EMOTIONAL SILENCE: ARE 3D ANIMATED FEMALE CHARACTERS'

EMOTIVE EXPRESSIONS DESIGNED TO FIT STEREOTYPES?

A Thesis

by

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ABSTRACT

In this thesis, I analyzed the depictions and emotive expressions of female characters by conducting a content analysis in two popular contemporary 3D animations. I studied the design of feminine coded appearance and movement using simplified drawings. Based on this study, I claim that female characters and their emotive expressions are still designed to fit stereotypes in contemporary 3D animated children's movies. My findings are the following:

1. The percentage of female characters in contemporary 3D animated children's movies is the same as the percentage of females in human society;

2. On the other hand, those female characters did not demonstrate human diversity; and

3. Moreover, their emotions did not demonstrate the diversity of human emotions in terms of how female characters visually express their emotions.

This thesis also establishes a methodology to conduct content analyses on character depiction in 3D animated children's movies.

DEDICATION

To my family, friends, committee members and the employees of the Visualization Department.

CONTRIBUTORS AND FUNDING SOURCES

Contributors

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1. INTRODUCTION AND MOTIVATION

I remember first watching the movie *Frozen* and noticing how Idina Menzel's powerful, and emotionally pained voice didn't seem to fit on Elsa's unwrinkled Plasticine face. This was further cemented after watching the side-by-side clip of Menzel and Elsa singing "Let it Go" in a behind-the-scenes look at her in the studio recording for Elsa. Menzel's brows furrowed, her body moving powerfully as she projected beautiful vocals. Elsa's eyes were huge and her brows barely furrowed or wrinkled as if some sort of 3D botox had been applied. Her face didn't portray any of the power and focus it takes for someone to sing the lyrics Menzel was singing.

Figure 1.1: Artistic rendition of Elsa from Disney's *Frozen* and Idina Menzel singing "Let it Go" from Disney's *Frozen*.

A few years later I walked into a theater to see *Mad Max: Fury Road* and was met with Furiosa: a female character so emotionally well-rounded and visceral that I couldn't help but

think about Elsa again. Although from two completely different genres, these two characters, Elsa and Furiousa, have similar backgrounds and motivations: two women escaping a world that views them as something to be controlled, end up using their power, be it magical or physical, to help protect those they care about from a man who seeks to own them and their power. Yet Furiosa is allowed to emote in a way that embodies her own name - she is powerful, determined, and definitely angry.

Figure 1.2: Artistic rendition of Furiosa from *Mad Max: Fury Road*.

Elsa is also powerful in a way she comes to realize can be used not to hide anymore but to protect and enrich other's lives. She is determined once she leaves her home to create a place for herself where she can be free and use her powers without shame. And yet her emotions are seemingly smoothed over, her anger not that angry, her power not that powerful, and her determination not that determined. Is this a singular instance; done so because of the audiences each film is catered toward? Or is this a symptom of something more? A symptom of female character's "pret-

tiness" taking precedence over how her emotions would actually manifest on her face? My thesis will aim to prove that 3D animated female characters' emotions lack in both range and extremity of emotion when compared to 3D animated male characters.
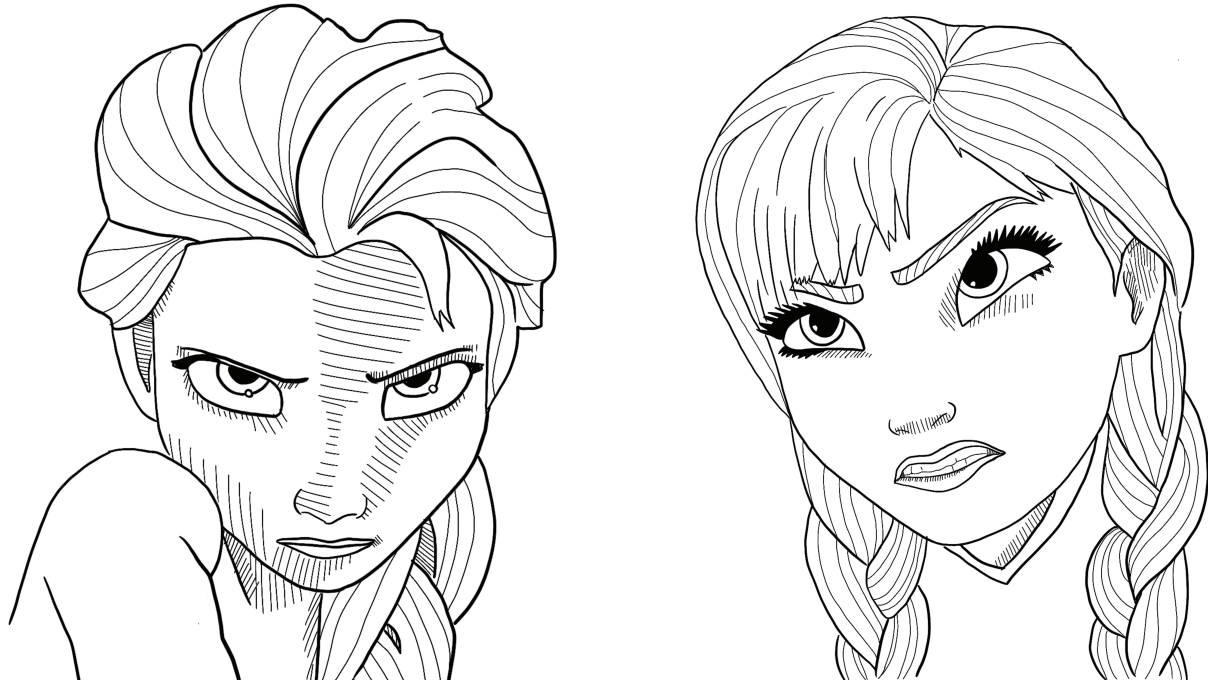
Figure 1.3: Artistic rendition of Elsa (left) and Ana (right) from Disney's *Frozen*.

If one were to sit down with a 3d animated female character and asked them how they felt, what would it be like? All too often, it is easy to forget the emotions these characters are feeling are not their own but those ascribed to them by everyday people who work to bring them to life. These decisions on what emotions these characters can express and how they can express them are not arbitrary. Not only are large amounts of time dedicated to animating facial expressions, there are several animation techniques that were developed to manipulate facial surfaces so that they have the desired expression postures [28]. It is because of this that the importance of analyzing the underlying motivations for the emotionality of 3d animated female characters comes into play. Being cognizant that media is reflective of cultural and social beliefs is a step in the direction

of overcoming those stereotypes that can be harmful to the efficacy of children's learning and understanding of their own and each other's worth.

(a) Tracings of male character's facial structures. (b) Tracings of female character's facial structures.

Figure 1.4: Images created by Alexandra Scott demonstrating the similarities in facial features of Disney and Disney/Pixar male characters vs. female characters. Reprinted with permission from Alexandra Scott.

For those not familiar with the inner workings of 3D animation, there is no button that somehow stops the creator from applying the same dynamics and facial elasticity and pose-ability that is present in a male character to a female character. The restrictions we see in the emotive expressions of 3D animated female characters are not imposed by the software or technology used widely by the entertainment industry as a whole. In fact these programs and software are merely tools that we use to push certain kinds of boundaries and limits of what we've seen before. Studios are even writing their own programs in order to do what these programs won't let them [39]. Restrictions put upon these female characters seem to come from only one place and that is even before the character is brought into the computer. Former head of animation of *Frozen* at Disney Lino DiSalvo made this

comment about animating two female characters in *Frozen*:

> "Historically speaking, animating female characters are really, really difficult, 'cause they have to go through these range of emotions, but...you have to keep them pretty...you can get them off a model very quickly. So, having a film with two hero female characters was really tough, and having them both in the scene and look very different if they're echoing the same expression; that Elsa looking angry looks different from Anna being angry [Elsa and Anna are the two main characters of Frozen]." [38]

This particular comment is eye-opening once you understand what he means by "off a model." In the process of creating an animated film, one of the first steps is concept design which can include environments, props, magical effects, and characters. There are several different kinds of concept art that are used for each character from expression sheets that convey how that character emotes, to art of the character in a specific shot or environment, to pose sheets of the character in different poses and from different angles, etc. All of this is done to make sure the entire team working on the film has the same idea and the same image of the character and how they're supposed to look, feel, move, etc. These are usually done in 2D and can make the translation to 3D challenging - what can look interesting and unique in 2D can look like a jumbled mess when moved into 3D software programs. Therefore, when DiSalvo said "you have to keep them pretty...you can get them off a model very quickly," I believe he's referring to the concept art and designs that were provided to the animators that act as their blueprint to how Elsa and Anna were eventually portrayed on screen. So time and time again when we are met with the same result, the same oneness and "same face syndrome" [9] of the past, it's because the directors, designers, and yes, the animators, have decided to follow these arbitrary aesthetic choices that are not inherent to creating a 3D animated film. They've decided to make Elsa and Anna similar in design and when they have similar emotive expression it makes it difficult for the animators to make them individualistic.

This repetitive recycling of similar features doesn't escape the public eye either. Alexandra Scott noticed a trend in Disney/Pixar films toward female characters being designed very similarly versus male characters having more diversity. She confirmed her suspicions by taking images of

both male (Figure 1.4a) and female (Figure 1.4b) characters in Disney/Pixar films and drawing over the facial structures and noses of each character.

EYES

Eyes are abnormally large

Eyes are abnormally small

NOSE

Nose is abnormally large

Nose is abnormally small
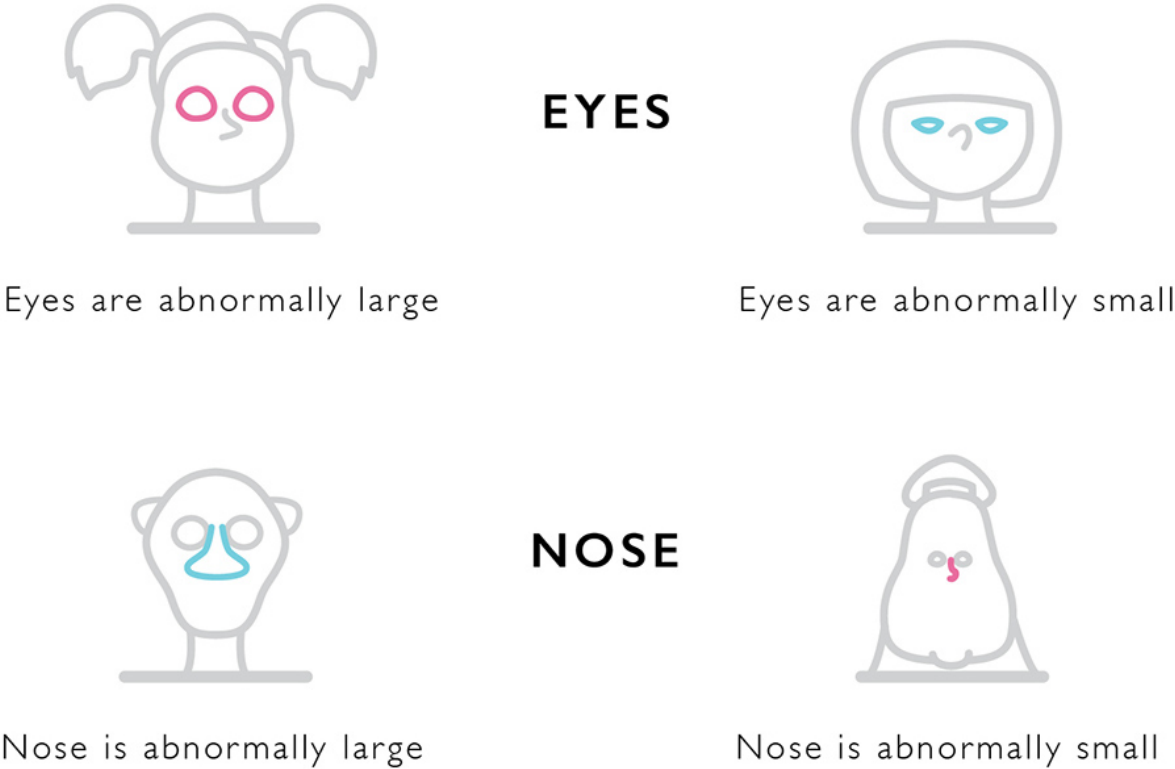
BIG EYES + SMALL NOSE COMBO

Figure 1.5: Katie Coughlan's info-graphic: Nose/eye combination key. Reprinted with permission from Katie Coughlan.

As shown in Figure 3.1, I have used this technique on the specific films I am researching to demonstrate the same ideas. Katie Coughlan, a St. Louis graphic designer, expanded on Alex's initial draw-overs of 15 male and 15 female Disney/Pixar characters and focused on human characters in Disney-Pixar films from 1995-2015. She compiled an info-graphic that categorized the different combinations of facial features and found that female characters had the highest percentage of big
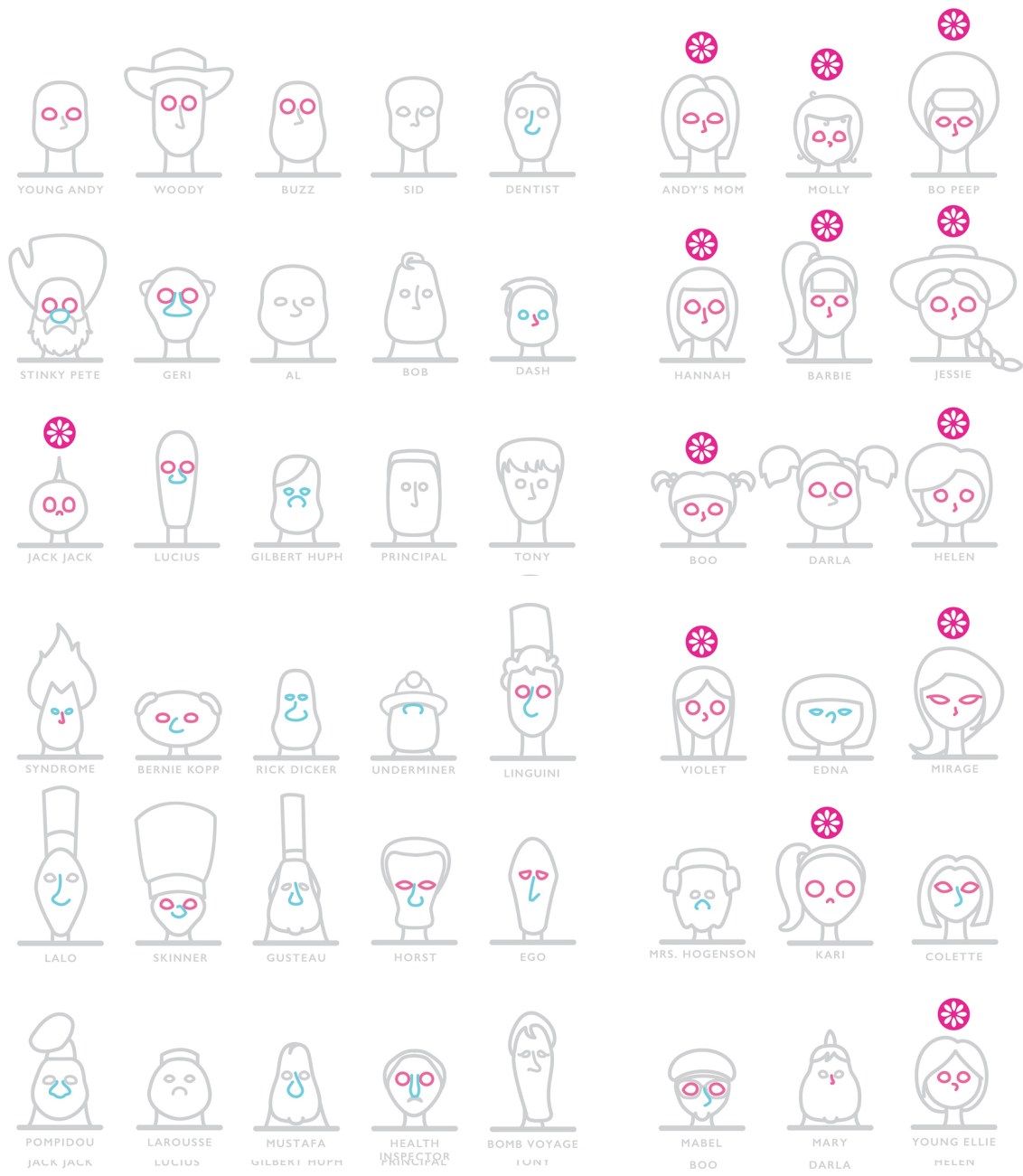
Figure 1.6: Katie Coughlan's info-graphic: This chart shows the amount of small nose and big eyes features belonging disproportionately to female characters. Reprinted with permission from Katie Coughlan.
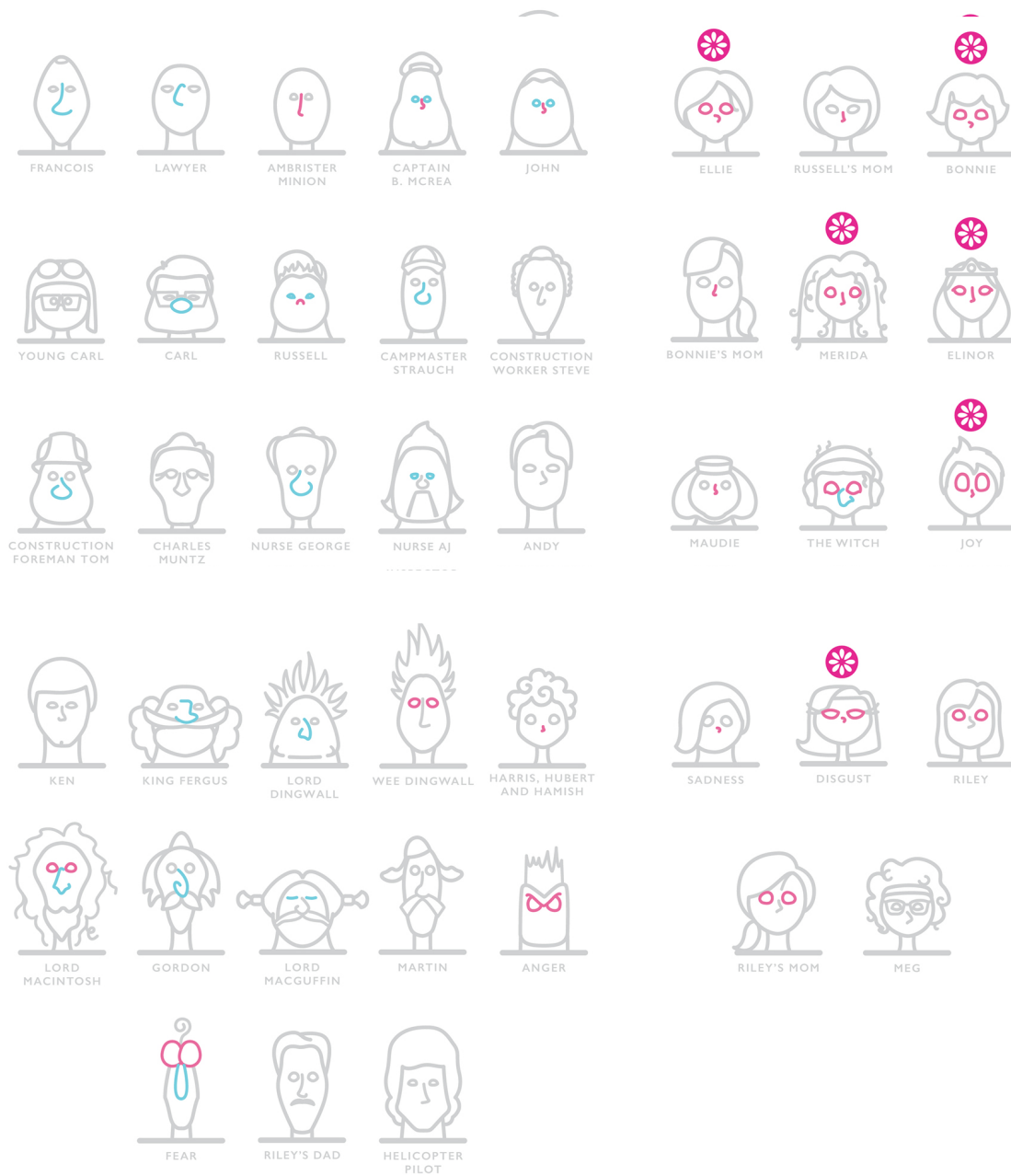
Figure 1.7: Katie Coughlan's info-graphic: This chart shows the amount of small nose and big eyes features belonging disproportionately to female characters. Reprinted with permission from Katie Coughlan.

eyes and small noses as a combination seen in Figure 1.6 and Figure 1.7. Such repetitiveness in design and features could be what is holding back female characters from emoting as expressively as their male counterparts.

Do 3D animated features targeted toward children have a responsibility to refrain from portraying damaging stereotypes? Faherty and Smith et al independently find that the distribution of male to female characters in G-rated movies targeted toward children has consistently been two (or more) male characters for every one female character from 1990 to early 2005 [34, 10]. I think having more male characters to female characters means that male stories are being told twice as frequently. This presents a skewed portrayal of whose stories are important to tell, listen to, and empathize with.

A large and growing body of research shows that female characters, whether in live action film or 3D animated film, are underrepresented in general. These representations are widely repetitive and stereotypical. I will outline various aspects of the broader argument here before turning to the stakes for animated film specifically. Three previous findings are relevant to my own research:

1. Stereotypic beliefs in regards to men and women's emotional expression and experiences are shared among most people regardless of gender or age [3];

2. These stereotypic beliefs control the seriousness in which women's emotions are regarded;

3. these same beliefs can extend from humans to androids and virtual characters.

2. BACKGROUND AND LITERATURE REVIEW

It is important while speaking on the topic of sex and gender to differentiate between these words and how they are used. While sex is a biological determinant, gender is the idea of what it means to be either male or female and what roles are presented to each [20]. It is also important to define another set of words I will be using throughout this thesis. "Person of color," "woman of color," and "character of color" are all terms to describe people who are nonwhite [23, 30, 37].

In the article "The Harm that Has No Name: Street Harassment, Embodiment, and African American Women," [7] Davis examines the way in which street harassment perpetrated by men onto women "dominates women by controlling their emotional and intellectual growth." She argues that street harassment is indicative of the way in which society has pushed women's emotions to become a performance that exists for a man's pleasure, particularly in that of a public space. Davis shares an anecdote in which, after learning of the passing of her grandmother, men on the street told her to smile while completely ignoring any circumstances or causation for which she might not be smiling in the first place. Her emotions are dictated and expected to be replaced by the idea that men have of what her emotions should be. She is stripped of her emotional agency, threatened with violence, be it verbal or otherwise, to abide by the whims of others. If women's emotions are not allowed to be authentic in our own physical world, then we cannot expect them to be portrayed authentically in worlds created from our own imaginations. In these constructed worlds that exist in numerous forms of media, we find a reflection of society's beliefs, ideas, and social hierarchies that, when examined, can lead to insights into the role media plays in developing the harmful stereotypes portrayed by 3D animated female characters.

While Davis speaks about a specific phenomenon that occurs in a certain way and is perpetrated by certain people, stereotypic beliefs regarding men and women's expressed emotions and emotional experiences are shared among most people regardless of gender or age [1]. These stereotypic beliefs include the genderization of emotions and how they are perceived as being either more male or more female. To some extent, expressions of anger are indicative of what society deems

as maleness while expressions of happiness are indicative of what society deems as femaleness [4, 13]. While some of these beliefs may be accurate, such as that of women smiling at a greater frequency than men [16], it is important to understand the underlying causation of these stereotypes. Brescoll & Uhlmann showed in their 2008 study entitled, "Can an angry woman get ahead? Status conferral, gender, and expression of emotion in the workplace," [6] that women, specifically those in a professional environment, were shown to experience negative effects when expressing anger such as a decrease in wages, decrease in status, and were seen as less competent when compared to angry male peers and unemotional female peers. Women in high status and leadership positions tended to be evaluated negatively when displaying stereotypically masculine behaviors and expressions of anger [33]. However, these displays of anger, regardless of social standing, are not seen as threatening when a woman's appearance is not dominant, dominant in this case being equated with some trait deemed to be masculine [17]. In fact, a dominant appearance may actually make it possible for women to show justifiable anger [16]. This is not to say that women don't experience angry emotions, they do. In fact, a study conducted by Hess et al. in 2000 entitled "Emotional expressivity in men and women: Stereotypes and self-perceptions" [18] found that while women were expected to be more likely to react with shame and guilt in emotional situations which were negative, women themselves did not expect to react this way other than in situations that were specifically linked with shame and guilt.

Because of these studies, we can see that women's emotive displays are not only controlled or dismissed in instances of street harassment but in professional environments as well, even when a woman herself might reasonably be expected to react with anger in situations that are linked with anger [18]. Although studies have shown that men do not become angry more frequently than women, society depicts this as if it were fact [12]. This pervasive depiction of angry males and non-angry females can be due in part to dismissal of female emotionality in terms of anger. The dismissal of female anger specifically by men is in part a product of finding that there is no reward and no gain in extended viewing of images of angry females [19]. This may hark back to Davis' analysis of street harassment in which women find themselves in a vulnerable position

of simulating a smile in order to keep violent perpetrators at bay. This act of simulating a smile in this context can be interpreted as a defense mechanism and does not portray happiness in the same way a genuine smile would. Yet in a study done by McKeown, Sneddon, & Curran in 2015 [27], men were shown to be under the assumption that women's signals of amusement, even when not genuine, were genuine. This may be in part because both men and women are better at detecting negative expressions on male faces and positive expressions on female faces [32]; however, research has shown a female advantage in facial expression recognition [14].

The gendering of emotions plays an important part in how society perceives the roles of men and women as "the 'emotional female' and the 'non-emotional male'" and paints a picture of angry men and happy women, a picture that does not accurately portray the reality of human emotion [22]. These perceptions are shaped at a young age, further proving that the biases described by Adams, Hess, and Kleck are shared amongst children as young as five or six years old and, for those children, the impact is not dictated by social observation [3]. This is because even "extensive social observation gained during schooling does not seem to impact the bias" in which anger is ascribed maleness [3]. An argument could be made that children's ability to understand and process different emotions can differ with gender. However, boys and girls surveyed in Zajdel, Bloom, Fireman, & Larsen's study in 2013 [40] demonstrated similar progression in developmental understanding of emotion.

A study conducted by McGhee and Frueh [26] shows that perceptions of both stereotypical gendered behavior and gendered psychological characteristics are informed in part by consuming media in the form of television. That's not to say that all media consumed by children is inherently attempting to alter their world view negatively. Decker's 2010 paper entitled, "The portrayal of gender in the feature-length films of Pixar animation studios: A content analysis" [8] speaks to the changing landscape of children's media in which viewers of Pixar's films "may have discussions about sensitive males and strong females, as well as characters of both genders working outside the home, having positions of authority, and assisting with homemaking tasks."

The research cited here is based on real-world imagery and experiences and, while the main

goal of this paper is to speak to the influence that 3D animated characters have on audiences, they are still important aspects to consider when analyzing computer generated imagery and experiences that are based in the real world. Not only is anger connected with masculinity in humans, but it has been found that this is true even in the designing of androids [36]. If this stereotype can be bridged from humans to machinery meant to represent humans, it is not that large of a leap in logic to find that this stereotype can be found in virtual characters. However, it is important to note that virtual characters are not usually represented as talking heads; emotions are not just conveyed through facial expressions. Motion of the body is also something to take into consideration because, although both appearance and motion of virtual characters influence perceived sex [24], when realistic human body motion is used, the characteristics of the motion and not of the representative body is what dominates the perception of portrayed emotion in virtual characters [25]. This is further proved by Samadani, Gorbet & Kulić's 2012 paper [31]. Emotion may also be attributed to a specific gender when gendered motion cues are present even if the emotion is normally attributed to another gender [41]. This could play into the idea presented by Rim, Honari, Hasan, and Pal in their 2015 paper that the removal of identity from emotional expression could make emotions universal [29]. The importance of dynamics in the facial display of emotions is also a factor in how emotions are perceived not only in terms of what the emotions are but also their level of intensity [5].

The range of stylistic representation of virtual human characters is large and may impact the way the characters are perceived as well. Within this range is something called the uncanny valley. The idea of the uncanny valley was introduced by Marashiro Mori in 1970. According to Mori, the uncanny valley refers to the negative way in which robots approaching a more realistic human-like appearance were viewed as our ability to discern whether these robots were real or not caused an uncanny uncertainty (originally coined by psychologist Jentsch in 1906). While the argument could be made that since women's most stereotypical emotion is seen as happiness, in order to bypass the uncanny valley, animators, modelers and riggers have decided to make the default emotive response of female characters to be happiness. However, in a study conducted by Tinwell,

13

Grimshaw, & Abdel-Nabi in 2014 [35], happiness was shown to be the emotion rated to be the least familiar and most uncanny when presented on their fully animated character.

There are some arguments that can be made to the idea that the greater the empowerment of women, the lower the feeling of empowerment for men. This however, has been disproved. Greater gender equality does not impact men's emotions in terms of displaying powerless emotions that tend to be female-coded [11]. That is to say, the more empowered women are does not equal men feeling powerless.

The question remains: are the biases reflected in street harassment and society at large also present in that of children's animated feature-length films? More specifically, are women's emotions diluted when portrayed as female characters in 3D animated children's films? My research answers whether feminine appearance and design correlate to how characters are able to express themselves emotionally both in intensity of emotions and visual expression of those emotions.

3. METHODOLOGY

To evaluate if female characters and their emotive expressions are designed to fit stereotypes in contemporary 3D animated children's movies, I developed a methodology to conduct a content analysis of character depiction in 3D animated movies.

My methodology starts with the identification of the diversity that naturally exists in human societies. The second step is to identify if the characters and their emotions demonstrate human diversity. In this work, I focused on the diversity in race, gender and age. However, my methodology can be extended to include other characteristics such as sexual orientation and disabilities.

To make this analysis, a tally must be taken of the characters with differing characteristics and their facial expressions. In particular, to evaluate emotions, the most emotionally dramatic scenes need to be chosen from the films being evaluated. Then the amount of times the characters express a certain emotion and the intensity of the emotion expressed needs to be counted.

The data can then be analyzed in terms of the amount of times an emotion was expressed by different characters, if those emotions were gender/race/age/etc. specific and if they fit stereotypes of emotional expression. The differences in the facial structures and the amount of times certain emotions were expressed can be compared by creating draw-overs of the characters. These draw-overs help to visually ascertain if there are any discernible differences.

3.1 Sampling

I conducted my content analysis by looking at existing movies using my own artistic abilities and experience and drew conclusions based on observable trends. My experience includes 5 years of studying and working in 3D computer animation to make animated films both within a team and on my own. I have worked on each part of the 3D animation pipeline which includes: creating storyboards, character designs, character and prop models, character and prop textures, character rigging, character and prop animation, visual fx, compositing, and editing. My knowledge of this process allowed me to better understand if a creative decision on the part of the studios is due to a
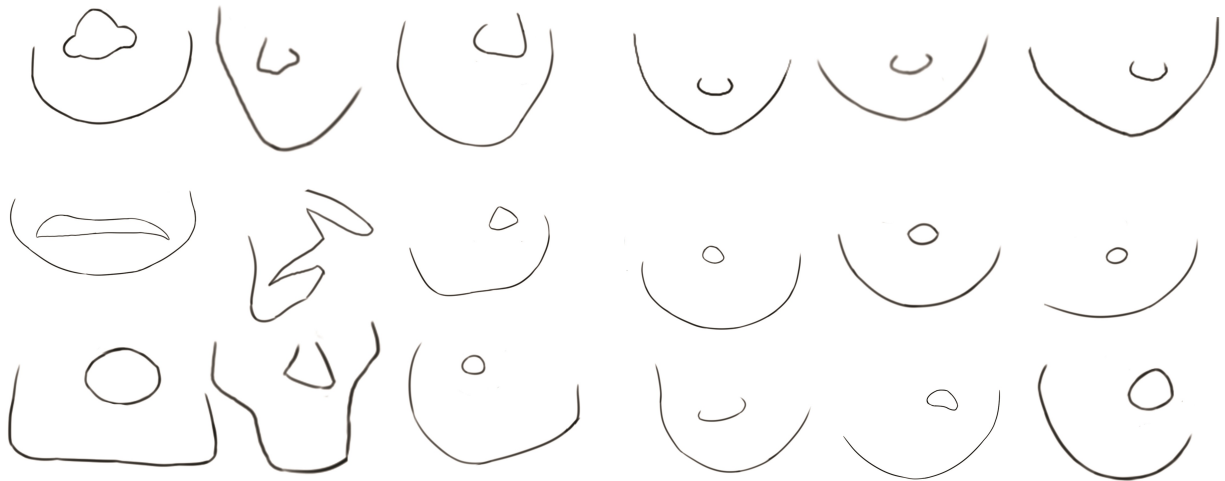
(a) Tracings of male character's facial structures.   (b) Tracings of female character's facial structures.

Figure 3.1: Images I created using a technique used by Alexandra Scott demonstrating the similarities in facial features of Disney and Disney/Pixar male characters vs. female characters. This is an initial compilation of comparisons from Disney/Pixar films that met the sampling criteria.

technical limitation or a possible bias. I focused on analyzing films that were within the following criteria:

1. 3D Computer Animated: The most popular form of animation in film is 3D Computer animation.

2. Children's media/aimed at children: Many 3D animated films are aimed specifically at younger audiences.

3. Created and released in the last 15 years: This time period allows for a wide range of films to be analyzed. Focusing on more recent films will also help determine if there is a developing trend in animation for more diverse female characters in terms of race, body type, emotional expression, etc.

4. Produced by larger mainstream studios: I will take into consideration smaller studios that have also made feature 3D computer animated films however the bulk of films that are consumed by a wider audience tend to come from larger studios. This focus reflects my analysis of films in the broad consumer market.

5. Have at least one or more female characters that:

- Are the lead or main supporting character: This will hypothetically mean more screen-time for that character which will allow for a more thorough analysis.

- Are human or human-like (this would exclude films like Finding Nemo/Dory and Zootopia but would include films like Shrek 2): This is to limit the scope of the research and to make a one-to-one translation between virtual and non-virtual human emotion.

6. Accessibility: These films should be easily accessible to myself via streaming services such as Netflix, Hulu, or Amazon Prime or already in my film collection.

Using this criteria, I chose the following films to analyze: *Moana* and *Frozen*.

3.2 Data Collection and Analysis

I took a tally of the variety of facial expressions afforded to male and female characters and discerned if there was a discrepancy by taking screen shots of the characters emoting during the three most emotionally dramatic scenes from each film. I took very emotional, pivot points from the movie essentially giving the characters the best chance at displaying emotions.

Before going over the scenes I chose, I will give a plot summary of each film for those not familiar with them.

Frozen is about two princess sisters, Anna and Elsa. Elsa, the eldest, has uncontrollable ice powers that cause her to live in solitude in order to hide them. When their parents, the King and Queen of Arendelle, die in a shipwreck, Elsa must then become the new Queen. At her coronation ceremony, her ice powers are revealed which sets off an eternal winter and causes Elsa to flee. Anna must then bring her back to Arendelle to end the eternal winter.

In *Frozen*, the first scene I chose was when Elsa's powers are revealed to everyone attending her coronation ceremony. This results in fear and panic and high tension. Secondly, I chose Elsa and Anna's duet inside of Elsa's ice palace where Anna is pleading with Elsa to return to Arendelle and Elsa is pleading with Anna to leave her alone in the ice palace. Lastly, I chose the pivotal

moment in the film when Anna saves Elsa from being killed by Hans after he has betrayed her. I took scenes where the most emotion would be expected; especially strong, extreme emotion.

Moana is about a girl who is poised to take on the mantle of Chief after her father. A mysterious curse prompts her to sail the ocean on a journey to save her people. With the help of the demigod, Maui, she sails the ocean to return Te Fiti's heart to undo the curse.

In *Moana*, this would be when her Gramma Tala dies which then sets her off on her journey to return the heart to Te Fiti. The second scene is when Maui leaves Moana after their first attempt to return the heart to Te Fiti results in failure. Lastly, I chose one of the last scenes in which Moana gives the heart to Te'Ka thus transforming her back to Te Fiti.

I then counted the amount of times the characters expressed a certain emotion and the intensity of the emotion expressed based on a three part scale of mild, moderate and extreme as shown in Figure 3.2.
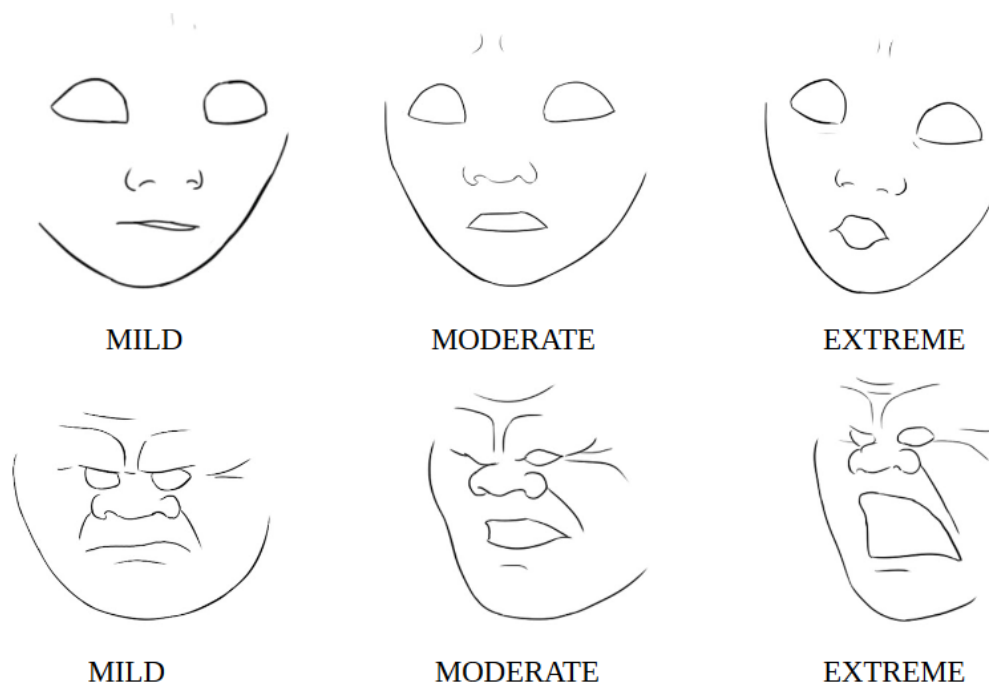
Figure 3.2: An example of some emotional intensity scales. This is how I judged each emotion's intensity. Even in this example, you can see the stark difference between male and female emotional intensity.

I analyzed the data in terms of the amount of times an emotion was expressed by male and female characters and if those emotions were gendered and fit stereotypes of emotional expression. I then compared the differences in the male and female facial structures and the amount of times certain emotions were expressed by these two genders by creating draw-overs of the characters. This helped me visually ascertain if there were any discernible differences.

4. RESULTS AND DISCUSSION

During the analysis of the two movies *Moana* and *Frozen*, a number of observations took place that allowed me to consider answers to questions that arose.

4.1 Ratio of Male and Female Characters

The first question I addressed was the percentage of female characters to male characters. As shown in Table 4.1, the ratio of the total number of characters is slightly skewed by Moana having twice as many female characters than male characters: four to two. On the other hand, Frozen has twice as many male characters than female characters. In both movies, the total number of lead female and male characters were the same.

Based on these observations, Moana, the more recent movie, has increased the amount of total female characters as opposed to total male characters. However, this is such a small sample size that it's hard to say definitively if there is or is not a specific bias in terms of ratio of male to female characters.

	Moana		Frozen	
	Lead Role	Supporting	Lead Role	Supporting
Male	Maui	Chief Tui	Hans Kristoff	Duke of Weselton Erik Francis
Female	Moana	Gramma Tala Sina Te Fiti/Te'Ka	Elsa Anna	

Table 4.1: Character distribution in *Moana* and *Frozen*.

4.2 Female Character Diversity

Simply including more female characters is not the end of the road. Another important question is if female characters are compelling enough for the audience to connect with them.These female characters need to demonstrate all aspects of human diversity.

When analyzing the female characters for human diversity I realized that I have to begin with race. In total, there are six white characters to four Pacific Islander characters. Of the supporting female characters, one of them is white and three of them are Pacific Islander. It is well known that Disney/Pixar has a history of creating white protagonists but even in this small sample size it suggest that this could still be the case. Especially in a film with a cast that consists completely of people of color, only one female character is in a lead role.
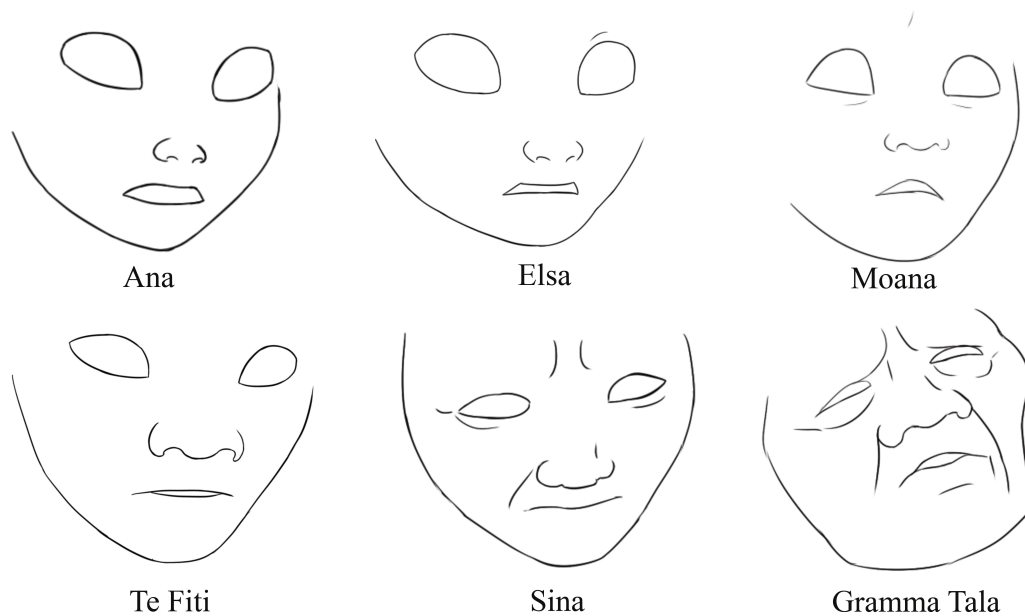
4.3 Diversity in Character Design

Figure 4.1: A comparison of the female characters from *Frozen* (top left and center) and *Moana* (top right and bottom) using the method described above.

I also compared diversity in character design. The only difference in face shape between Moana

and the Frozen sisters is the size and shape of the nose (See Figure 4.1). This may have to do with Moana's race - thinking about Rapunzel from Tangled and Elastigirl/Helen from The Incredibles, their noses are very tiny much like Anna and Elsa's. These characters are all white. Disney and Pixar's history of creating white female characters most likely makes them comfortable in their depiction of white characters. This means that they rely more on their own thoughts and ideas of how a white person looks using a visual stereotype to create and design their white characters while they may research and look at actual people to design their characters of color. However, even so, the difference in the nose shapes of each character is so subtle, it almost does nothing to differentiate them.

4.4   Race in *Moana*

Cultural depictions in *Moana* were somewhat inaccurate. For example, an important female goddess counterpart to Maui named Hina was left out of the film [15]. The creators decided to give Maui credit for feats that were only accomplished with the help of Hina in the actual folklore which he brags about in one of the film's song "You're Welcome!" Whether they did this to simplify the story or for another reason is not readily apparent but it shows that it's still easy for the contributions of women to be ignored and credited to a male character instead.

There is also the cliche of happy native people with coconuts [15]. This is part of a caricature about Pacific Peoples and was heavily used in the 1960s *Gilligan's Island* series. This leads into the Kakamora's inaccurate depiction as a tiny pirate race wearing coconut armor when in fact they are described in folk lore as much different [15].

Despite this, creating a completely accurate film is not really possible. I can understand the push and pull between being historically and culturally accurate and creating a compelling and engaging story. And while I commend Disney for creating a film that introduces people to another culture while also being advised by some people from that culture, some of their decisions in their portrayal of their female characters as well as leaving one out are still harmful.

4.5 Emotional Diversity

In terms of emotional diversity, I used the scale of mild, moderate and extreme to gauge the intensity of emotion as shown again in Figure 4.2. The reason for using and creating this scale is to determine if female character's emotions fall mostly on the lower, more subtle end of the scale. For emotions that were in between intensities, I counted them for both.
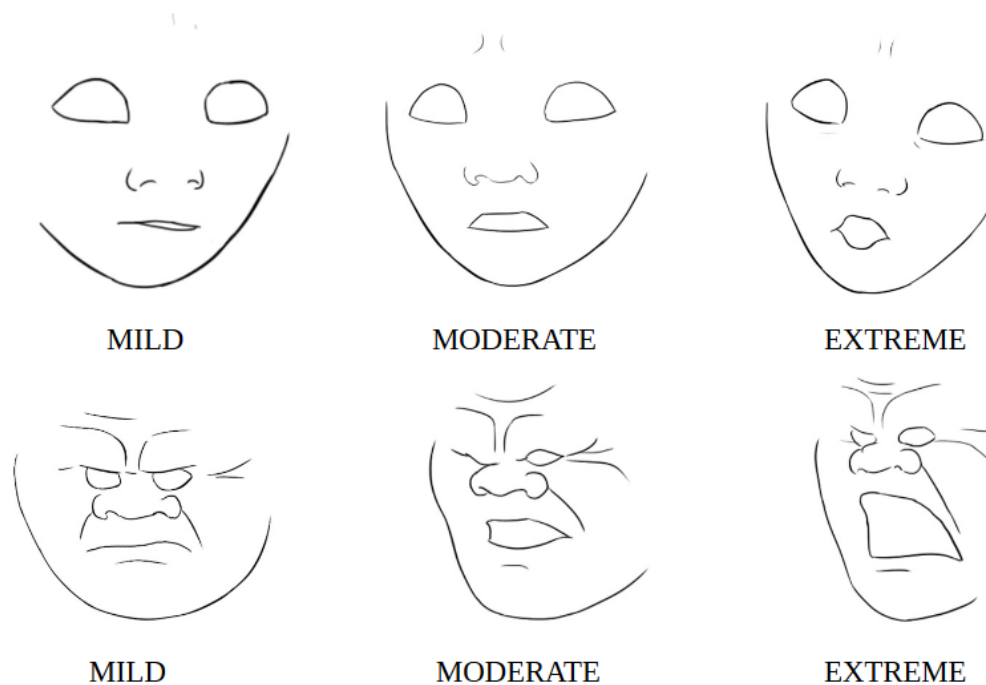

Figure 4.2: An example of some emotional intensity scales. This is how I judged each emotion's intensity. Even in this example, you can see the stark difference between male and female emotional intensity.

Figure 4.3 and Figure 4.4 show graphs of the emotional intensities expressed for male and female characters in both *Moana* and *Frozen*. You can see that both male and female characters in *Moana* express more extreme emotions than the male and female characters in *Frozen*.

Table 4.2 is the same data but in a graph that directly cites the percentages. It can be seen that the characters of color have more moderate and extreme emotions than the white characters. The most important finding in this paper is that the female characters of color portrayed more extreme
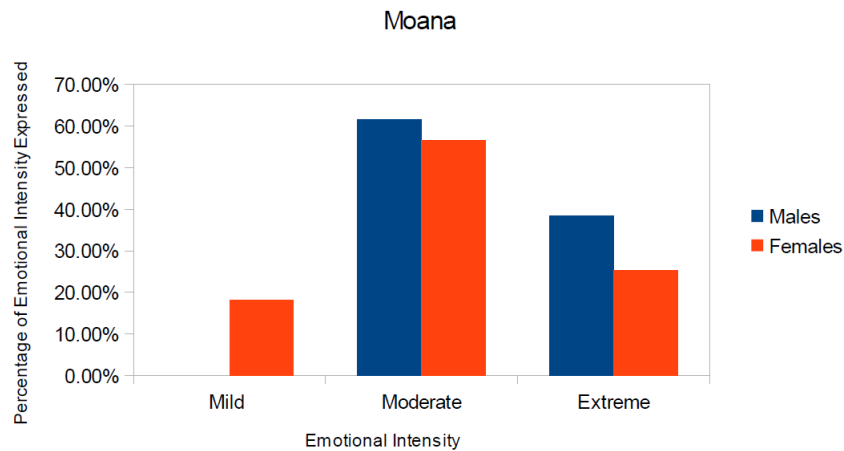
emotions than white female characters.

Figure 4.3: Results of amount of emotional intensity expressed for males versus females from Disney's *Moana*.

Even across films, the male characters have different facial structures and the female characters have the same facial structures as seen in both Figure 4.5 and Figure 4.6.

It is also important to note that Te Fiti and Te'Ka are the same character and yet when she is Te'Ka, she is allowed to emote with extreme intensity (Figure 4.7). A little background on the character motivations of Te Fiti vs. Te Ka: Te Fiti is an island deity whose heart was stolen by Maui to give to the humans. The loss of her heart transform her into Te'Ka. As Te'Ka, her face is allowed to contort and change into shapes that fit her emotions. However, as soon as she returns to her original form as Te Fiti, the intensity of the emotion is completely gone. Her face is docile and there is only a subtle change in her face shape if any. While this may be in part due to their different motivations throughout the character arc, the once fiery, and intense emotions shown on Te'Ka are erased in favor of a very subtle happy and serene Te Fiti. Despite her intense rage at having her heart stolen, she shows not excitement or intense happiness upon having it returned and instead is shown as passively serene which seems anti climactic considering the long and arduous journey of Moana to return it. Is this in favor of her maintaining her prettiness as Te Fiti? Because
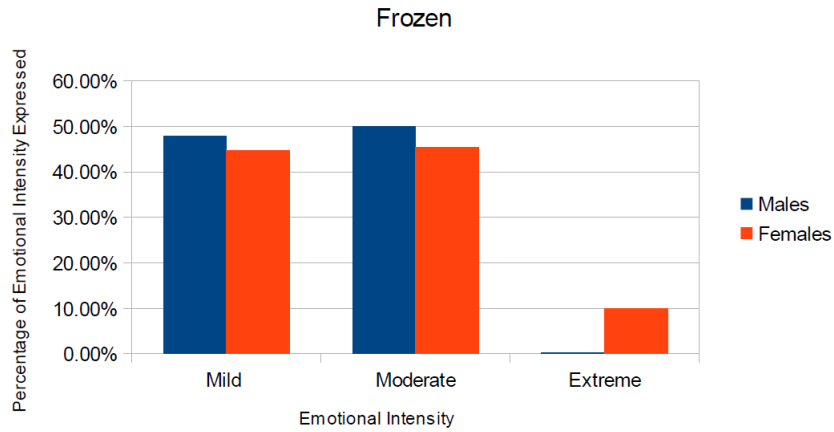
Figure 4.4: Results of amount of emotional intensity expressed for males versus females from Disney's *Frozen*.

	Moana		Frozen	
	Males	Females	Males	Females
Mild	0%	18%	48%	45%
Moderate	62%	57%	50%	45%
Extreme	39%	25%	2%	10%

Table 4.2: Emotion distributions in *Moana* and *Frozen*. The numbers are rounded up to the nearest integer.

Figure 4.5: Comparison between the main male characters and Gramma Tala and the rest of the main female characters from Disney's *Moana*.
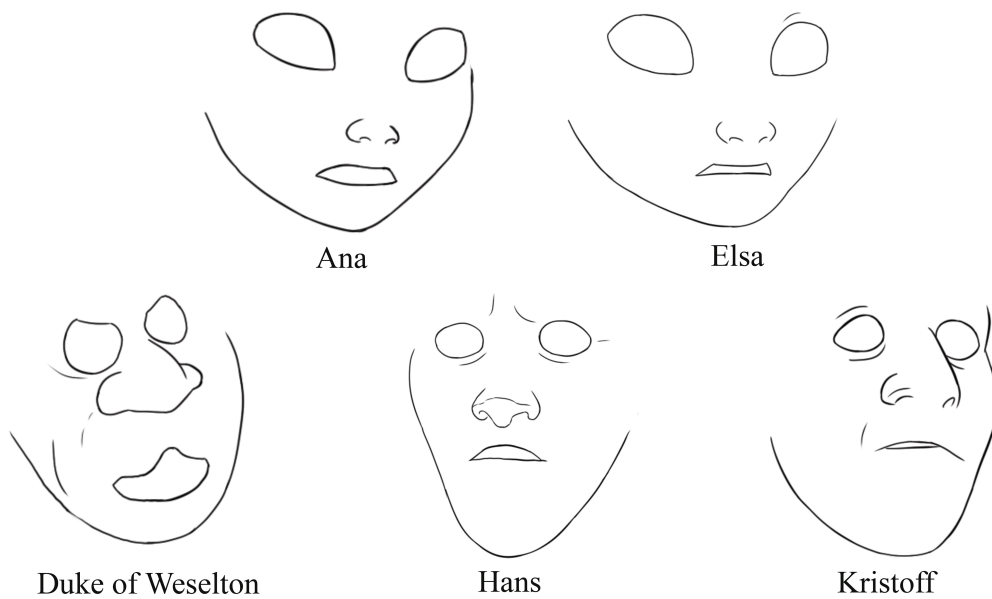
Figure 4.6: Comparison between the main male characters and the main female characters from Disney's *Frozen*.

while she is Te'Ka there is no concern about keeping her pretty. She is allowed to be monstrous.
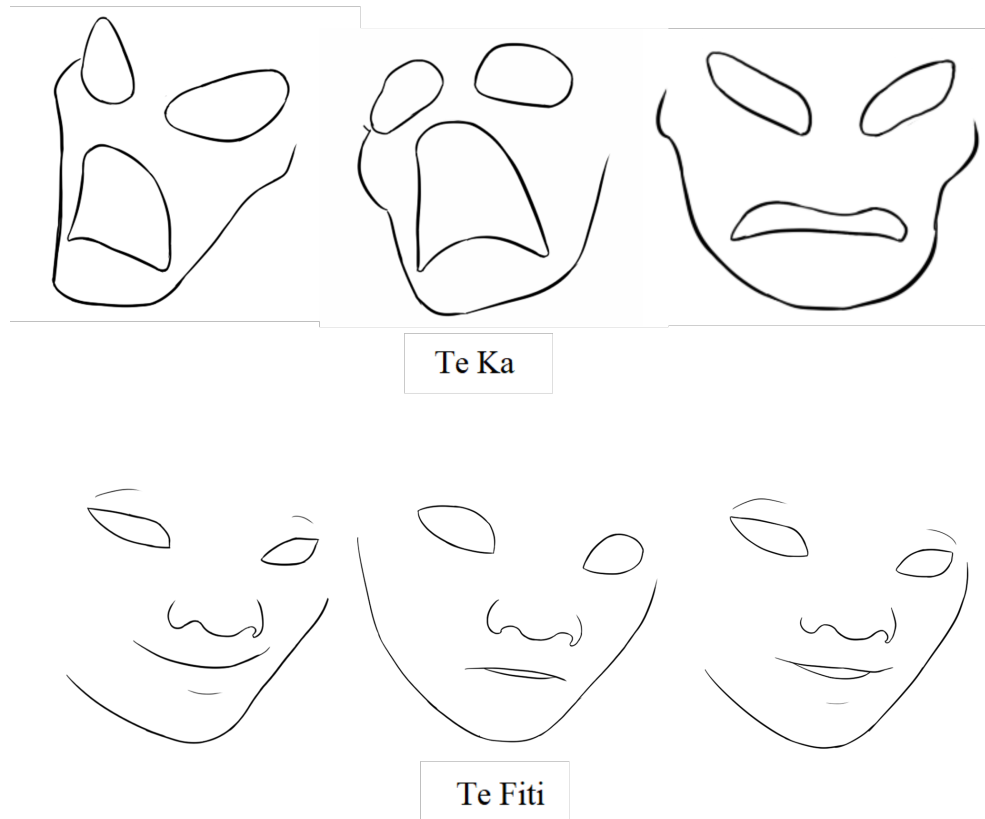
Figure 4.7: Comparison between Te'Ka and Te Fiti from Disney's *Moana*.
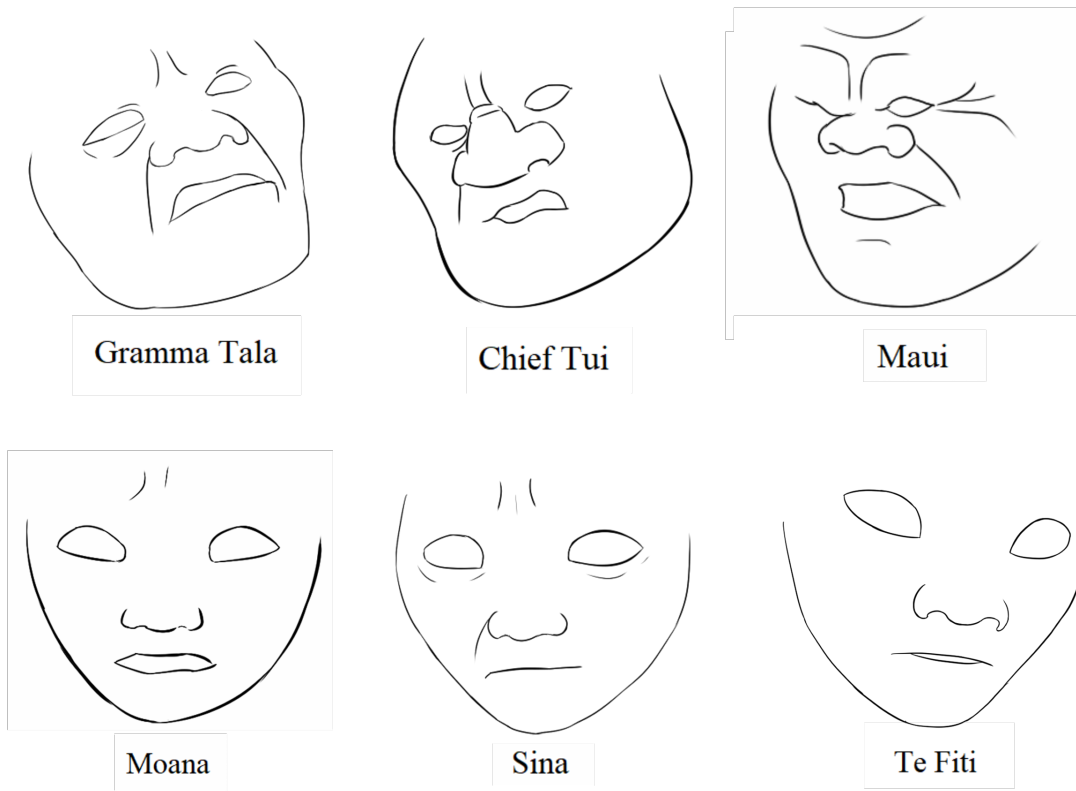
4.6   Role Diversity

The two films I examined did not have many diverse roles for the female characters. Even so, the princess role was relegated to the white female characters and the daughter of the chief role was relegated to the female character of color. This harkens back to traditional 2D Disney films where characters like Belle from *Beauty and the Beast* and Cinderella from *Cinderella* were princesses and characters like Mulan from *Mulan* and Tiana from *Princess and the Frog* were not. Even though Tiana is from a film called *Princess and the Frog*, she spends more than half of the film as a frog and not as a human. As confirmed in this study, white femininity is portrayed as

being fragile and stereotyped as being dainty while femininity of women of color is portrayed as stronger and rugged.

In terms of *Moana*, she is constantly stating that she is not a princess but rather a daughter of the chief. However, this is only shown through dialogue. One of my critical observations is that despite her having more extreme emotions than Anna and Elsa from *Frozen*, her emotions are still constrained. She is a determined character leading her people and yet we don't see the associated emotional intensity on her face. She is like a mannequin leading the charge. These findings contradict expressions of emotions in real people.
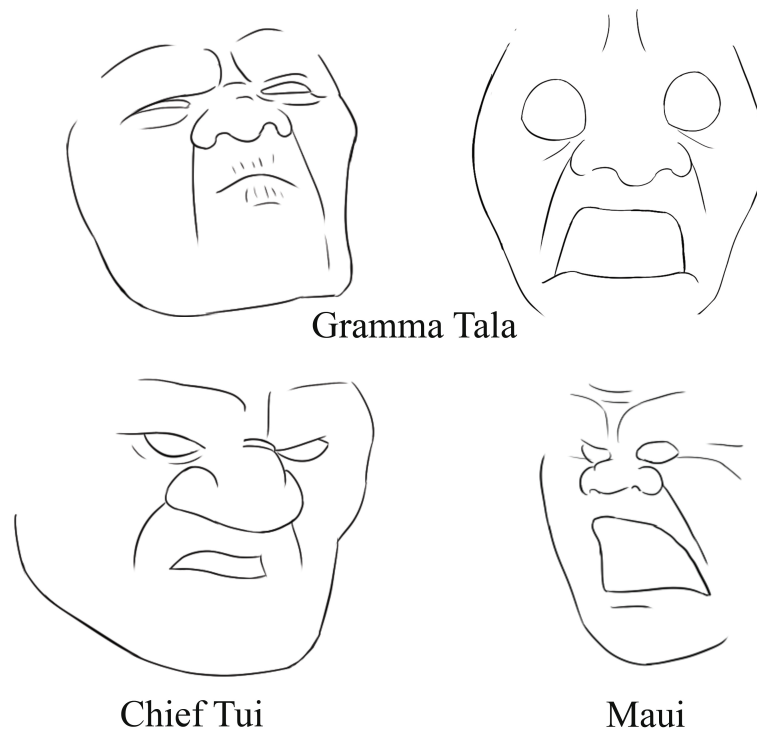
4.7   Emotions and Age

Figure 4.8: Comparison between Gramma Tala, Chief Tui, and Maui from Disney's *Moana*.

In the context of age, older people express less emotions and there is no difference between females and males [21]. This is not really unexpected since maturation can be considered a way

to control expressing emotions [2]. By portraying certain groups as less emotional, we may be portraying them as wiser or more mature. What does this say then, when white characters are portrayed as less emotional and characters of color are portrayed as having more extreme emotions? This can be a dangerous trend if it is found in other films Disney has made and could mean an even subtler and subconscious discrimination.

Despite this, in this study I observed that older women emote at an extreme intensity like their male counterparts (See Figure 4.8). For instance, Gramma Tala's facial structure varies dramatically as she emotes allowing her emotions to come across as strong and intense. It's interesting how she looks very similar to Maui and the Chief in terms of facial structure, features and emotions. On the other hand, Moana's expressions are more subtle compared to the male characters and her grandmother. Her expressions are very similar to her mother Sina and to Te Fiti which are both still relatively young, middle-aged characters. Older women "lose" their attractiveness which allows them to emote at an extreme intensity like their male counterparts because animators aren't worried about keeping them "pretty." However, this is a very narrow definition of what attractiveness and beauty can be which inhibits the socially acceptable young princess/heroine from emoting genuinely due to the restrictions on appearance.

5. CONCLUSION AND FUTURE WORK

5.1 Conclusion

In conclusion, there should be more care in how female characters are animated and how they express their emotions because it's one thing to make Moana have a slightly different body type than previous female protagonists and a whole other to animate her to express her emotions in a more human way. My findings confirm recent studies (27; 34; 40) that Disney tries to respond to the long faced criticism for only having passive princess roles for female characters (20; 33) by introducing characters with more agency and varied roles. This can be seen in Moana asserting herself as the daughter of the chief and the next leader of her people and being determined and spirited. This can also be seen to some extent in Elsa not having a romantic love interest and instead focusing on herself and her dedication to her kingdom and her sister. However, despite the progress in roles for female characters, the emotions haven't caught up to these new roles. Younger female characters can save themselves, but their visual representation still harkens back to that of the princess.

I have established a methodology for what could be a larger study. And, as always, it's important to note that I am one person collecting and analyzing this data so there is always room for human error. Despite this, I believe my findings bring to light important areas in animation that require more thoughtful consideration and advancement.

In the introduction, I included an image of Furiosa from Mad Max: Fury Road I really like because of her sheer, raw emotion (See Figure 1.2). She is in the midst of a struggle between life and death and there is no thought about whether or not she looks pretty or how a typical woman in distress would be portrayed. She is fighting for her life and every bit of that fight is shown on her face. The director could have cut the take and re-shot it, asking Furiosa's actress Charlize Theron to tone it down and to keep it pretty but that's not the point of the scene and the scene is far more powerful when those thoughts are left by the wayside. The creators of Disney films have the same

and even more control over their animated actors. They have the power to have them express more powerful and raw emotions and with the influence that their media has on younger minds, I believe they have a duty to do so.

Women need role models. We need to see realistic depictions of emotion to feel the true power and agency of our role. If we don't see our own emotions reflected on screen it is like they are not acceptable or valid.

5.2 Future Work

Future work could include the progression of female character's emotional intensity over time throughout more recent films as well as what emotions are expressed. More specific research can be done regarding race - women of color given different, more aggressive emotions and roles versus white women.

Including more films from different studios including those that are not as large as Disney (ex. Laika) could help determine if less mainstream films are doing more to advance the portrayal of female characters and their emotive expressions. It would also be helpful to work with the entirety of the film versus the certain scenes I used for this project. I believe having a systematic way to collect data via a program that can sift frame-by-frame through an animated film as well as having more people working on the project would help to achieve this endeavor.

Having a systematic way to create the draw-overs would also help the ability to increase the scope and sample size of this research. I believe a viable option for this would be through a refined version of an edge detection algorithm that identifies facial features such as eyes, noses, mouths, and the outline of the face. These images can then be categorized by character and then analyzed and evaluated for emotion and intensity of emotion.

It would be interesting to take into consideration the gender split and if the higher up positions have gender and racial diversity in the studios that produce these films as well as the gender split and positions in the film crews themselves.

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