No two regions show statistical significance toward preferring the same colors, making each region unique.

- *Individuals from different socio-economic groups have different color preferences in print advertisements.* While the lower middle class doesn't show statistical significance toward any color, there was a difference in color preference between the upper class and the lower and working classes. The lower and working classes showed a preference toward green that was statistically significant while the upper class showed a preference toward the orange mascara advertisement that had such a stark contrast. Even though only two different color schemes showed statistical significance in three economic groups, the difference that is present between the groups proves that different economic groups will have different color preferences.

Conducting a similar study with more participants and a greater variety of participants would be ideal. Overall, the most important conclusion that came from this study is the importance of green. It was the most popular color among all participants, not just specific groups, and this was shown in both the quantitative and qualitative analyses.

WORKS CONSULTED

- Alsop, Ronald. "Color Grows More Important In Catching Consumers' Eyes." *The Wall Street Journal* (1984): 1.
- Bellizzi, Joseph A., Ayn E. Crowley, and Ronald W. Hasty. "The Effects of Color in Store Design." *Journal of Retailing* 59, no. 1 (1983): 21.
- Birren, F. *Color and Human response*. New York: Von Nostrand Reinhold, 1978.
- Cimbalo, Richard S., Karen L. Beck, and Donna S. Sendziak. "Emotionally toned pictures and color selection for children and college students." *Journal of Genetic Psychology* 133, no. 2 (1978): 303-304.
- Edell, Julie A., and Richard Staelin. "The Information Processing of Pictures in Print Advertisements." *Journal of Consumer Research* 10, no. 1 (1983): pp. 45-61.
- Fernandez, Karen V., and Dennis L. Rosen. "The Effectiveness of Information and Color in Yellow Pages Advertising." *Journal of Advertising* 29, no. 2 (2000): pp. 61-73.
- Feucht, Fred. "Which Hue is Best? Test Your Color I.Q." *Advertising Age*, September 14 1987
- Gardner, Burleigh B., and Yehudi A. Cohen. "ROP Color and Its Effect on Newspaper Advertising." *Journal of Marketing Research* 1, no. 2 (1964): pp. 68-70.
- Gorn, Gerald J., Amitava Chattopadhyay, Tracey Yi, and Darren W. Dahl. "Effects of Color As an Executional Cue in Advertising: They're in the Shade." *Management Science* 43, no. 10 (1997): pp. 1387-1400.
- Hoyenga, Katherine Blick, and Benjamin Wallace. "Sex Differences in the Perception of Autokinetic Movement of an Afterimage." *Journal of General Psychology* 100, no. 1 (1979): 93.
- Kay, Herbert, and Dan E. Clark II. "Effects of Injecting "Local Color" into Advertisements." *The Journal of Marketing* 23, no. 1 (1958): pp. 56-58.
- Laney, R. "Does orange mean cheap?" *Forbes* 148, no. 14 (1991): 144-147.

- Lee, Seonsu, and James H. Barnes. "Using color preferences in magazine advertising." *Journal of Advertising Research* 29, no. 6 (1989): 25-30.
- Luckiesh, M. *Light and Color in Advertising and Merchandising*. New York: D. Van Nostrand Company, Inc., 1927.
- Madden, Thomas J., Kelly Hewett, and Martin S. Roth. "Managing Images in Different Cultures: A Cross-National Study of Color Meanings and Preferences." *Journal of International Marketing* 8, no. 4 (2000): pp. 90-107.
- Meyers-Levy, Joan, and Laura A. Peracchio. "Understanding the Effects of Color: How the Correspondence between Available and Required Resources Affects Attitudes." *Journal of Consumer Research* 22, no. 2 (1995): pp. 121-138.
- Moore, Robert S., Claire Allison Stammerjohan, and Robin A. Coulter. "Banner Advertiser-Web Site Context Congruity and Color Effects on Attention and Attitudes." *Journal of Advertising* 34, no. 2 (2005): pp. 71-84.
- Putrevu, Sanjay. "Communicating with the Sexes." *Journal of Advertising* 33, no. 3 (2004): 51-62.
- Ramirez, Anthony. "Lessons in the Cracker Market, How Nabisco Saved New Graham Snack." *New York Times* (1990) D1.
- Schindler, Pamela S. "Color and Contrast in Magazine Advertising." *Psychology & Marketing* 3, no. 2 (1986): 69-78.
- Sparkman, Richard, Jr., and Larry M. Austin. "The Effect on Sales of Color in Newspaper Advertisements." *Journal of Advertising* 9, no. 4 (1980): pp. 39-42.
- Trueman, John. "Existence and Robustness of the Blue and Seven Phenomena." *Journal of General Psychology* 101, no. 1 (1979): 23.