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The Influence of Disney: The Effects of Animated Facial

Features on Children's Perceptions

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Abstract

This study examined facial feature characteristics of heroes and villains in Disney animated films, and the effects these features have on children's perceptions of people. In study 1, we found significant differences between heroic and villainous characters in 14 full-length Disney animated feature films for eight facial features. Compared to heroic characters, villainous characters were significantly ($p < .05$) more likely to have darker eyes, arched (v. rounded or straight) eyebrows, thin and pointed noses, a widow's peak, straight (vs. wavy) hair, wrinkles, and appear to be over 30 years old. In study 2, 56 fourth-and-fifth-grade children were presented with schematic faces that varied along the first seven features listed above and asked, for each face, how honest, helpful, likeable, and nice the person depicted in the drawing was. Children rated faces with "heroic" features as more honest, helpful, likeable, and nicer than faces with "villainous" features for the following features: eye color, eyebrow shape, widow's peak, wrinkles, and faces containing all the features. Children's association of particular facial features with particular personality characteristics could have negative consequences in prejudicing children against groups (such as the elderly) who possess these characteristics.

The Effects of Animated Facial Features on Children's Perceptions

Most people make first impressions of others based on physical features, specifically facial features. We all unknowingly practice the art of physiognomy, or "reading personality traits from faces," (Hassin & Trope, 2000). How do particular facial features come to be associated with particular personality traits? Perhaps we learn it at a young age.

Children are exposed to all types of mass media, especially animated films. Perhaps the reason these films are so influential for children is that their focus is directed specifically toward them. Walt Disney Productions may be the most famous production company of animated film in the United States. With films like *Aladdin* grossing over \$200 million in ticket sales, Walt Disney's popularity is evident ("Mulan or Moola", 1998).

One reason Disney films are so popular may be the portrayal of their characters. Each of these characters has a distinct personality. The artists often convey these personalities through the physical appearance of the characters (Arcus, 1989). Children who watch these films may notice this link between personality and physical characteristics. After repeated exposure to these films, children may begin to generalize this trend to the real world.

People often look specifically at the face in order to judge the personality of a person. For example, it has been shown that people perceive "babyfaces", which consist of large eyes, a round face, thin eyebrows, and a small nose bridge, as being more naive, dependent, and submissive. They are also considered to be warmer and more honest (Zebrowitz, & Montepare, 1992).

Animated filmmakers often use the eyes of a character to express personality. Doreen Arcus (1989) found a link between eye color and vulnerability in Disney characters. She examined the characters of seven Disney animated films, and recorded the eye color for each. She found that blue eyed characters assume more vulnerable roles while dark eyed characters assume more dominating roles. For example, in *Alice in Wonderland*, Alice has blue eyes, while the Queen of Hearts has brown eyes. Alice was lost in a confusing new world full of nonsensical creatures. For this reason, she was one of the most vulnerable characters in the film. On the other hand, the Queen is the ruler of this land, and she is the most dominating character of the film.

Another area of the face that seems to be expressive of personality is the nose. In a quasi-experimental design, males rated the personalities of 16 females through photographs of them. Researchers measured specific facial features, including nose width, in these photos. They found that women with larger noses were rated as being more modest, while those with smaller noses were rated as being more sociable, intelligent, and assertive (Cunningham, 1986).

Perhaps it is not the specific features of a face that define a character's personality, but the types of lines that make up the face. Researchers used simple shapes found in facial features such as eyes, eyebrows, hair lines, noses, and mouths, and manipulated them so that they were angular and diagonal or curvilinear. Participants then rated the amount of threat these shapes conveyed. Participants rated shapes containing more angular and diagonal lines as conveying threat (Aronoff, Barclay, & Stevenson, 1988).

Another way to read personality through facial features is to look at the age or maturity of a face. In examining this effect, one study involved one group of participants rating the facial maturity and one group rating the personality of 110 videotaped faces. Faces rated as being more mature were also rated as being more dominant, less warm, and less agreeable (Zuckerman, Miyake, & Elkin, 1995). In a study examining the immaturity of faces, children rated 16 faces on cuteness, helplessness, and youthfulness. The children rated youthful faces as being cuter and more helpless (Gross, 1997). In other studies immature faces have also been associated with naiveté, submission, and physical and social weakness. However, immature faces have also been associated with positive personality characteristics, such as honesty, warmth, and affection (Berry & Brownlow, 1989; Zebrowitz & Montepare, 1992).

These findings lead us to the following hypotheses:

Study 1:

Hypothesis 1: There will be significant differences in the appearances of the heroes/heroines and the villains in Disney films.

Hypothesis 2: There will be significant differences in the appearances of the heroes and the heroines in Disney films.

Study 2:

Hypothesis 3: Children will rate faces with features found more commonly on heroes/heroines more positively than faces with features found more commonly on villains.

STUDY 1

Method

Materials

Films. There are 44 full-length Disney animated feature films dating from 1937 to 2004 (Complete Disney Animated Movie List, 2004). Of these 44 films, researchers selected 14 films to study based on the following criteria: a.) a definite heroic character and a definite villain and b.) the heroic characters and villains of each film must all have human faces. The researchers identified the hero, heroine, and villain of each film. There were a total of 42 characters, with 14 heroes, 13 heroines, and 15 villains (see Table 1). The reason for an uneven number of heroes, heroines, and villains is that *Alice in Wonderland* had no hero, *The Emperor's New Groove* had no heroine, and the villain in *Snow White* has two forms, a queen and a witch. Also, the researchers divided the hero of *The Hunchback of Notre Dame*, Quasimodo, into two characters. The features of this character's face were different on the left side than on the right side.

Disney faces. Researchers obtained images of Disney heroes, heroines and villains from various Internet sites. These images were obtained through the search engine www.google.com. The character's name, the word "Disney," and/or the title of the film were entered into the search engine. The images that were chosen were in color and focused on a frontal view of the character's face. If a frontal view was unavailable, a profile view was used or the film itself was consulted. It was necessary for the images to be large enough for the individual facial features and their characteristics to be distinguished.

Procedure

A content analysis of the Disney images was conducted to tabulate the facial features listed in Table 2. From this tabulation, researchers conducted a chi-square

analysis to determine whether or not certain facial characteristics are associated with certain character types (i.e. heroes, heroines, or villains).

Results

Researchers examined the inter-rater reliability of the content analysis using Cohen's Kappa. Reliability of ratings for each feature ranged from .70 to 1.00, with a mean score of $K = .81$ (see Table 2). These levels of reliability were deemed acceptable by the researchers.

Chi-square analyses of the facial features in the content analysis were performed to determine the relationship between character type (hero, heroine, or villain) and certain features. According to these chi-square analyses, heroes/heroines were significantly different ($p < .05$) from villains in that heroes/heroines had blue eyes, rounded eyebrows, small and round noses, wavy hair, no widow's peaks, no wrinkles, and appeared to be younger than 30 years of age. Villains had dark eyes, arched eyebrows, big and pointed noses, straight hair, widow's peaks, wrinkles, and appear to be older than 29 years of age (see Table 3 for percentages). Researchers also found that heroes were significantly different ($p < .05$) from heroines in that heroines more often had blue eyes and round eyebrows, whereas heroes more often had dark eyes and straight eyebrows (see Table 4 for percentages).

STUDY 2

Method

Participants

Participants for the second part of this study, evaluating faces with certain features, were 56 fourth- and fifth-graders from a small Mid-Western elementary school.

Twenty-five of the participants were male, 29 were female, and 2 were unknown. The mean age of the participants was 10.57 years, and 88% were Caucasian.

Materials

Experimenter-generated faces. To examine the effects of facial features independent of Disney characters and plot, a schematic face was created. An artist created this face based on the ratios of facial features on the average face. This face was then manipulated, one feature at a time, to create 13 new faces. In addition to these 13 faces, the artist also created an extreme "hero" face and an extreme "villain" face by manipulating all the examined features of the face with features common either among heroes or villains. Altogether, there were 16 faces created (see Figure 1 for examples).

Many of the participants may be familiar with these Disney characters and may draw conclusions about the personality of a character based on the plot line, rather than the feature itself. Therefore, sketches were used, rather than images from the films themselves, so that participants would not associate the feature with a specific character. These sketches were rendered using paper and a black marker. Colored pencils were used to color in the eyes.

Questionnaire. Researchers also created a survey in which the participants were asked to rate the faces based on the following personality characteristics: nice/mean, honest/dishonest, helpful/hurtful, and liked/disliked. This survey was based on a 5-point Likert scale. The following is a sample question from the survey: "This person pictured above is: 1. Very Nice, 2. Somewhat Nice, 3. Neutral, 4. Somewhat Mean, or 5. Very Mean." The last page of the questionnaire consisted of a checklist of the 14 Disney films examined in Study 1. Children were instructed to mark the films they had seen. For half

of the questionnaires, the order of the faces and questions was changed to avoid order effects.

Procedure

An artist manipulated the schematic face with these particular facial characteristics, as described above. Informed consent was obtained from the parents of the participants via permission slips. Only students with a signed permission slip were allowed to participate in the study. Participants completed a survey, also described above, using the artist's sketches. Half-way through the completion of the questionnaires participants were given a short break to stretch out. After the completion of the questionnaire, participants were given debriefing forms to take home to their parents, as well as a verbal debriefing and candy as a reward.

Results

Evaluation of faces

Participants rated the personalities of faces that varied in the features found to differ between heroes/heroines and villains in Study 1. The 4 ratings of each face were reversed scored where appropriate and averaged together to create an overall evaluation for each face. The inter-item reliability for the questions ranged from $\alpha = .69$ to $\alpha = .92$, with a mean score of $\alpha = .83$. A rating of 1 represented a personality rating of very mean, very dishonest, very disliked by others, and very hurtful. A rating of 5 represented a rating of very nice, very honest, very much liked by others, and very helpful. To analyze these ratings of personality, paired *t*-test analyses were conducted.

The results indicated that there was a significant difference in evaluations of the following pairs of features: widow's peak vs. no widow's peak, arched eyebrows vs.

rounded eyebrows, wrinkles vs. no wrinkles, and blue eyes vs. brown eyes. However, researchers concluded, after examining the effects of gender on the ratings of the blue eyes and brown eyes faces, that only female participants rated these two faces significantly differently. To test this gender effect, researchers conducted a 2 (face: blue eyes or brown eyes) by 2 (gender: male or female) mixed factorial design with repeated measures on the first factor. There was a significant interaction between eye color and gender, $F(1,51) = 12.67, p < .01$. Female participants rated the face with blue eyes more positively ($M = 4.36$) than the face with brown eyes ($M = 3.28$), while male participants showed no distinction (M 's = 3.60 and 3.63).

The faces containing widow's peaks, arched eyebrows, wrinkles, and brown eyes were given a more negative evaluation than faces containing no widow's peaks, rounded eyebrows, no wrinkles, and blue eyes. These scores also indicated that the faces with features found more commonly among heroes (from Study 1) were rated as being nicer, more honest, likeable, and helpful than the faces with features found more commonly among villains. There was also a significant difference between the evaluations of the face with all the heroic features and the face with all the villainous features, such that the heroic face was evaluated more positively than the villainous face (see Table 5 for means, standard deviations, t-values, and p -values).

Previous Disney film exposure

Researchers were also interested in whether or not being exposed to a higher number of Disney films would affect participants' ratings of the faces. A median split was used to divide participants into those who had viewed all Disney films examined in Study 1 ($M = 14$) and those who had not viewed all of the films ($M = 9.7$). To test for

this effect, personality ratings were analyzed using a 2 (face: heroic feature or villainous feature) by 2 (number of films viewed: many or few) mixed factorial design with repeated-measures on the first factor.

There was a significant interaction between face and number of films viewed for widow's peak vs. no widow's peak, $F(1,54) = 4.31, p = .043$. Participants who had viewed all the Disney films rated the face with a widow's peak with a mean score of 2.09, and the face without a widow's peak with a mean score of 3.67. Participants who had seen fewer films rated the face with a widow's peak with a mean score of 2.53, and the face without a widow's peak with a mean score of 3.39. Therefore, the difference between faces for participants with more exposure to these films was greater than the difference between faces for participants with less exposure to these films.

There was also a marginally significant interaction for the extreme heroic and villainous faces, $F(1,53) = 3.47, p = .079$. Participants who had viewed more Disney films rated the extreme heroic face with a mean score of 3.97, and the extreme villainous face with a mean score of 1.51. Participants who had viewed fewer Disney films rated the extreme heroic face with a mean score of 3.28, and the extreme villainous face with a mean score of 1.54. Participants who had viewed more Disney films gave a more positive evaluation to the heroic faces and a more negative evaluation to the villainous faces than participants who had seen fewer films.

Discussion

The first hypothesis, that there are significant differences in the appearances of heroes/heroines and villains in Disney animated films, was supported. Disney heroes and heroines are more likely than villains to have blue eyes, non-arched eyebrows, small

rounded noses, wavy hair, no widow's peak, no wrinkles, and appear to be 29 years of age or younger.

The second hypothesis, that heroines in Disney films have different facial features than heroes, was supported for eye color and eyebrow shape. Disney heroes tend to have dark eyes and straight eyebrows, whereas Disney heroines tend to have blue eyes and rounded eyebrows.

The third hypothesis, that children will rate faces with features found more commonly in heroes more positively than faces with features found more commonly in villains, was supported for the following faces: widow's peak vs. no widow's peak, arched vs. rounded eyebrows, wrinkles vs. no wrinkles, blue eyes vs. brown eyes, and the extreme hero face vs. the extreme villain face. The faces with no widow's peak, rounded eyebrows, no wrinkles, blue eyes, and the extreme hero face were rated more positively than the faces containing a widow's peak, arched eyebrows, wrinkles, brown eyes, and the extreme villain face.

Only female participants rated blue eyes significantly more positively than brown eyes. Male participants did not make a distinction between the eye colors. This interaction related back to findings from Study 1 in that the heroines had blue eyes more often than heroes. Perhaps female participants relate more to the heroines than the male participants do. As a result, females favor the eye color of the heroines more than males do.

It was also found that the widow's peak had a greater effect for participants with more exposure to Disney films than for participants who had less film exposure. The same was also true (although with only marginal significance) for the faces containing all

of the heroic and villainous features. Participants who had watched more Disney films rated the extreme hero face more positively and the extreme villain face more negatively than did participants who had watched fewer Disney films.

This finding could suggest that children who watch more Disney movies hold a stronger stereotype of faces with all of the heroic or villainous features contained in them than children who watch fewer Disney movies. Another explanation for this finding is that Disney films are magnifying a pre-existing underlying perception of personality through these features. Previous research suggests that certain personality perceptions exist outside of animated film. Joel Aronoff and his colleagues' (1988) study linking angular lines and perceptions of threat certainly supports this theory. If these perceptions are inherent in our culture, than Disney may just be acting as a mirror for these perceptions.

The only way to discern whether or not Disney films are creating these perceptions or just enhancing them is to conduct an experimental design. As the current study is a relational study and no direct cause-and-effect relationships can be assumed based on its results, an experimental study is necessary to determine the exact nature of this relationship.

The findings of this study are important because they suggest that it is possible that certain facial feature-personality associations are taught to children at a young age through media, specifically animated films. Children may generalize these associations to all people and not just to animated characters. These associations could affect the way that children perceive and interact with peers, teachers, and other members of society. For example, a child may encounter an elderly lady with wrinkles and a widow's peak

and assume she has a villainous personality. These assumptions could play a part in societal problems such as ageism. However, it cannot be directly implied from our study that these associations would occur in a natural setting, because we did not have the children rate the faces of real people. Therefore, to determine if children would actually perceive people with certain facial features in the same way that they perceive drawings of faces with certain facial features, future research should be done.

As the findings of this study are broad and interesting further research on this topic is recommended by the researchers. It would be beneficial to study other forms of children's media, such as anime and Nickelodeon cartoons, in order to see if the heroes and villains of these forms of media have the same stereotypical features that the characters in Disney films have. If they do, then children may be learning facial feature-personality associations from many different media programs.

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Table 1.

Film and Character List for Content Analysis in Study 1

Film	Hero	Heroine	Villain
Snow White	Prince	Snow White	Queen/Witch
Cinderella	Prince	Cinderella	Lady Tremaine
Alice in Wonderland		Alice	Queen of Hearts
Peter Pan	Peter	Wendy	Captain Hook
Sleeping Beauty	Prince Phillip	Princess Aurora	Maleficent
The Little Mermaid	Prince Eric	Ariel	Ursula
Aladdin	Aladdin	Jasmine	Jafar
Pocahontas	John Smith	Pocahontas	Governor Ratcliffe
The Hunchback of Notre Dame	Quasimodo (Left Side, Right Side)	Esmeralda	Frollo
Hercules	Hercules	Megara (Meg)	Hades
Mulan	Captain Li Shang	Mulan (Ping)	Shan Yu
Tarzan	Tarzan	Jane	Clayton
Emperor's New Groove	Kuzco		Yzma
Atlantis: The Lost Empire	Milo Thatch	Princess	Commander Rourke

Table 2.

Inter-Rater Reliability of Facial Feature Ratings from Content Analysis in Study 1

Feature Characteristics	Possible Descriptions	Cohen's Kappa
Eye Color	Brown, Black, Blue, Other	.70
Eyebrow Shape	Round, Arched, Straight	.81
Nose Width	Small, Big	.80
Nose Shape	Round, Pointed	.80
Widow's Peak	Yes, No	.72
Cranial Hair Curliness	Straight, Wavy	.75
Wrinkles	Yes, No	.87
Age	29 or Younger, 30 or Older	1.00

Table 3.

Percentage of Characters (Hero/Heroine vs. Villain) in 14 Disney Films Possessing Particular Facial Features

Characteristics	Hero/Heroine	Villain	<i>p</i> *
blue** eye color (vs. dark eye color)	34.6%	0%	.036
arched eyebrows (vs. not arched eyebrows)	0%	66.7%	<.01
small nose width (vs. big nose width)	81.5%	26.7%	<.01
round nose (vs. pointed nose)	85.2%	6.7%	<.01
widow's peak (vs. no widow's peak)	7.4%	53.3%	<.01
straight hair (vs. wavy hair)	44.4%	86.7%	.01
wrinkles (vs. no wrinkles)	7.4%	60.0%	<.01
30 years or older (vs. 29 years or younger)	3.7%	100%	<.01

* *p* is based on Fisher's Exact Test.

** The eye color violet was included in the blue eye color group. There was only one character (Megara from Hercules) with violet eyes.

Table 4.

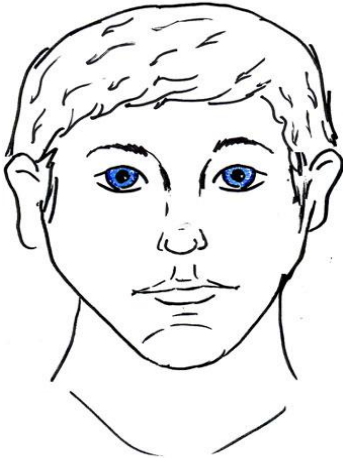
Percentage of Characters (Hero vs. Heroine) in 14 Disney Films Possessing Particular Facial Features

Characteristics	Hero	Heroine	<i>p</i> *
blue** eye color (vs. dark eye color)	14.3%	58.3%	.038
rounded eyebrows (vs. straight eyebrows)	50.0%	92.3%	.033
small nose width (vs. big nose width)	71.4%	92.3%	.326
round nose (vs. pointed nose)	78.6%	92.3%	.596
widow's peak (vs. no widow's peak)	7.1%	7.7%	1.00
straight hair (vs. wavy hair)	57.1%	30.8%	.252
wrinkles (vs. no wrinkles)	14.3%	0%	.481
30 years or older (vs. 29 years or younger)	7.1%	0%	1.00

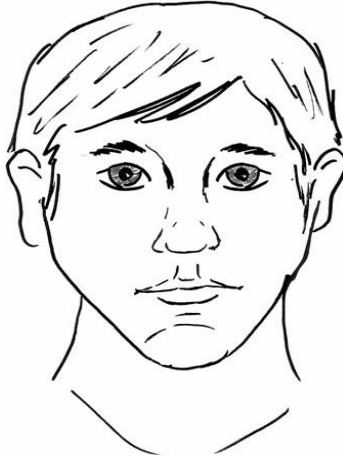
* *p* is based on Fisher's Exact Test.

** The eye color violet was included in the blue eye color group. There was only one character (Megara from Hercules) with violet eyes.

Figure 1. Generated faces



All-heroic features



Schematic



All-villainous
features

Table 5.

Results of Paired *t*-test Analyses of Children's Responses to Generated Faces

Face	Mean	SD	<i>t</i> -value	<i>p</i> -value	<i>df</i>
No Widow's Peak	3.51	.75	6.65	<.01	55
Widow's Peak	2.34	1.08			
Rounded Eyebrows	3.52	.96	-5.10	<.01	55
Arched Eyebrows	2.57	1.05			
No Wrinkles	3.4	.75	-5.80	<.01	54
Wrinkles	2.44	1.14			
Blue Eyes	4.02	.99	3.50	<.01	54
Brown Eyes	3.40	.90			
Hero	3.58	1.18	10.17	<.01	54
Villain	1.53	.90			

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Portions of the results from this article were presented at the Butler Undergraduate Research Conference, 2005. The authors wish to thank Bill Altermatt for his support and guidance, and Andrew Harden for his time, effort, and superior artistic talent.

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