

COLOR GRADING IN FILM: HOW COMPLEMENTARY  
COLORS AFFECT AN AUDIENCE'S PERCEPTION OF MOOD

By

Audrey Everett

Departmental Honors Thesis

Appalachian State University

Submitted to the Department of Communication


in partial fulfillment of the requirements for the degree of

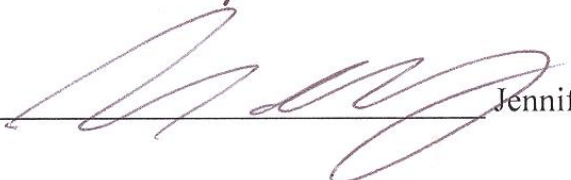
Bachelor of Science

April 2018

Approved by:

 Valerie Wieskamp, Ph.D., Thesis Director

 Jeff Goodman, M.A., Second Reader

 Jennifer Gray, Ph.D., Departmental Honors Director

## TABLE OF CONTENTS

Acknowledgements.....	3
Abstract.....	4
Introduction.....	5
Research.....	6
Examples in Modern Cinema.....	6
Color Theory.....	10
Purpose of Study.....	13
Research Questions.....	13
Hypotheses.....	13
Methodology.....	15
Results.....	17
Survey Demographics.....	17
Control.....	17
Teal and Orange LUT.....	19
Red and Green LUT.....	21
Purple and Yellow LUT.....	23
Discussion.....	25
Limitations.....	29
Conclusion.....	31
Appendix.....	32
Works Cited.....	35

## **ACKNOWLEDGEMENTS**

I would first like to thank Dr. Valerie Wieskamp for advising me throughout this process. Her endless help and guidance gave me confidence in my work and aided to inspire my writing as an undergraduate student. Thank you for always checking on my progress and keeping me on track to finish my thesis.

Secondly I would like to thank Mr. Jeff Goodman for being both a second opinion on my thesis, and for all of the guidance I've had in the past four years at Appalachian State University. You taught me how to produce a film from concept to creation and inspired my passion in the field. Furthermore, thank you for always encouraging my creative endeavors, even when I'm thousands of miles away.

Lastly, I want to thank my mom, dad, and sister for being the biggest support system I could ask for. To have constant love and encouragement throughout this process has made all the difference. I would not have been able to complete this thesis without the constant phone calls, questions, and help. During the times when I was more stressed than I thought I could handle, you always leveled me and help me persist.

I'd also like to thank Autumn Mowery for acting as the talent for my thesis clip, and Dr. Jennifer Gray for helping make the whole process easier. Furthermore, thank you to Appalachian State University's Communication Department and the 233 subjects who made this thesis possible.

## ABSTRACT

Color grading in film is an integral part of the post-production process, yet it is commonly overlooked by an audience. Colorists create Look-Up Tables, or LUTs, to act as filters for the final product that alter or emphasize specific colors in a movie. The most common LUT is the Teal and Orange grade and was used in many of the highest grossing films last year including *Furious 7*, *Jurassic World*, and *Beauty and the Beast*. The purpose of this study is to determine why the Teal and Orange LUT is so popular, and whether it poses any specific emotional appeals to its audience. To do this I compared the Teal and Orange LUT to a Red and Green LUT and a Purple and Yellow LUT. I aim to not just understand why the Teal and Orange LUT is used often, but why the Red and Green LUT and Purple and Yellow LUT are so rarely used or when used in certain contexts. Through the study, the subjects were shown a clip graded in either one of the three LUTS, or an ungraded control, and asked about their emotional response and the overall mood of the clip. The data collected shows the audience had a stronger and more positive emotional response to the Teal and Orange LUT compared to the other two grades. Though the Red and Green LUT did not elicit an overtly negative emotional response, the overall mood was described as darker when the subjects were asked to describe the clip in an open-ended question. While the Purple and Yellow LUT showed similar emotional reactions to the Red and Green LUT, the results showed a more dated estimation of the time period in setting. From these results I can conclude that the Teal and Orange LUT is used most appealing and may be used most often because it produces the strongest emotional response rate from its audience.



## INTRODUCTION

As a videographer, I quickly became familiar with the importance of color grading during the post-production process. Developing Look-Up Tables (LUTs) are important to a colorist because it allows him or her to manipulate the raw clip however the director wants. However, as many times as I edited the tones of the clip to favor a Teal and Orange LUT, I never knew exactly why I was doing it. I began to ask myself what specifically about this grade was appealing and why did so many films rely on it. I developed my thesis based on these questions, and attempted to create a study that would help me explore the field. I turned my focus on comparing the Teal and Orange LUT to the other sets of complementary colors. I wanted to see why the other two sets, Red and Green and Purple and Yellow weren't used often in film.

The concept of color grading isn't revolutionary by any means. Since movies began to pick up speed, colorists have been allotted the job of enhancing the tones of a movie to create a certain theme. These themes then develop the notion of color grades, where the grade determines the mood. When watching any popular film today, it's easy to see the theme that the film's color scheme takes. In recent years, it has become a trend to focus this theme on a Teal and Orange grade.

I aimed to develop a quantitative way of analyzing how these LUTs are experienced by an audience and whether the emotional perception is the appeal when using a specific LUT. By comparing all three grades, I hoped to develop the answer to a question I've had in my years of video editing. My research will help the post-production field in recognizing the psychological and emotional appeal of coloring in film and give light to the benefits of using specific LUTs.

## RESEARCH

### EXAMPLES IN MODERN FILM

To begin, I wanted to recognize how often each Look-Up Table (LUT) was used in film, specifically how the Red and Green LUT and the Purple and Yellow LUT compared to the Teal and Orange LUT. I looked at the color grading of films in modern cinema and noted the popularity of each of the three LUTs. The Teal and Orange LUT was the most commonly seen LUT with most of the recent box-office hits utilizing this scheme. Examples include *Furious 7*, *Jurassic World*, *Kong: Skull Island*, and *Beauty and the Beast*, as seen in Figure 1 respectively. All four of these films were among the highest grossing films of 2015 and 2017 with *Jurassic World* topping the list at \$652,270,625 (“Domestic grosses,” 2015). It’s also interesting to note that all of these movies fall under the Action/Adventure or Fantasy genre (“Domestic grosses,” 2017).

To develop the Teal and Orange grade, a colorist would emphasize the natural warmth of a clip, hence the dramatization of the oranges in the skin and the blueness of the sky. The Teal and Orange LUT tends to look the most natural to the audience, because orange and teal are seen most often in the natural world. The contrasting of teal and orange allow for both colors to stand out in the frame without competing for attention. Both tones are often saturated to an unnatural level, making the characters look overly tanned and the sky look unnaturally saturated. Most films that use this grade often use it with the post-production work as well, adding teal to a scene that is overtly orange and vice versa (Theuissen, 2017).



Figure 1

The Red and Green LUT was the second most common grade and was seen in one or two of the box office hits from the past two years. Those include *Wonder Woman*, *Split*, *It*, and *Get Out*, as seen in Figure 2 respectively. Notably, all of these films were some of the highest grossing films of 2017, but the grade was seen less frequently. *Wonder Woman* came in with a gross of \$412,563,408, just under *Beauty and the Beast*'s \$504,014,165. ("Domestic grosses," 2017). These films fell under the Horror and Action and Adventure, and Thriller genres, and often offered a colder tone to them. For example, while both *Wonder Woman* and *Kong: Skull Island* were classified as Action and Adventure, *Wonder Woman*'s overall theme was more desolate compared to *Kong: Skull Island*'s tropical tone ("Domestic grosses," 2017).



Figure 2

To develop the Red and Green grade, the film's costume designer and set designer need to understand how to intentionally include doses of each color. This is because red and green aren't commonly found in the human form and need to be created for a film to successfully use this LUT. Many films have used this grade in the past as an indicator of mood or to foreshadow a character's motive. *Split* director, M. Night Shyamalan is known for actively using this grade in his films to leave clues for the audience as to how the plot will play out (James, 2018). Because emphasizing these colors is a premeditated decision, it is important that every aspect of the film focus on the grade, and not just the post-production work.



The Purple and Yellow LUT proved to be very difficult to find in popular cinema, leaving me to broaden my search. I found that director, Wes Anderson, tended to favor this LUT, specifically when he did period pieces. Some of his films that utilize the Purple and Yellow LUT are *The Grand Budapest Hotel*, *The Darjeeling Limited*, *Moonrise Kingdom*, and *Fantastic Mr. Fox*, as seen in Figure 3 respectively. This grade tends to be the most whimsical and unnatural of the three, simply because the colors are rarely found in the natural world. Anderson is noted to use this combination of colors to elicit a childhood optimism and romantic whimsical tone to his films (Vreeland, 2015). Those aforementioned all have a similar childlike tone throughout that seems just out of touch with reality.



Figure 3

Anderson also uses this grade to create a film that is off-kilter and unnatural. In most of the films where Anderson utilizes this grade, he manufactures his sets and costumes to comply with the grade (Vreeland, 2015). Like the Red and Green LUT, the Purple and Yellow LUT would look unnatural if applied to a generic clip. The films that incorporate this LUT are very niche in their genre and audience and have rarely had top box office results. The highest, *The Grand Budapest Hotel*, had only \$59,301,324 compared to the box office hits that use the Teal and Orange Grade (“The Grand Budapest Hotel,” 2014). Most of Anderson’s films fall under the Drama or Comedy genre and tend to have a higher gross from international sales than domestic (“The Grand Budapest Hotel,” 2014). Its inconvenience might suggest one of the reasons this grade is rarely seen in modern cinema.

## COLOR THEORY

Many theorists offer categorical definitions for each color and the emotions that pair with each, often referred to as Color Theory. The first analysis was in 1810 when Johann Wolfgang von Goethe developed a coherent listing of how colors affect individual morality. Goethe concluded that each color has a corresponding influence to a familiar emotion and these are constant from person to person. “We can conclude that general impressions produced by single colors cannot be changed, that they act specifically, and must produce definite, specific states in the living organ” (Goethe, 1810, pg. 305). Goethe states that each color evokes a stimulated emotion that is subconscious in the mind.

Naz Kaya's research elaborated on the emotional relations of color by identifying the positive and negative emotions associated with each color. Kaya also notes how an individual's cultural background can influence how perceptive he or she is to a color. For example, the colors red and blue offer more positive responses for citizens of the United States while offering negative responses for other countries (Kaya, 2004). This might offer an explanation as to why both the teal and orange and the red and green grades are so popular, as the colors blue and red resonate more with Americans. In contrast, the purple and yellow grade wouldn't have any cultural ties to an American audience, explaining why Wes Anderson's films are more popular internationally.

Claudia Cortes developed a listing of both negative and positive traits associated with each color. The color and emotional pairing described by Cortes is as follows:

Color	Positive Trait	Negative Trait	Emotion
Red	Active, Emotional	Offensive, Embarrassed	Anger, Love
Orange	Ambition	Tiring	Joy, Determination
Yellow	Lively, Energetic	Cautious	Fear, Joy, Happiness
Green	Calm, Neutral	Greedy, Sick	Faith, Greed
Blue	Faithful, Traditional	Depressed	Confident, Sadness
Purple	Leadership, Passive	Arrogant, Sorrow	Introspective, Melancholic

Figure 4 (Nijdam, 2005)

Using Cortes' research on how color combinations compare, it can be inferred that the Teal and Orange LUT would offer audiences a confident and determined mood. The Red and Green LUT would create an emotional and calm mood. The Yellow and Purple LUT would provide an energetic and passive mood. The negative traits paired with each color might also offer an indication as to why the grades are used. The Teal and Orange LUT could also elicit a tiring and depressed mood. The Red and Green LUT would provide an offensive or sick tone, giving indication as to why it is used in horror and thriller genres. The Purple and Yellow LUT would give the mood of cautious and sorrow which, when combined with the positive traits, might give the audience emotional confusion and create the unsettling traits such as nostalgia and frustration (Cortes, 2003).

When comparing color theory to the modern film examples, a relation can be found with the moods perceived in each LUT. Teal and orange create an overall positive mood, predominately seen in most action and adventure films. Red and green create a darker tone as seen in both the colors traits of anger, love, faith, and greed. These are collectively the main emotions found with movies in the thriller genre and are mirrored in the popular movies that use this grade such as *Get Out* and *It*. The main notes that purple and yellow create are an introspective, melancholy mix of competing emotions. These are traits mostly seen in the romantic or indie genre and tend to explore the theme of time. Anderson's films are centered on a common, unsettling mood that leaves audiences feeling simultaneously happy and sad (Cortes, 2003).



## PURPOSE OF THE STUDY

### RESEARCH QUESTIONS

A collection of modern film examples and color theory research suggests how complementary colors can affect an audience's perception of mood. Over the course of my study, I aimed to answer three research questions:

1. How does color grading in a film affect an audience's perception of mood?
2. Why was the Teal and Orange Look-Up Table (LUT) more commonly used in modern film?
3. Why weren't the Red and Green LUT and the Purple and Yellow LUT used as frequently as the Teal and Orange LUT in modern film?

### HYPOTHESES

After analyzing the research on Color Theory, I hypothesize that color grading is used in film as a way to subconsciously direct how an audience should perceive the emotions of the film. For example, if a director wanted the audience to feel stressed and anxious throughout the movie, he or she might subtly include notes of red and green. The audience wouldn't consciously notice this difference, but would subconsciously be told how to feel. This would give the reason why the Teal and Orange LUT is used most often because it has the most positive connotation to it. If an audience feels happy or excited after watching a movie, he or she may be more likely to watch it again, therefore generating higher revenue for the film.

H1: I predict that the Teal and Orange LUT will provide the strongest emotional response from my subjects, along with the most positive emotional trend.

H2: To contrast, I predict the Red and Green LUT will draw a more negative emotional trend and be more closely associated with films in the horror and thriller genre. I've drawn this conclusion because the modern examples that use these grades tend to fall into similar categories and are rarely seen in traditionally happy films.

H3: Lastly, I predict that the Purple and Yellow LUT will be closely associated with independent movies similar to Wes Anderson's style of directing. I also think that this grade will provide a strong sense of time and give the clip a dated feel. This being said, I think the reason why the Red and Green LUT and Purple and Yellow LUT aren't used as frequently in film is because they can't as easily offer a marketable feel to a movie. Both color grades are niche in their genre or emotional appeal and are less accepted as a positive movie by a mass audience.

## METHODOLOGY

For my study I filmed a short, 15-second clip that I graded in the three different Look-Up Tables (LUTs) using Adobe Lightroom CC 2015 (Version 6.0) and Adobe Premiere Pro CC 2018. The settings used for each LUT can be seen in Appendix A. The clip is of a subject walking away from the camera, turning and summoning the audience before leaving again. It was important that the subject be dressed in non-descript clothes so that the subject of the film would influence the emotional response as little as possible. The clip was taken on the Blue Ridge Parkway in Boone, North Carolina during February 2018. Screenshots of the Teal and Orange grade, Red and Green grade, Purple and Yellow grade, and ungraded control are displayed in Figure 5, respectively.



Figure 5

From there I developed a short survey in which a subject would watch a graded clip or ungraded control clip and answer questions regarding their emotional perception, the general mood, the time period, and the genre of the clip. The questions are displayed in Appendix A. I created the survey through Appalachian State University's Qualtrics system and distributed the survey to various Appalachian State University students via their professors. I kept the survey group to undergraduate students and attempted to reach as wide a variety of majors as possible. I randomized which grade the subject would be viewing between the three LUTs and the control. To insure randomness, I used Qualtrics' in-survey tools to randomize which of the four clips were shown when a subject opened the survey. From February 10, 2018 to March 19, 2018 I received 350 submissions. After reviewing the data, I eliminated the 116 incomplete surveys and created my analysis from the 233 remaining submissions. My data spread was as follows: 59 Teal and Orange LUT surveys, 61 Red and Green LUT surveys, 59 Purple and Yellow LUT surveys, and 54 control surveys.

## RESULTS

### SURVEY DEMOGRAPHIC

Of the 233 participants, a small majority were upper level students at either the junior or senior level, as seen in Appendix B1. Over 75% of students were female, and almost a third of the 233 participants were communication majors, shown in Appendix B2 and B3 respectively. The other two prominent majors were nursing and exercise science, each offering about 15% of the total. I had 33 unique majors, allowing the survey to reach a large diversity of education backgrounds.

### CONTROL

It was important to include a control in the survey in order to gauge the emotional response of the clip itself, regardless of any color alterations. By doing so, it created a standard to compare the graded clips to, allowing the specific effects of each grade to be seen clearly. Overall, the data shows a relatively positive emotional response to the clip, with the strongest emotion being safe at 22.30%. The one negative trait that appeared was the emotion suspicious at 10.57%. The control was rated relatively close to present time, with an average of 0.94 years in the future. When asked to describe the mood in one word, the subjects had a wide range of emotions with mysterious, suspenseful, calm, and intriguing taking the top. The control was also the only grade to receive at least one vote for each of the allotted genres. Drama, romantic, and adventure were the three most popular genres chosen. All of the data can be seen in Figure 8, respectively.

## SURVEY DATA FOR CONTROL GROUP

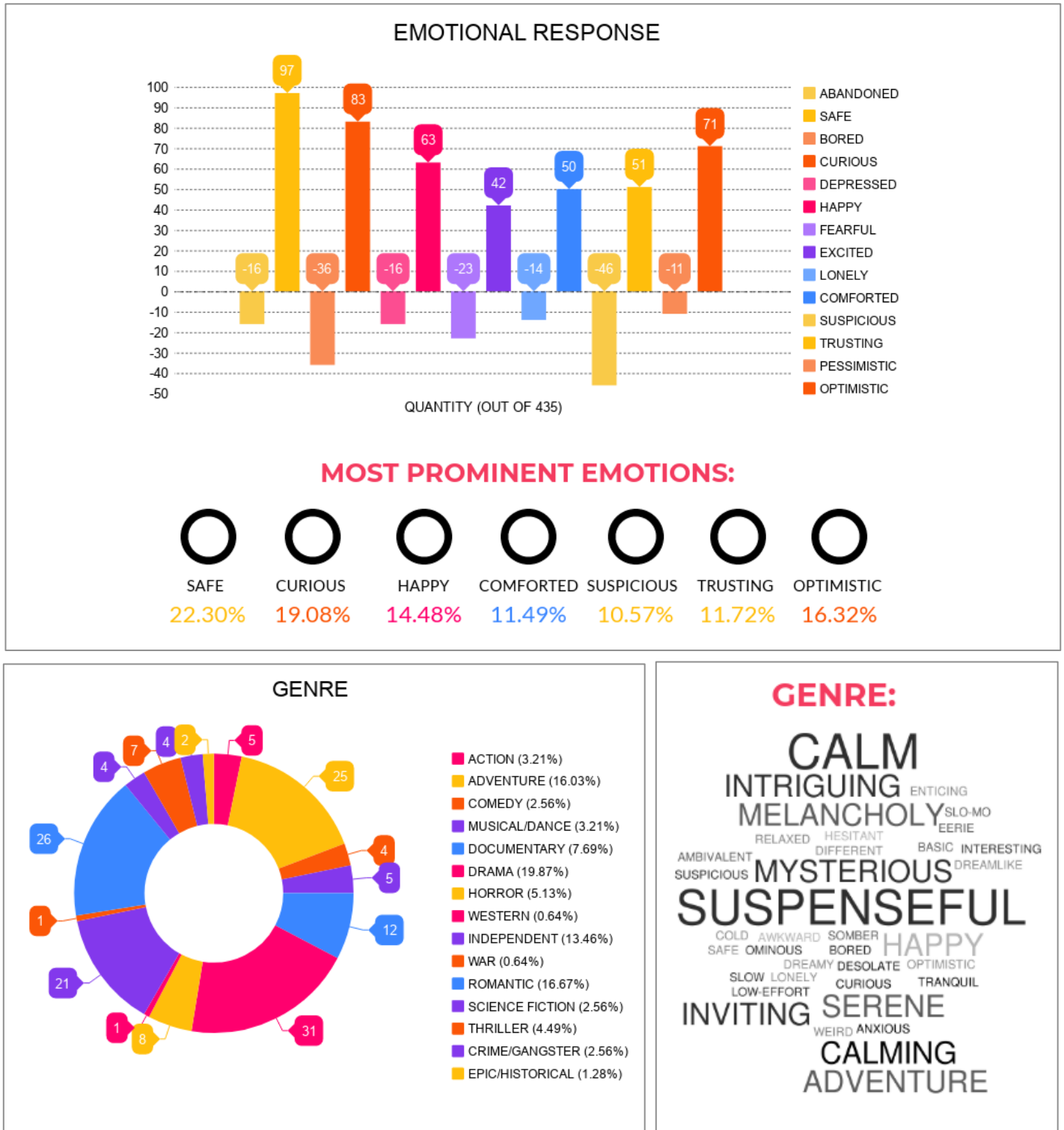


Figure 8

## TEAL AND ORANGE LUT

When analyzing the results from the Teal and Orange Look-Up Table (LUT), there was a overwhelmingly positive trend when the subjects were asked to scale their emotional perception between positive and negative emotions. For example, the subjects ranked a feeling of “safe” at 31.03% while the opposite emotion “abandoned” was only at 0.03%. All of the positive emotions outranked their negative pair by at least 250%, with the average positive emotion reaching 111 out of 435. To contrast, the negative traits average 23 out of 435. This states that not only did the subjects have an overall positive perception of the clip, but they had a stronger reception as well. On average, the clip was dated to be about 3.93 years in the future and the three strongest buzzwords about the mood were adventurous, calm, and intriguing. The three genres that appeared the most were romantic at 21.59%, adventure at 19.32%, and drama at 18.75%. The genre of action only received 2.27% of the votes. The previous data can be seen in Figure 9 respectively.

## SURVEY DATA FOR TEAL AND ORANGE LUT

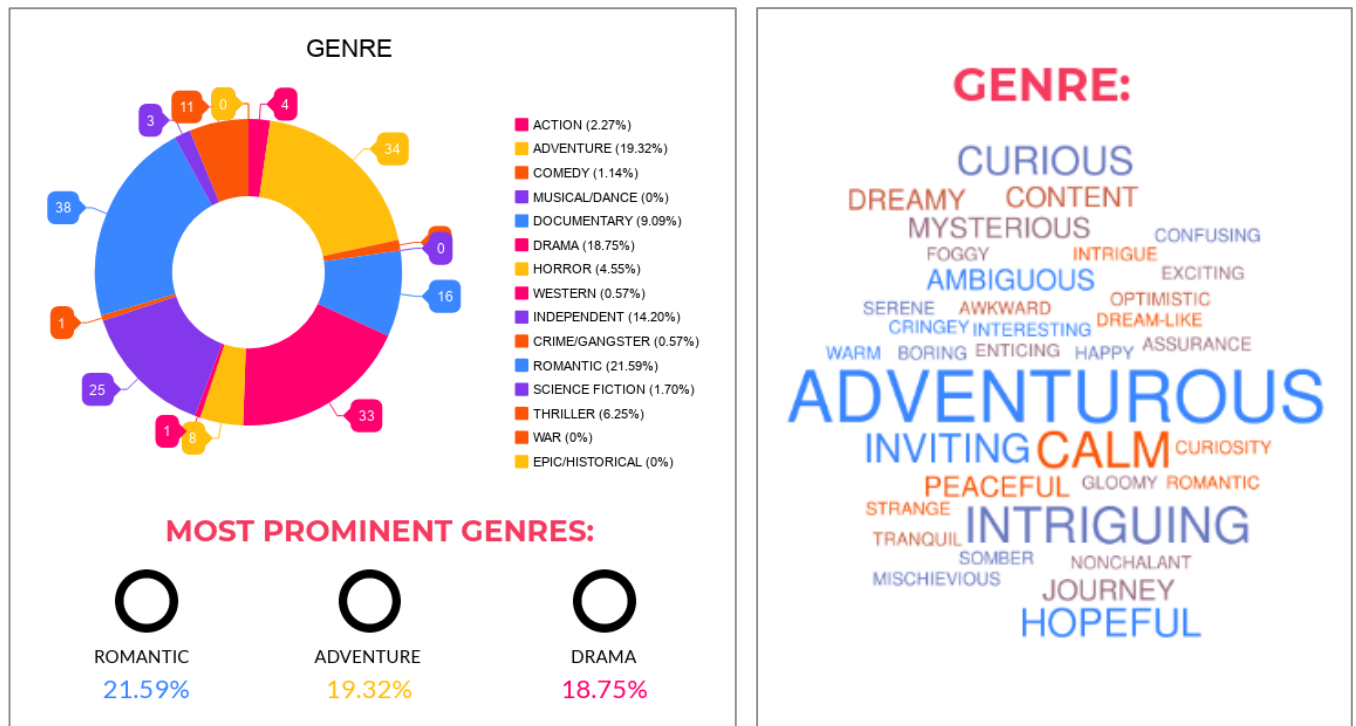
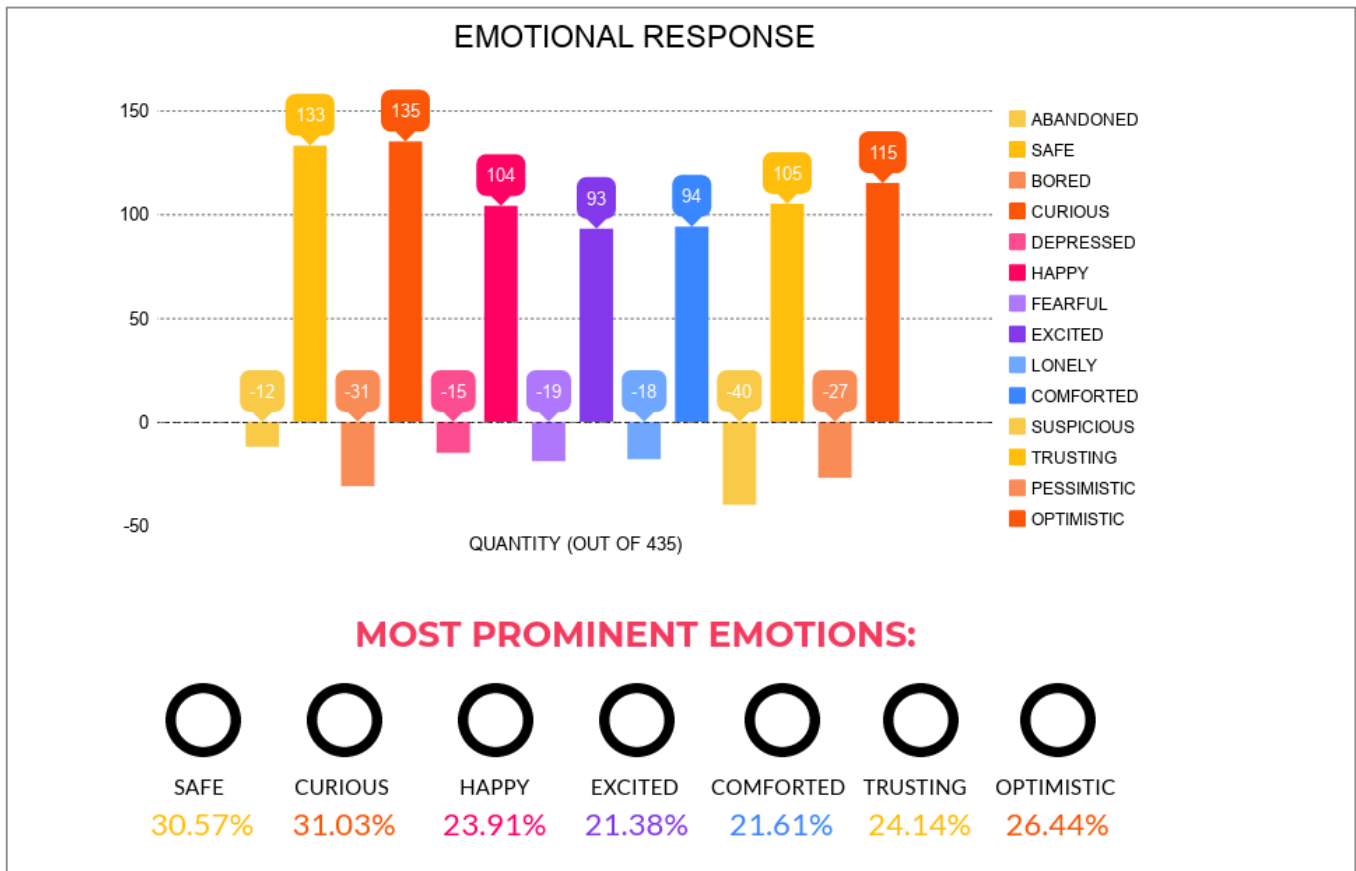


Figure 9



## RED AND GREEN LUT

The Red and Green LUT provided the most surprise in terms of the emotional perception of the clip. The subjects still felt a generally positive emotional perception, where all seven of the top emotions were the positive pair. There was one exception, in which the emotion “suspicious” outweighed its paired trait of “trusting” at 14.25% to 13.56%, respectively. Though the emotions still had an overall positive trend, the amplitude of these responses was much lower. The positive emotions averaged 85 while the negative emotions averaged 29 out of 435 possible points. The subjects dated the clip to be 1.21 years in the future, with mixed results over the board from 95 years in the past to 56 years in the future. The only prominent buzzword to appear was mysterious, with other supplementary moods including inviting, dreamy, suspicious, and weird. The genre prediction didn’t vary much from either the control or the Teal and Orange LUT, with drama, romantic, and adventure coming in the top. Other genres to note were thriller receiving 5.52%, horror receiving 3.31%, and science fiction receiving 2.76%. The data can be seen in Figure 10 respectively.

## SURVEY DATA FOR RED AND GREEN LUT

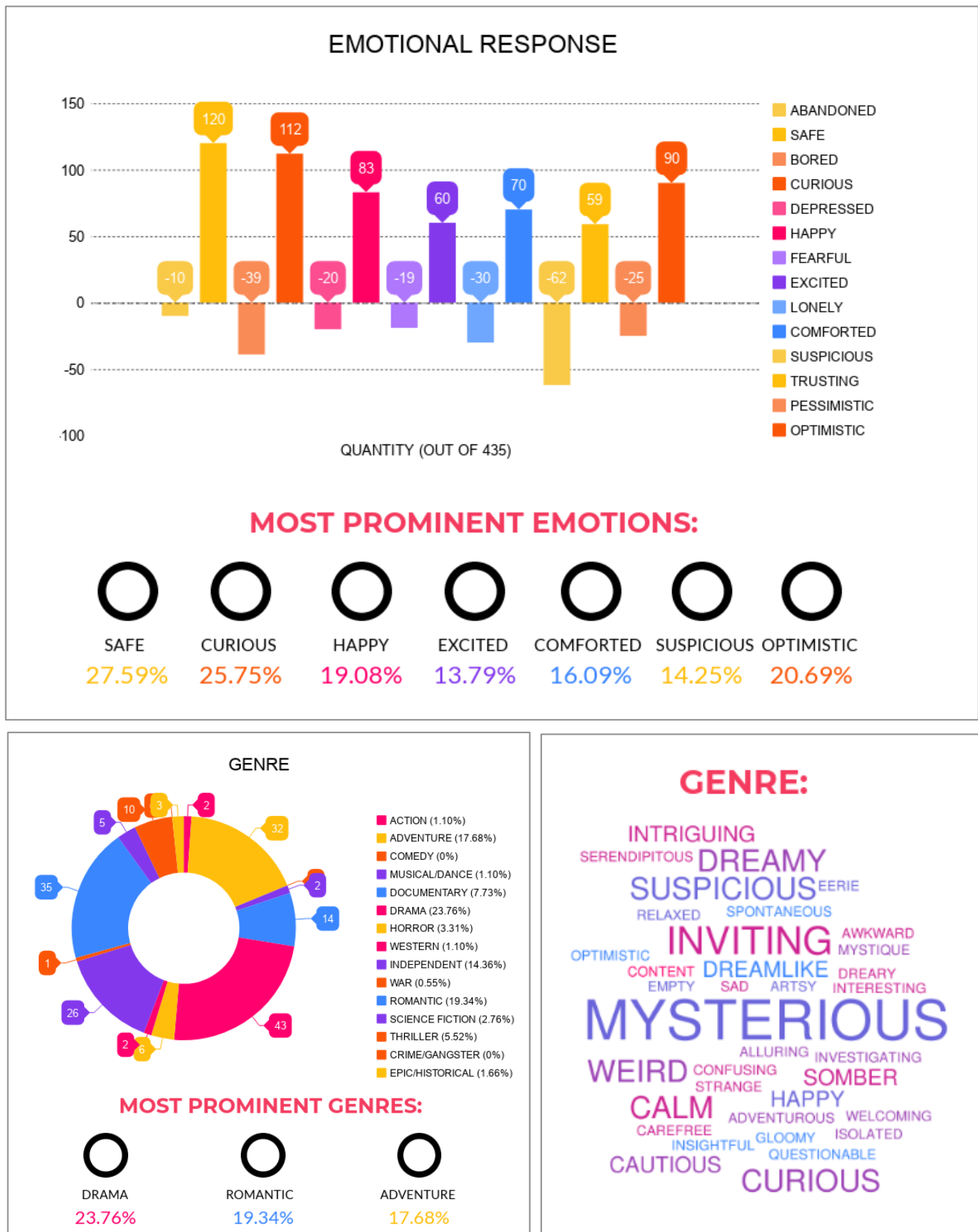


Figure 10

## PURPLE AND YELLOW LUT

Like the previous LUTs, the Purple and Yellow LUT had a generally positive emotional response. All seven of the positive pairs were the top choices for the subjects. However, like with the Red and Green LUT, “suspicious” outranked its paired trait of “trusting” at 14.02% to 13.56%, respectively. The emotional response level for the positive trait was 86, just barely stronger than the Red and Green LUT, but still significantly less than the Teal and Orange LUT. The Purple and Yellow LUT had the highest average negative trait of the three grades at 31 out of 435. The most interesting and conclusive result was that the subjects dated the clip to about 4.19 years in the past. 15 subjects dated the clip in the past with the lowest being 97 years while 15 subjects dated the clip in the future with a high of 55 years. The other 25 subjects didn’t date the clip. The two prominent buzzwords to describe the mood were adventurous and intriguing, with the subordinate words including suspicious, curious, interesting, and mysterious. Like the two other grades and control clip, the three main genres were drama romantic and adventure at 21.52%, 15.19%, and 14.56% respectively. However, the genre of independent was a close fourth at 13.92%. The data can be seen in Figure 11 respectively.

## SURVEY DATA FOR PURPLE AND YELLOW LUT

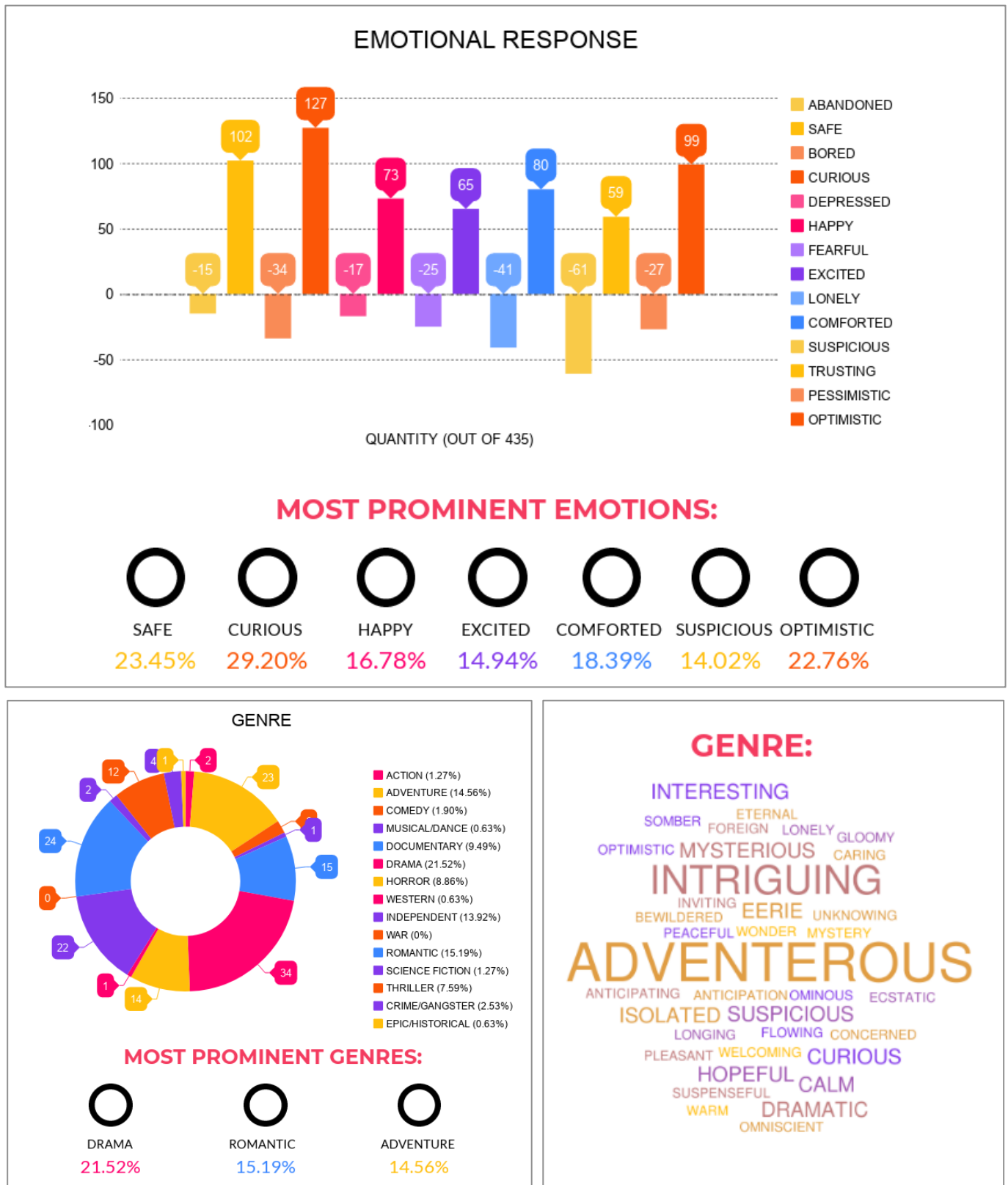


Figure 11

## DISCUSSION

Looking at the results, I can conclude that color grading affects and audience's perception of mood. The control had low results on both the positive and negative ends, and had a variety of different interpretations. Comparing the control results to the other three grades, there is a significant increase in the subject's emotional response. Even with the negative traits, there were stronger feelings attached to each, showing that the chosen grade directly influences the emotional impact of a clip. This leads to the conclusion that films use color grading to emphasize the emotional appeal and to bring about stronger, subconscious attachment. The research of Johann Wolfgang von Goethe, Naz Kaya, and Claudia Cortes model are supported in the results of the study in that there is a subconscious emotional perception to color. The subjects weren't aware that what they were looking at was the coloring of the clip, yet all of them felt an increase in their emotional attachment.

H1: To conclude, color grading affects an audience's emotional perception of mood by increasing their attentiveness and mental stimulation through color's psychological pairing to emotion. In other words, color draws an emotional response from a viewer, giving reason as to why films put so much emphasis on it during the post-production process.

When focusing on the Teal and Orange Look-Up Table (LUT), the study indicates that it elicits a higher emotional response from its audience. The Teal and Orange LUT had not only the most positive emotional response, but the strongest emotional response as well. This can conclude that the Teal and Orange LUT is used often because it has a higher audience response rate. If an audience feels more of an emotional attachment to a

film, he or she is most likely to see it again or purchase it. This produces higher revenue for the film, which might explain why movies like *Furious 7*, *Jurassic World*, *Kong: Skull Island*, and *Beauty and the Beast* are some of the highest grossing films of their years. Audiences also recognize familiarity between films in the sense that if a movie like *Jurassic World* is successful in 2015, there can be an assumption that *Kong: Skull Island* will also be good. Therefore, if an audience sees a film that is graded in the Teal and Orange LUT, he or she might make the inference that the film will be good, simply because of the connotation it has to other films.

Initially, the assumption was made that the Teal and Orange LUT was directly related to the film's genre, seeing as the popular examples in cinema tend to be action or adventure. However, the results for all three LUTs mirrored the control clip with which genres were predominately felt. Drama, romantic, and adventure were the most popular in the control clip and therefore reflected in each of the three grades. The results of the study are too inconclusive to make a direct comparison between the Teal and Orange LUT and the genre of the film, seeing as action was only chosen 2.27%.

H2: In conclusion, the Teal and Orange LUT is most commonly used in popular cinema because it elicits both the strongest and most positive response rate, which suggests it to be the most marketable of the grades. The Teal and Orange LUT has become the standard in films because it is both more natural and more familiar than the other two grades. It also doesn't provide any direct connotation to a specific mood or genre, allowing it to be more flexible for an audience. The previous conclusion can be made from comparing the Teal and Orange LUT to the other sets of complimentary colors. The Red and Green LUT and the Purple and Yellow LUT proved to still have

positive emotional perceptions, but didn't produce as strong results and the Teal and Orange LUT. They both also had an audience spike in the emotion of "suspicious," creating a more defensive audience perception. If an audience isn't trusting of a film's character, he or she might be less likely to see the film again because of the subconscious animosity created by the film. This can explain why many horror and thriller movies used the Red and Green LUT. The most prominent data to come from the Red and Green LUT survey group was from the open-ended question in which the subjects described the mood of the clip. The responses ranged from "mysterious," "suspicious," "intriguing," and "weird." These choices contrasted heavily with those chosen for the three other clips in the sense that they were the only ones that held a predominately negative tone. The fact that the Red and Green LUT only sparked data of interest when the subjects were asked open-ended questions might be the subject of further research.

However, again like the Teal and Orange LUT, the results were inconclusive when directly comparing a LUT to a genre of film. The assumption was that the Red and Green LUT was associated with films of the horror, thriller, and science fiction genre, simply because most of the popular films that use this grade are of that genre. This is also because Claudia Cortes links red and green to negative emotions of aggressive, greedy, sickness, and offense (Cortes, 2003). However, the results of the study don't back this assumption, and can't conclusively align a genre to the Red and Green LUT.

The predictions for the Purple and Yellow LUT were accurate and positively backed by the results of the study when connecting the grade to the setting of the film. Many of the Wes Anderson films that use this grade are set in the past, or in an ambiguous present. The results of the Purple and Yellow LUT show that the majority of

the subjects placed the clip in the past and felt an antique feel. One of the color purple's emotional traits, as described by Cortes, was that of melancholy (Cortes, 2003).

Melancholy plays on the notion of remembering an event from the past, and the results from the survey data confirm this idea as the subjects dated the clip 4.19 years in the past. Secondly, Anderson's films elicit an ambiguous sense of emotional perception for the audience, as they are left in a limbo of positive and negative thoughts. This is suggested by the buzzwords created from the subject's description of the mood. Though "adventurous" was the most prominent, the subordinate words varied from positive to negative emotions. Therefore, the Purple and Yellow LUT purposely provides an audience with a confused emotional perception of the film.

H3: Overall, the study explains why the Red and Green LUT and the Purple and Yellow LUT aren't used as frequently as the Teal and Orange LUT in modern cinema. This may be because both grades offer too negative of an emotional perception to the film in which the audience carries a certain level of distrust. Both grades don't provoke as strong of an emotional response as the Teal and Orange grade and therefore might not prove as marketable. Lastly, each has too niche of a specialty in which the grade excels, whether it's the Red and Green LUT for its unsettling mood or the Purple and Yellow LUT in its setting. The Teal and Orange LUT provides a more universally adaptable grade for a film and creates stronger and more positive emotional reaction from an audience.



## **LIMITATIONS**

To help encourage students to take my survey, I offered the subjects the chance to enter a drawing for a \$25.00 Amazon gift card. I was concerned that students would take the survey without picking genuine answers. I had a handful of surveys that came back with zeros for all of the questions, which makes me wonder how many students took the survey because of the incentive. I also had two professors offer extra credit to their students for taking the survey, which again might skew how much thought the subjects put into the questions. However, if the answer was zero, it wouldn't skew the results negatively, it would only limit the amplitude of the emotional scores. I would hypothetically be counting the submissions as omitted surveys, simply because the questions were left unanswered. To prevent this in a retrial, I might make the questions mandatory to answer in order to finish the survey.

A second limitation with the survey itself was the mix between qualitative and quantitative questions. The whole survey included quantitative questions with which a subject would either rank their answer or choose a choice or choices from a list. By creating a limited range of answers to choose from, I restricted the emotional responses that I could receive for each clip. I had one qualitative question in which I asked the subjects to describe the mood of the clip in one word. This question gave me some of the strongest results for the Red and Green LUT because it was open-ended. If I had created a more qualitative survey, I could have introduced stronger results that would either confirm or deny my hypotheses better. However, this might have limited my survey response as the subjects might be less inclined to take a 30-minute survey versus a 5-minute one.

The third limitation of my study was the clip itself and whether what I shot had any affect on the emotional perception. I tried to keep it as neutral as possible, but even the most unexceptional scene will carry some emotion for a viewer. Whether it's from students recognizing the subject of the clip, or the location in which it was shot, there were many factors that kept it from being completely unbiased. Even with the ungraded control clip, I still had subjects who had strong emotional opinions about it.

I also tried to eliminate student bias by reaching students of all academic majors. I knew students in the communication field would be more adept at color grading and color theory and would then be too aware of the changes. I think having all Fine and Applied Arts students would skew the results because the education background of these students would be more adept to the subject of the study.

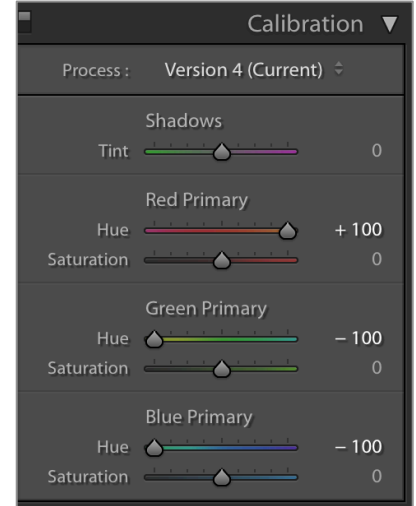
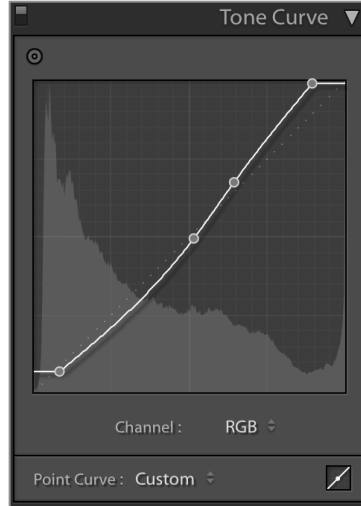
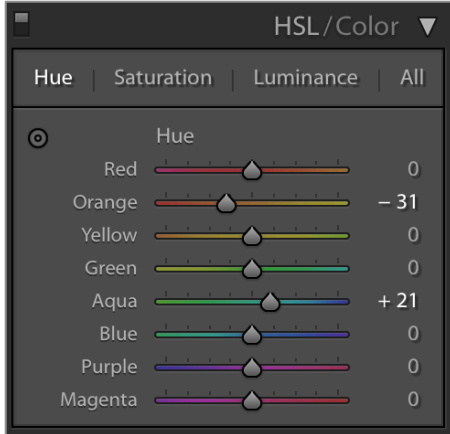
## CONCLUSION

The use of color grading in film is an integral part in the post-production process, not just from the director's eyes, but for an audience as well. When a colorist creates a Look-Up Table (LUT) to grade a film, he or she is essentially directing how the audience will emotionally react to the film. The Teal and Orange LUT is the most popular grade in modern film because it elicits the highest and strongest emotional response from its audience. It's also deemed the most marketable of the three, which is why it's used most often and why the films gross revenue is higher. Comparison of the Teal and Orange LUT to the other sets of complementary colors emphasizes this grade's prominence in generating strong emotional perception from an audience. Though the Red and Green LUT and the Purple and Yellow LUT have features that make them fit for niche films, neither can provide the universal emotional response that the Teal and Orange LUT does.

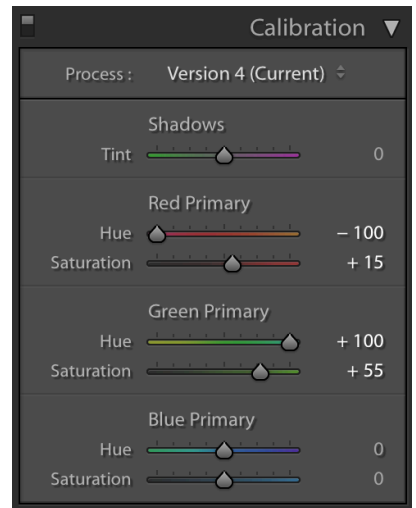
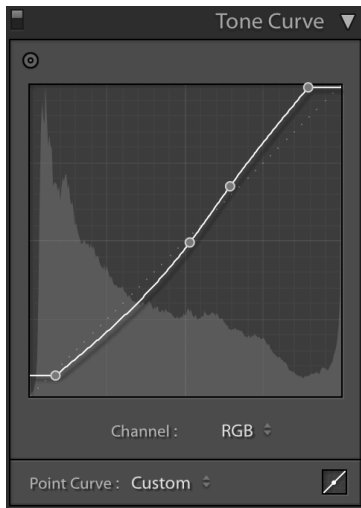
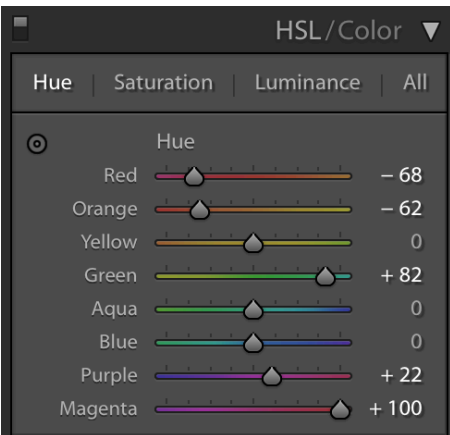
By comparing the results of this study to the gross revenue research of modern films, as well as the work of the theorists Johann Wolfgang von Goethe, Naz Kaya, and Claudia Cortes, a general conclusion can be made as to why the Teal and Orange LUT is so popular. Not only does it provide the most positive emotional comparison via the two identifying colors of blue and orange, but also these colors are seen most commonly in nature and are thus more familiar to an audience. Overall, a conclusion can be made that not only is color grading an essential part of the post-production process, but also the Teal and Orange LUT is integral in producing a popular film. Therefore, it is used most frequently when compared to the Red and Green LUT and the Purple and Yellow LUT because it has the strongest emotional perception of mood by its audience.

## APPENDIX A

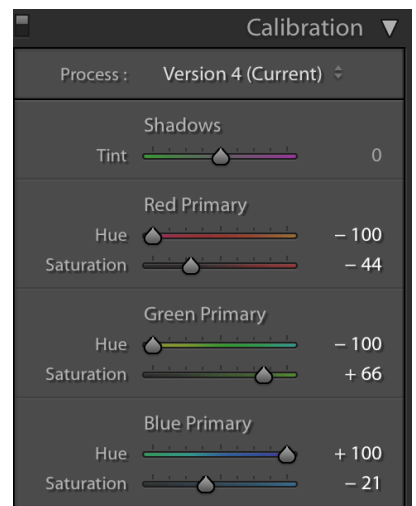
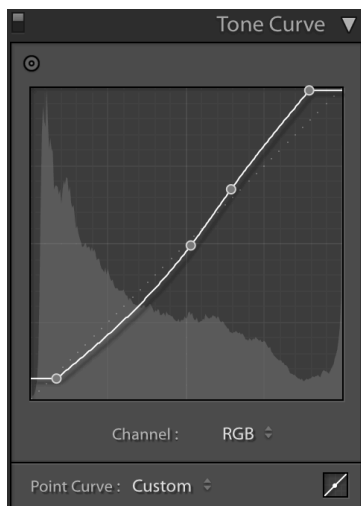
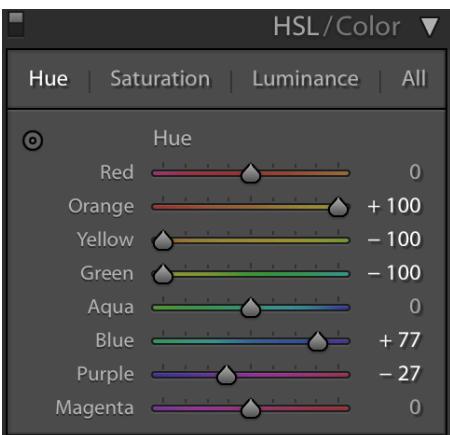
### TEAL AND ORANGE LUT SETTINGS



### RED AND GREEN LUT SETTINGS



### PURPLE AND YELLOW LUT SETTINGS



## APPENDIX B

SURVEY QUESTIONNAIRE: <https://appstate.az1.qualtrics.com>

1. What is your academic year?

- Freshman
- Sophomore
- Junior
- Senior
- Super Senior

2. What is your intended major?

- A drop down list of all the University majors will appear

On a scale from 0-5, how would you rate your emotional response to the video?

3. Abandoned – Safe
4. Bored – Curious
5. Depressed – Happy
6. Fearful – Excited
7. Lonely – Comforted
8. Suspicious – Trusting
9. Pessimistic – Optimistic

10. On a scale, what time period do you think the video takes place?

100 years ago – 50 years ago – Present – 50 years in the future – 100 years in the future

11. If you could describe the mood of the video in one word, what would it be?

- Open ended question

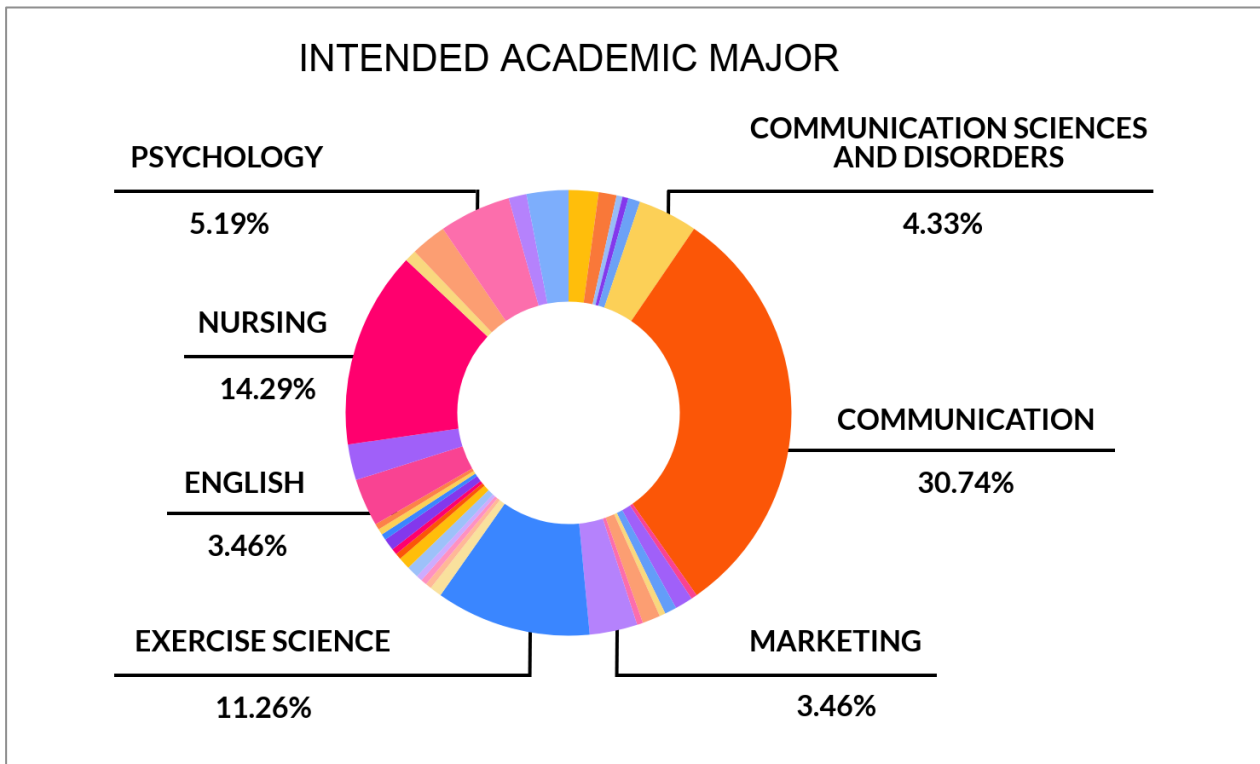
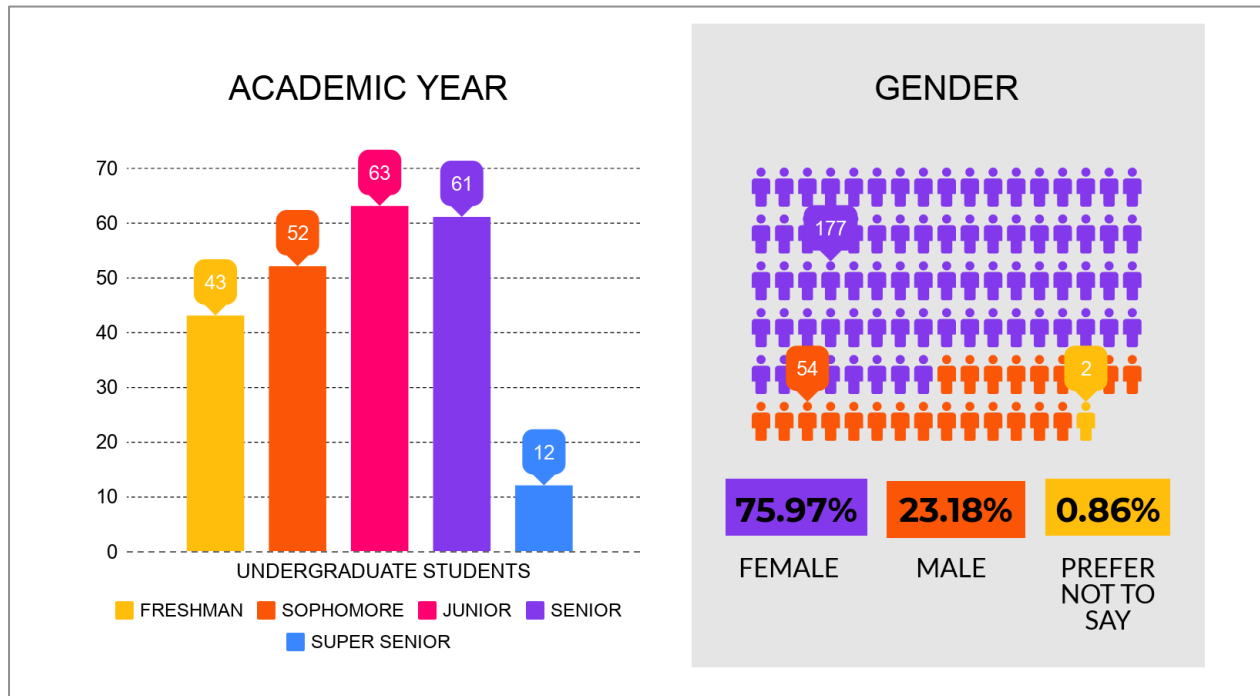
12. What genre(s) would you classify the video as, if it were part of a larger movie?

Check all that apply:

- Action
- Adventure
- Crime/Gangster
- Documentary
- Drama
- Epic/Historical
- Horror
- Independent
- Musical/Dance
- Romantic
- Science Fiction
- Thriller
- War
- Western

## APPENDIX C

### SURVEY DEMOGRAPHICS DATA



Figures 1, 2, and 3

## WORKS CITED

2015 domestic grosses (2015). Retrieved 2018, April 16 from

<http://www.boxofficemojo.com/yearly/chart/?yr=2015>

2017 domestic grosses (2017). Retrieved 2018, April 16 from

<http://www.boxofficemojo.com/yearly/chart/?yr=2017>

Anderson, W., Milchan, A., Rales, S.M., & Rudin, S. (Producers), & Anderson, W.

(Director). (2009). *Fantastic Mr. fox*. [Motion Picture]. United States: Fox.

Anderson, W., Rales, S.M., & Rudin, S. (Producers), & Anderson, W. (Director). (2014).

*The grand Budapest hotel*. [Motion Picture]. United States: Fox Searchlight.

Anderson, W., Rales, S.M., & Rudin, S. (Producers), & Anderson, W. (Director). (2012).

*Moonrise kingdom*. [Motion Picture]. United States: Focus Features.

Blum, J., Shyamalan, M.N. (Producers), & Shymalan , M.N. (Director). (2017). *Split*.

[Motion Picture]. United States: Universal Studios.

Cortes, M.C. (2003). *Living color* (Master's thesis). Retrieved from

<http://www.mariaclaudiacortes.com/#>

Crowley, P., Jashni, J., Marshall, F., Spielberg, S., & Tull, T. (Producers), & Trevorrow,

C. (Director). (2015). *Jurassic world*. [Motion Picture]. United States: Universal

Studios.

Diesel, V., Moritz, N.H., & Tull, T. (Producers), & Wan, J. (Director). *Furious 7*.

[Motion Picture]. United States: Universal Studios.

Goethe, J.W. (1840). *Goethe's theory of colours*. London, England: John Murray,

Albemarle Street.

The grand Budapest hotel (2014). Retrieved 2018, April 16 from

<http://www.boxofficemojo.com/movies/?id=grandbudapesthotel.htm>

Hoberman, D., & Silver, J. (Producers), & Condon, B. (Director). (2017). *Beauty and the Beast*. [Motion Picture]. United States: Buena Vista.

James, V.C. (2018). B for beautification : A study on colour symbolism in changing scenario of films. *Journal of Singularities*, 5(1), pp.114-118. Retrieved from <http://www.singularities.in/wp-content/uploads/2014/10/Journal-Vol-5-Issue-1.pdf#page=114>

Jashni, J., & Tull, T. (Producers). & Vogt-Roberts, J. (Director). (2017). *Kong: Skull island*. [Motion Picture]. United States: Warner Brothers Studio.

Kaya, N. (2004). Relationship between color and emotion: A study of college students. Retrieved from [http://irtel.uni-mannheim.de/lehre/expra/artikel/Kaya\\_Epps\\_2004b.pdf](http://irtel.uni-mannheim.de/lehre/expra/artikel/Kaya_Epps_2004b.pdf)

McKittrick, S., Blum, J., Hamm Jr., E.H., & Peele, J. (Producers), & Peele, J. (Director). (2017). *Get out*. [Motion Picture]. United States: Universal Studios.

Muschietti, A. (Director). (2017). *It*. [Motion Picture]. United States: Warner Brothers Studio: New Line.

Nijdam, N.A. (2005). Mapping emotion to color. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.407.2395&rep=rep1&type=pdf>

Rales, S.M., Rudin, S., Pilcher, L., Anderson, W., & Coppola, R. (Producers), & Anderson, W. (Director). (2007). *The Darjeeling limited*. [Motion Picture]. United States: Fox Searchlight.



Roven, C., Snyder, D., Snyder, Z., & Suckle, R. (Producers), & Jenkins, P. (Director).

(2017). *Wonder woman*. [Motion Picture]. United States: Warner Brothers

Studios.

Theuissen, Y. (2017, April 4). Cinematic teal and orange look: Lighting tutorial.

Retrieved from <https://www.cinecom.net/lighting-tutorials/cinematic-teal-orange-look/>

Vreeland, A.V. (2015). Color theory and social structure in the films of Wes Anderson.

*Elon Journal of Undergraduate Research in Communications*, 6(2), pp.35-44.

Retrieved from [http://www.elon.edu/docs/e-web/academics/communications/research/vol6no2/04\\_Vaughn\\_Vreeland.pdf](http://www.elon.edu/docs/e-web/academics/communications/research/vol6no2/04_Vaughn_Vreeland.pdf)