The Relationship between Preschoolers' Perception of Emotion and Gender Stereotyping

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Abstract

The purpose of this study was to determine if there is a relationship between the gender of the perceiver, a gendered name label, and emotion identification in gender ambiguous faces. Preschoolers identified the emotion expressed in ambiguous adult and adolescent faces (cropped to exclude hairstyles). Each face displayed one of six emotions and was paired with either a stereotypical male, female, or neutral label. Our hypothesis that the participants would be accurate in identifying the emotions of "happy" and "sad" regardless of label was supported. Similarly, our hypothesis that children would be more accurate at identifying emotions in adolescent faces than in adult faces was supported. Consistent with recent research, females were not better than males at emotion identification. Our hypothesis that gender label would influence emotion identification of "disgust", "anger" and "fear" was not supported. Nevertheless, our data suggests that the stereotypically "masculine" emotion of "anger" and the stereotypically "feminine" emotion of "fear" are easier to identify than the "feminine" emotion of "disgust." Overall, the results suggest that old stereotypes related to gender and emotion no longer play a strong role in driving perception of emotion when the stimuli are devoid of stereotypical male or female hairstyles.

Keywords: Emotion, gender, children, gender identification, gender stereotypes

Generally, by the age of six, children are able to identify and reciprocate several basic emotions, including happiness, sadness, anger, disgust, and fear (Izard, 1971; Zhentao & Fuxi, 2006; Bosacki & Moore, 2004; Boyatzis, Chazan, & Ting, 1993). Emotion identification is important because being able to empathize and sympathize more easily connects people to those around them (Lou et. al., 2014). Gender stereotypes are among one of the factors believed to influence emotion identification, which helps people make inferences about their surroundings (Bauer & Coyne, 1997; Halim, Ruble, Tamis-LeMonda, Shrout, & Amodio, 2017; Levy, Barth, & Zimmerman, 1998; Widen & Russel, 2002). Although children are able to identify and reciprocate several basic emotions, emotion identification often varies as a function of the complexity of the emotion, the gender of the perceiver (Widen & Russel, 2002; Lawrence, Campbell, Skuse, Pascalis, & Kadosh, 2015; Adams, Summers, & Christopherson, 1993), and the gender of the individual being described (Condry & Condry, 1976; Widen & Russel, 2002; Bauer & Coyne, 1997; Adams et. al., 1993).

Researchers have shown that preschoolers have the ability to correctly identify and reciprocate several basic emotions (Izard, 1971; Zhentao & Fuxi, 2006; Bosacki & Moore, 2004; Boyatzis et. al., 1993), but their ability to detect certain emotions depends on the complexity of the emotion. For example, Bosacki and Moore (2004) and Lawrence and colleagues (2015) found that children were better able to identify simple emotions (e.g., happy, sad) than more complex emotions (e.g., proud, embarrassed, disgusted). Additional evidence suggests that in addition to complexity, the gender of the participant might play a role. However, the gender gap with regard to emotion identification is not so straightforward.

While some report evidence that females are better at identifying emotions than males (Widen & Russel, 2002; Lawrence, Campbell, Skuse, Pascalis, & Kadosh, 2015; Adams et. al., 1993) and females are able to better identify anger and disgust than males, there is no evidence of gender differences for other basic emotions (Montirosso et al., 2009). Bosacki and Moore (2004) also found that only boys demonstrated a significant correlation between vocabulary level and emotional understanding, suggesting that boys may have a more difficult time expressing their emotional knowledge than girls. Given the complexity of the relationship between gender of the perceiver, emotion identification, and age, it would be beneficial to compare emotion identification accuracy in very young children (with lower vocabulary levels) in reference to both the gender of the participant and the gender and age of the perceived.

As mentioned previously, a number of researchers report that girls are generally more accurate at identifying emotions than boys (Adams et. al., 1993; Bosacki & Moore, 2004; Boyatzis et. al., 1993). For example, Boyatzis and colleagues (1993) examined preschoolers' ability to decode facial emotions. The experimenters read a short story to preschoolers describing a boy's emotion and then showed them three pictures of a boy displaying different emotions and asked which picture they felt matched the emotion of the boy in the story. They found that the preschool girls were significantly better at correctly identifying emotions than the preschool boys. However, this identification benefit for female participants is not consistently reported. For example, more recently, Parker, Mathis, and Kupersmidt (2013) found that preschool girls were not better at identifying emotion than boys, but they did not require preschoolers to identify the emotion of an ambiguously gendered face. The results may differ when the assumed gender of the face changes. Although the evidence provided here (e.g., Boyatzis et. al., 1993) suggests that girls may be better at detecting emotions in scenarios compared to boys, such research does not help us understand if girls are also more likely to correctly detect emotions in pictures of faces with ambiguous features related to gender.

In addition to the complexity of the emotion being displayed and the gender of the perceiver, another factor that plays a role in emotion identification is the gender of the individual being described (Condry & Condry, 1976; Widen & Russel, 2002; Lawrence et. al., 2015; Bauer & Coyne, 1997; Adams et. al., 1993). For example, children often use more masculine words (e.g., enraged, tense, etc.) to describe a male face displaying anger, but they use more feminine words (e.g., irritated, furious, etc.) to describe a female face making the same angry expression (Parmley & Cunningham, 2014). Additionally, researchers, such as Bosacki and Moore (2004), suggest that children learn to use contextual information to figure out why emotions occur. The context of interaction with someone of a specific gender may prime related stereotypical emotional responses. For example, researchers have found that anger is more easily recognized in men (Brody, 1985; Rotter & Rotter, 1988), and men are stereotyped as being angrier than women (see Brody & Hall, 2008). Finally, boys are more likely to express anger or sadness using physical forms of aggression, while girls express anger or sadness by crying, sulking or pouting: behaviors that are perceived to be more consistent with the emotion of sadness (Buntain & Costenbader, 1997; Zeman & Garber, 1996). Both adults and children believe that females express all emotions, except anger, more frequently than males, and, with the exception of anger, women's emotional facial expressions are more easily recognized than men's (Fabes & Martin 1991; Karbon, Fabes, Carlo, & Martin, 1992). Whereas anger is typically associated with males, fear, disgust and sadness are associated with females (Birnbaum & Chemelski, 1984; Karbon et.al., 1982; Skolnick, Bascom, & Wilson, 2013). Thus, there appears to be a plethora of evidence in favor of specific gender emotion stereotypes.

The previously described findings suggest that when primed with a stereotypically masculine name, the emotion may be more likely to be interpreted as anger compared to when primed with a stereotypically feminine name. The findings also suggest that when primed with a stereotypically feminine name, the emotion may be more likely to be interpreted as fear or sadness. According to the parallel-constraint-satisfaction theory, this interpretation of anger is more likely when there is ambiguity (Kunda & Thagard, 1996; Sagar & Schofield, 1980). Evidence in favor of the parallel-constraint-satisfaction theory comes from several studies (Brody, 1997; Condry & Condry, 1976; Parmley & Cunningham, 2008; Plant, Hyde, Keltner, & Devine, 2000; Plant, Kling, & Smith, 2004), showing that individuals are more likely to utilize gender emotion stereotypes when exposed to ambiguous facial expressions or emotional contexts. For example, individuals may interpret a male with an ambiguous frown as being angry rather than sad, but they may interpret a female with an ambiguous frown as being sad or fearful. Parmley and Cunningham (2008) suggest that knowledge of gender emotion stereotypes may prime individuals to see gender consistent emotions early in perception, thus impacting the labeling of the emotion.

Condry and Condry (1976) were among the first to demonstrate a relationship between description of intensity of emotion and the gender of the individual being described or shown. In the study, young adult students aged 18-25 viewed videos of infants being shown various stimuli (e.g., a teddy bear, a buzzer, etc.) and their subsequent reactions. Participants were then given a rating sheet that included the "sex" of the infant as well as its "name" and were asked to rate the intensity of the infant's emotions. They found that supposed "male" infants were rated as having been more "potent" and "active" than those labeled as "females." They concluded that labeling an otherwise ambiguous individual as "male" or "female" can impact the way one describes the intensity of their emotion.

More recently, Halim, Ruble, Tamis-LeMonda, Shrout, and Amodio (2017), sought to discover how preschool-aged girls and boys view and understand gender and gender stereotypes. Specifically, in terms of private regard (e.g., "I am happy I am a boy/girl"), gender stability (e.g., "Will you be a mommy or a daddy when you grow up?"), gender consistency (e.g., "If a girl cut her hair really short, would she become a boy?"), gender stereotype flexibility, and gender-stereotype knowledge. Participants of this study included 246 children (121 girls, 125 boys) of ages four and five. Gender-stereotype knowledge was assessed by showing children pictures of a girl and a boy and labeling them as such and asking questions such as "Which one of these children (e.g., likes dolls, likes trucks, is strong, gets scared a lot)?" Overall, children answered questions in a way that was consistent with gender stereotypes about 66% of the time. The researchers also found that there was no relationship between gender stability and gender attitudes. However, girls demonstrated higher levels of both private regard and stereotype knowledge. Additionally, girls scored boys more negatively on the attitude measures, while boys only scored girls negatively on the affect measure. These and previous results indicate that preschool-aged children as young as three years of age (e.g., Brody, 1987) are aware of gender stereotypes and use this knowledge to make judgements about the emotions of others (e.g., Widen & Russel, 2002).

In support of the prediction that stereotypical labels of ambiguous faces can impact emotion identification, Widen and Russel (2002) showed preschool children between the ages of four and six pictures of ambiguous adolescent-aged faces to determine the impact of gender labeling on emotion identification. The faces were presented as either "Judd," who had short hair, or "Suzy," who had long hair. The children were then told short stories about either "Judd" or "Suzy" and asked how they thought "Judd" or "Suzy" felt in the story. When presented with a face displaying fear, female participants were more likely to label "Suzy" as "afraid" and less likely to label "Judd" as "afraid." When presented with a face displaying disgust, male participants were more likely to label "Judd" as "disgusted" and less likely to label "Suzy" as "disgusted." There was no significant difference for happy or sad faces across any of the conditions, however, there was a significant 3-way interaction between the gender of protagonist (i.e., stimuli), gender of participant, and emotion interaction. Emotion identification was dependent on the gender of the protagonist and the gender of the participant. This research provided evidence for emotion identification based on gender information, however, it did not examine the relationship between different age groups and the ability to correctly identify emotion, nor was the facial expression alone used as a factor. That is, the age of the protagonist was constant throughout the study (12-13 years) and the addition of hairstyle to each face formed a stronger gender stereotype. Perhaps a comparison of two different age groups (adult and adolescent) of the protagonist in conjunction with a narrower scope of stereotypes (i.e., elimination of stereotypical boy or girl hairstyles) may provide a more cohesive understanding of the relationship between gender information and emotion identification.

It is not certain why this gender-emotion association (i.e., the tendency to associate certain emotions with particular genders, e.g., "afraid" with females) occurs; however, there are a few proposed explanations. Previous research reveals that preschoolers are already aware of gender stereotypes, and use these stereotypes to make inferences about their surroundings (Levy et. al., 1998; Bauer & Coyne, 1997). Bauer and Coyne (1997) found that preschool-aged children associated certain gender-stereotyped names with the corresponding gender (e.g., "Jessica" said to be a female name, "Mark" a male name, and "Jamie" a gender-neutral name). The researchers went on to discover that the children made the decision of which toy (e.g., a truck or a doll) a gender ambiguous figure would want to play with based off of the name assigned to the figure. For example, the children typically chose a doll (a stereotypical feminine toy) for a person with a stereotypical female name (e.g., Rachel) and they chose a truck (a stereotypical masculine toy) for a person with a stereotypical male name (e.g., Charles). Furthermore, because children gender stereotype toys at an early age, it might also mean that they base perception of emotion on stereotypically gendered names.

Another explanation of gender-emotion association involves traditional gender roles. Luo and colleagues (2015) discussed the distinction between "self-other" (the separation of yourself and others). These tasks are the foundations of empathy, according to Luo and colleagues (2015). Self-tasks (participant focuses on their own affective response to emotional faces) involve poor identification of another person's emotions and exhibiting less sympathy, while in other-tasks (participant focuses on the emotional state expressed by the face), people more easily feel for another who is expressing emotion and express empathy/sympathy. Luo et al.'s (2015) study of young adults aged 19-26 determined that boys were more inclined to form self-other distinctions while girls formed the other-task distinctions. This difference in task orientation may be due to the fact that traditional gender roles allocate females to be more empathetic and "understanding" and for males to be more stoic and "unfeeling." Perhaps boys are less able to identify emotions because they are less "empathetic." In support of this explanation, evidence suggesting that boys' tendency to be less "empathetic" (Luo et al., 2015) may also correlate with a deficiency in being able to correctly label and identify emotions (Adams et. al., 1993; Bosacki & Moore, 2004; Boyatzis et. al., 1993).

In addition to the gender of the participant, the gender and age of the stimulus and the age of the perceiver may also affect how accurately children identify the emotion of a target stimulus. Parmley and Cunningham (2014), in particular, examined the relationship between gender and emotion using two different age ranges as the stimulus. For the experiment, college-aged students viewed an active, digital morphing stimulus. The images slowly aging from young female or male faces to adult female or male faces. In addition, the morphing stimuli changed expression from neutral to sad to angry. Participants were asked to stop or pause the video when they saw a specific emotion being expressed and to identify it. They found that sad expressions were more associated and identified with female faces while angry expressions were more associated with male faces. The adult participants were also more accurate at identifying the emotions in adult faces overall than in younger, child faces. Although the results of this study provide evidence that target gender is important in emotion identification, the researchers only tested adult participants. It is possible that preschoolers would be more accurate at identifying emotions in the younger, child faces. In addition, because Parmley and Cunningham (2014) only included the emotions of sadness and anger, it is unclear whether the results will generalize to other stereotypical gendered emotions (e.g., disgust and fear). Thus, it may be beneficial to include a wide range of emotions to determine how gender information is related to emotion identification.

Therefore, the purpose of this study was to determine if there is a relationship between the gender of the perceiver, the stereotypical gendered name label, and emotion identification in gender ambiguous faces. Previous researchers have demonstrated that girls are typically better than boys at identifying emotions of others (Adams et. al., 1993; Bosacki & Moore, 2004; Boyatzis et. al., 1993), and that the perceived gender of the stimulus can affect emotion identification. Participants apply gender stereotypes when identifying the emotion of the stimulus; specifically, participants are more likely to label male stimuli as "angry" than female stimuli (Condry & Condry, 1976; Halim, Ruble, Tamis-LeMonda, Shrout, & Amodio, 2017; Widen & Russel, 2002; Bauer & Coyne, 1997; Adams et. al., 1993). In this extension of Widen and Russel's (2002) study, participants viewed both adolescent and adult faces expressing the six emotions (i.e., neutral, happy, sad, fear, anger, and disgust). In addition, stereotypical hairstyles of girls and boys were excluded and the gender information came in the form of a paired stereotypically male or female name. The participants were shown a face expressing one of the emotions and the experimenter stated the name of the target stimulus (e.g., Elizabeth, John, etc.). Then, they were asked to identify how they believe "Elizabeth," for example, felt in the photo. In order to keep the participants from being led in one direction or another, a free response method was used. Based upon previous research suggesting a relationship between gender and emotional identification (Condry & Condry, 1976; Widen & Russel, 2002; Lawrence et. al., 2015; Bauer & Coyne, 1997; Adams et. al., 1993; Parmley & Cunningham, 2014), we hypothesized that females would more accurately identify emotions than males. Also, participants would more accurately describe the emotions expressed in adolescent than in adult faces (Parmley & Cunningham, 2015). In addition, we hypothesized that the preschoolers would be able to correctly identify the emotions of "happy" and "sad" regardless of the gender-stereotypical name assigned to the face (Widen & Russel, 2002), but would show more gender-based variation based on the three gender-stereotypical names assigned to the face when identifying the emotions of "anger", "fear", and "disgust" (Bosacki & Moore, 2004). For instance, the face presented with a stereotypically male name would be more likely to be labeled as "anger", while the same face presented with a stereotypically female name would be more likely to be labeled as "fear".

Method

Participants

A total of 19 preschool students (ages 3 to 5) from the Florida Southern Preschool/Learning Lab participated in this study. Twelve females and seven males served as participants. Participation did not take longer than two 20 minutes sessions, for a total participation time of 40 minutes.

Materials

Pictures. The pictures used in the experiment are shown in Appendix A. Participants were shown the pictures through a PowerPoint presentation. The pictures consisted of two sets of images: one set in which a child androgynous face depicted six emotions (neutral, happy, sad, angry, disgusted, and afraid) and one set in which an adult androgynous face depicted the same 6 emotions. Each picture was presented a total of three times to every participant, once with no label, once with a stereotypically male name, and once with a stereotypically female name.

Mirror. Prior to experimentation, participants were asked by the researcher if they could display each facial emotion (happy, sad, anger, disgust, and fear) while looking into a vanity mirror. This was used to ensure the participants could easily identify and reciprocate the target emotions.

Design

The study formed a 3 x 2 x 2 x 6 factorial design with three levels of gender name labels (no label, stereotypical female name label, stereotypical male name label), two levels of the gender of the child participant naming the emotions (male, female), 2 levels of ages of faces (adolescent and adult) and 6 levels of emotion (happy, sad, angry, afraid, disgusted, and neutral). The grouping variable in this experiment is the gender of the participant, the independent variables are the gender name label, the age of the stimuli, and the emotion expressed by the stimuli. Furthermore, the dependent variable is the accuracy of the emotion identification.

Procedure

The experimentation took place in a classroom setting. The pictures of the adolescent and adult faces used in this study displayed one of six emotions: neutral, happiness, sadness, anger, fear, or disgust. The 12 facial stimuli for this study were obtained and used with permission from Sherri Widen (Widen & Russell, 2002). In order to make the 12 pictures more gender ambiguous, the hair was cropped out of the pictures (all 12 pictures can be found in Appendix A). Each of the 12 faces were shown a total of three times, with a different gender name spoken by the experimenter along with it each time, resulting in a 36 slide PowerPoint. Because a 36-slide presentation is too long for preschoolers to pay attention to, the PowerPoint was broken up into two 18-slide sessions, each lasting a total of 20 minutes. The two sessions were conducted within one week of each other.

After sitting down with the child at a table, the experimenter asked the child to display each of the six emotions separately while looking into a mirror. The child's ability to correctly display the emotions was recorded on a corresponding data sheet. This was done in order to determine whether or not the children had the knowledge of the different emotions. Next, the experimenter told the child that they would be shown pictures of people. Children were randomly assigned to one of two counterbalancing conditions in which they either viewed the slideshow in the regular order or in the reverse order. Each child was shown 18 pictures, one at a time, on the computer screen (see complete instructions in Appendix B). The pictures were arranged randomly in the PowerPoint so that the children did not see the same face twice in a row. Pictures of individuals were accompanied by one of three name labels that the experimenter verbally said (1. A neutral label, e.g., "this is person A, B, or C, etc"; 2. a stereotypical female name label, e.g., "this is Elizabeth, Amy, Sarah, etc."; or 3. a stereotypical male name label, e.g., "this is Joey, Michael, William, etc."). Each picture appeared on the screen for five seconds, then the experimenter asked the child to identify the emotion being expressed by each face on the slides. Following the 18th slide, the children took a break to play and do other activities, and then returned to view the last 18 slides (with the same procedure as for the first 18 slides). Both sessions for most of the children occurred in the same day, unless there was a scheduling conflict, in which case the second session was held the next available day (or within a week at the latest). Finally, children were thanked and debriefed, then allowed to pick out a sticker as a reward for participating in the experiment.

Results

A 2 x 2 x 3 x 6 repeated measures ANOVA was conducted with the gender of the participant (female, male) manipulated between subjects and the gender label (stereotypical female name, stereotypical male name, neutral label), the age of the person displaying the emotion (adolescent, adult), and the emotion type (happy, sad, anger, disgust, fear, neutral) as the within subjects factors, and emotion identification as the dependent measure.

Correct Emotion Identification

There was no main effect of gender of the participant on correct emotion identification, $F < 1$. Females ($M = .59$, $SD = .52$) were not better at correctly identifying emotions compared to males ($M = .58$, $SD = .53$), *Cohen's d* = .019. The gender of the participant did not interact with either the age of the person displaying the emotion, the type of emotion displayed, nor the gender label, F's < 1, suggesting that there were no differences in emotion identification

rates between males and females as a function of the age of the person displaying the emotion, the emotion being displayed, or the gender label.

The main effect of age of the person displaying the emotion on correct emotion identification approached significance, F (1, 16) = 2.85, p = .11. Participants were better at identifying emotions displayed by the adolescent (M = .60, SD = .27) compared to emotions displayed by the adult (M = .57, SD = .28), d = .109 (small effect size), but this difference only approached significance.

There was a significant main effect of emotion on correct emotion identification, F (5, 80) = 35.74, p = .00. Subsequent tests revealed that participants were better at identifying "happy" (M = .99, SD =.09), than they were at identifying "anger" (M = .86, SD =.44), d = .409 (large effect size), "fear" (M = .09, SD = .75), d = 1.685 (large effect size), and "disgust" (M = .46, SD =.28), d = 2.548 (large effect size), p's < .05. They were also better at identifying sad emotions (M = .89, SD =.38), d = .362 (medium effect size), than they were at identifying "anger", d = .073, "fear", d = 1.346 (large effect size), and "disgust", d = 1.288 (large effect size), p's < .05.

The effects of emotion displayed and age of the person displaying the emotion were qualified by a significant interaction between emotion and age of the person displaying the emotion, F (5, 80) = 2.67, p = .028. Subsequent tests revealed greater correct identification rates for adolescent compared to adult faces that were either significant or approaching significance when the faces displayed the emotions of disgust, sadness, and fear, but not when the faces displayed happiness, anger, or neutral emotions. When viewing "disgust" faces, participants were better at identifying the emotion displayed by the adolescent face (M = .16, SD = .20) compared to the adult face (M = .02, SD = .11), t (18) = -2.35, p = .031, d = .867 (large effect size). When viewing "sad" faces, participants were better at identifying the emotion displayed by the adolescent face (M = .93, SD = .18) compared to the adult face (M = .85, SD = .28), but this difference only approached significance, t (18) = -2.04, p = .056, d = .340 (medium effect size). When viewing "fear" faces, participants were better at identifying the emotion displayed by the adolescent face (M = .50, SD = .41) compared to the adult face (M = .42, SD = .41), but this difference only approached significance, t (18) = -1.93, p = .069, d = .195 (small effect size). These results are shown in Figure 1.

Figure 1. *Percent correct identifications as a function of the emotion expressed and the age of the person displaying the emotion.*
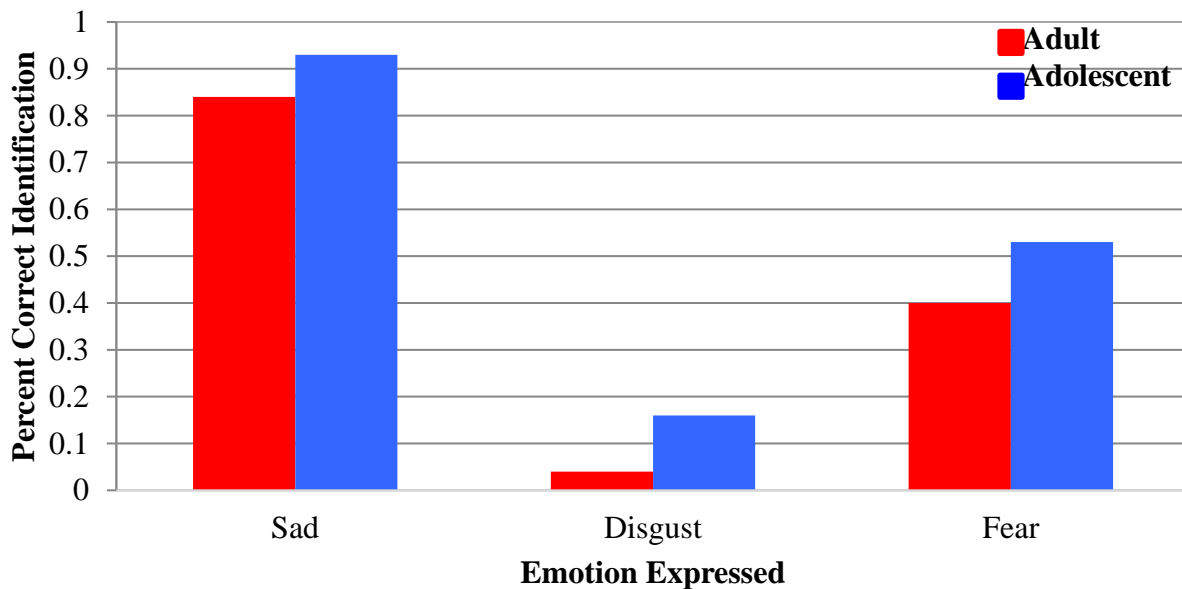

There was no main effect of gender name label on correct identification of emotion, F (2, 32) = 1.02, p = .37. The correct identification rate did not vary as a function of the gender name label. As shown in Figure 2, participants were not better at identifying emotions when the label was a stereotypical female name (M = .58, SD = .28) compared to when the label was a stereotypical male name (M = .57, SD = .27), d = .036, and compared to when the label was neutral (M = .61, SD = .28), d = .107 (small effect size).

Figure 2. *Percent correct identification as a function of gender label.*
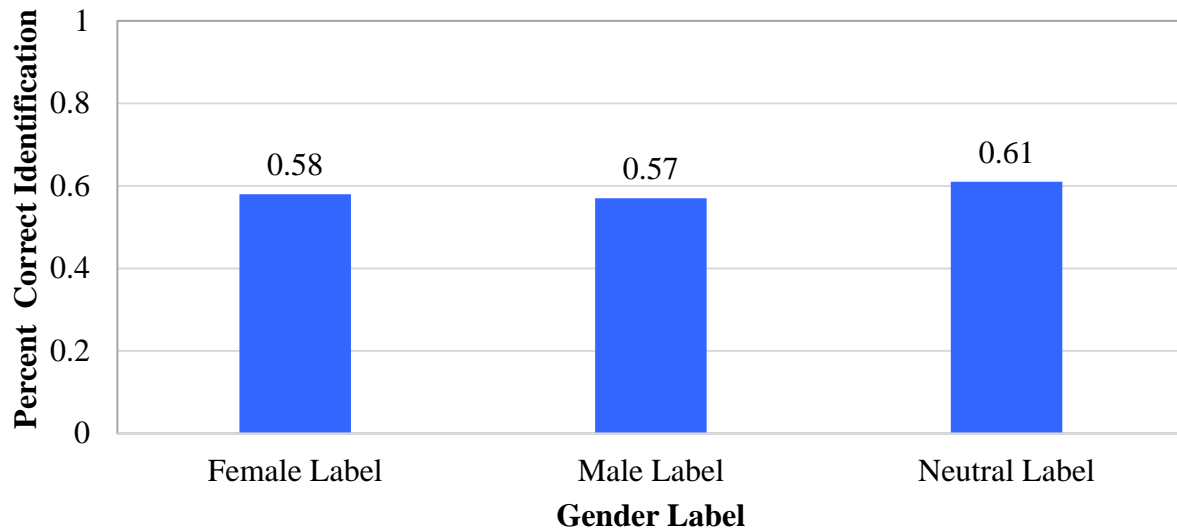
Gender label did not interact with either the gender of the participant, $F < 1$, nor did it interact with the age of the person displaying the emotion, $F < 1$. Thus there were no significant differences in correct identifications across the different gender labels, for both male and female participants and for both adolescent and adult pictures. Gender label also did not interact with the type of emotion being displayed, $F (10, 160) = 1.19$, $p = .30$, suggesting that participants were better at identifying happy, sad, and anger emotions (compared to disgust and fear) regardless of whether the labels were stereotypically female, male, or neutral. All other 3-way interactions with the gender label were not significant, p's > .05. However, there was a significant 4 –way interaction between the gender label of the person displaying the emotion, the gender of the participants, the age of person displaying the emotion, and the type of emotion displayed. Subsequent tests revealed that the only difference that approached significance was when male participants viewed an adolescent face who was displaying "disgust." For this condition, there was a marginally significant identification benefit when the face was paired with a male label ($M = .43$, $SD = .54$) compared to when it was paired with a neutral label ($M = .00$, $SD = .00$), $t (6) = 2.12$, $p = .078$, $d = 1.126$ (large effect size). All other comparisons were not significant, as shown in Figure 3.

Figure 3. *Participants' percent correct identifications as a function of emotion expressed, type of label, and age of person displaying the emotion*

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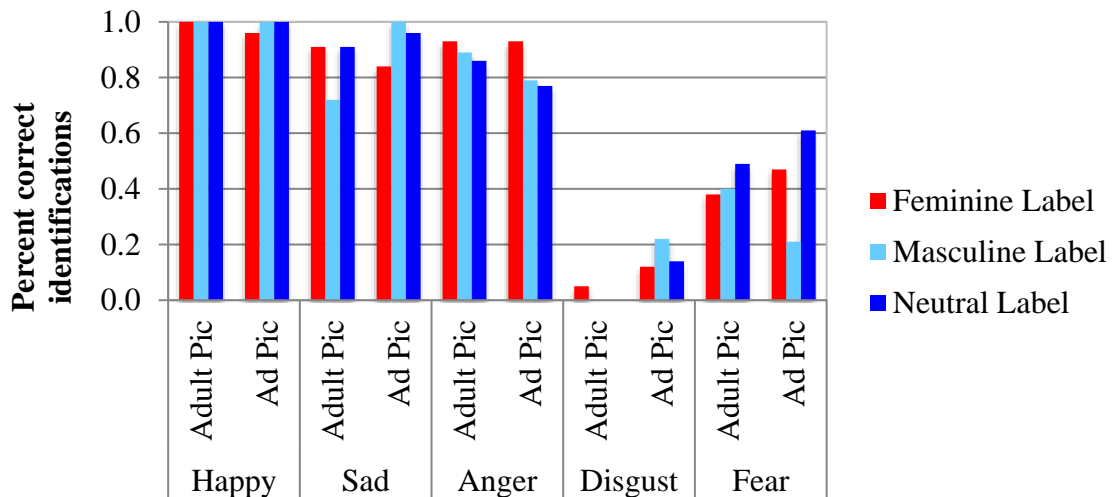
A series of chi-square analyses were conducted in order to compare the rates of correct and incorrect identifications of emotions in the happy and sad conditions. Participants were 100% correct at identifying the "happy" emotions in all of the age groups and gender label conditions, except the condition in which an adolescent face was paired with a female name, where there was a 95% correct identification rate. As with the "happy" emotions, the frequency of correctly identifying "sad" emotions was significantly higher in all of the conditions compared to frequency of incorrect responses. In the conditions in which an adult face was paired with a female name, as well as when the condition in which an adult face was paired with an neutral label, the frequency of correct identifications was 89%, $\chi^2 = 11.84$, $p = .001$. When the participants viewed an adult face paired with a male name, the frequency of correct responses was 74%, $\chi^2 = 4.26$, $p = .039$. When the participants viewed an adolescent face paired with a female name the frequency of correct responses was 84%, $\chi^2 = 8.90$, $p = .003$. When the participants viewed an adolescent face paired with a male name the frequency of correct responses was 100%. When the participants viewed an adolescent face paired with a neutral name the frequency of correct responses was 95%, $\chi^2 = 15.21$, $p = .00$.

Rates of Masculine Emotion Identification and Feminine Emotion Identification

One of the main purposes of this experiment was to determine if the gender label would alter identifications of emotions in the ambiguous emotion categories of anger, disgust, and fear. Previous researchers have shown that certain emotions are viewed as more masculine or feminine (Parmley & Cummingham, 2014). Consistent with the parallel-theory, it was hypothesized that the gender label would influence rates of masculine (i.e., "anger") versus feminine emotion identifications (i.e., "disgust" and "fear"). For example, a face displaying "disgust" may be more likely to be interpreted as displaying "anger" when paired with a male name label, but may be more likely to be interpreted as displaying "disgust" or "fear" when paired with a female label. In order to test this hypothesis, for the "anger," "disgust," and "fear" conditions we coded "anger" identifications as "masculine responses." For those same three conditions, we coded the "disgust" or "fear" identifications as "feminine responses." Therefore, as shown in Table 1, a series of chi-square analyses were conducted in order to compare the rates of masculine emotion identification and feminine emotion identification in each of emotion condition of "anger," "disgust," and "fear."

Table 1. *Percentage of responses masculine or feminine descriptor as a function of emotion displayed, type of label, and age of person displaying emotion.*

Gender Label Condition	Emotion Condition	% Masculine Response ("anger response")	% Feminine Response ("fear" or "disgust")	χ^2	p value
	Anger	95	5	15.21	0.008
	Fear	16	47	15.21	0.008
Female Adult	Disgust	95	5	3.00	0.223
	Anger	95	0	15.21	0.000
	Fear	12	53	11.84	0.001
Male Adult	Disgust	89	11	4.35	0.110
	Anger	84	11	22.21	0.000
	Fear	16	74	11.84	0.001
Neutral Adult	Disgust	89	11	14.00	0.001
	Anger	95	5	15.20	0.000
	Fear	11	68	26.95	0.000
Female Adolescent	Disgust	89	5	10.84	0.004
	Anger	89	11	10.89	0.001
	Fear	16	53	7.68	0.020
Male Adolescent	Disgust	63	21	3.90	0.140
	Anger	84	16	8.90	0.003
	Fear	11	74	26.95	0.000
Neutral Adolescent	Disgust	89	5	14.00	0.001

Anger Displays

Regardless of age group and type of gender label, the majority of participants indicated a masculine identification for "anger" (i.e., they identified the "anger" emotion correctly as "anger"). When participants viewed an adult face paired with a male name displaying "anger," the frequency of masculine (or correct) identifications was 95% and the frequency of feminine identifications was 0%, $\chi^2 = 15.21$, $p = .00$. When participants viewed an adult face paired with a female name displaying "anger," the frequency of masculine identifications was 95% and the frequency of feminine identifications was 5%, $\chi^2 = 15.21$, $p = .008$. When participants viewed an adult face paired with a neutral label displaying "anger," the frequency of masculine identifications was 84% and the frequency of feminine identifications was 11%, $\chi^2 = 22.21$, $p = .00$. When participants viewed an adolescent face paired with a male name displaying "anger," the frequency of masculine identifications was 89% and the frequency of feminine identifications was 11%, $\chi^2 = 10.89$, $p = .001$. Similar to the adult face, when an adolescent face was paired with a female name displaying "anger," the frequency of masculine identifications was 95% and the frequency of feminine identifications was 5%, $\chi^2 = 15.21$, $p = .008$. When participants viewed an adolescent face paired with a neutral label displaying "anger," the frequency of masculine identifications was 84% and the frequency of feminine identifications was 16%, $\chi^2 = 8.90$, $p = .003$.

Disgust Displays

Regardless of age group and type of gender label, the majority of participants indicated a masculine identification for "disgust" (i.e., they identified the "disgust" emotion incorrectly as "anger"). When participants viewed an adult face paired with a male name displaying "disgust," the frequency of masculine identifications was 89% and the frequency of feminine identifications was 11%, $\chi^2 = 11.84$, $p = .001$. When participants viewed an adult face paired with a female name displaying "disgust," the frequency of masculine identifications was 95%, and the frequency of feminine identifications was 5%, $\chi^2 = 15.21$, $p = .008$. When participants viewed an adult face paired with a neutral name displaying "disgust," the frequency of masculine identifications was 89%, and the frequency of feminine identifications was 11%, $\chi^2 = 11.84$, $p= .001$. When participants viewed an adolescent face paired with a male name displaying "disgust," the frequency of masculine identifications was 63% and the frequency of feminine identifications was 21%, $\chi^2 =7.68$, $p= .02$. When participants viewed an adolescent face paired with a female name displaying "disgust," the frequency of masculine identifications was 89% and the frequency of feminine identifications was 5%, $\chi^2 = 26.95$, $p = .00$. When participants viewed an adolescent face paired with a neutral label displaying "disgust," the frequency of masculine identifications was 89% and the frequency of feminine identifications was 5%, $\chi^2 =26.95$, $p= .00$.

Fear Displays

Regardless of age group and type of gender label, the majority of participants indicated a feminine identification for "fear" (i.e., they identified the "fear" emotion correctly as "fear"). When participants viewed an adult face paired with a male name displaying "fear," the frequency of masculine identifications was 12% and the frequency of feminine identifications was 53%, $\chi^2 = 4.35$, $p = .11$. When participants viewed an adult face paired with a female name displaying "fear," the frequency of masculine identifications was 16%, and the frequency of feminine identifications was 47%, $\chi^2 = 3.00$, $p = .223$. When participants viewed an adult face paired with a neutral label displaying "fear," the frequency of masculine identifications was 16%, and the frequency of feminine identifications was 74%, $\chi^2 =14.00$, $p= .001$. When participants viewed an adolescent face paired with a male name displaying "fear," the frequency of masculine identifications was 16%, and the frequency of feminine identifications was 53%, $\chi^2 = 3.90$, $p = .14$. When participants viewed an adolescent face paired with a female name displaying fear, the frequency of masculine identifications was 11% and the frequency of feminine identifications was 68%, $\chi^2 = 10.84$, $p = .004$. When participants viewed an adolescent face paired with a neutral label displaying "fear," the frequency of masculine identifications was 11%, and the frequency of feminine identifications was 74%, $\chi^2 = 14.00$, $p = .001$.

Discussion

The purpose of this study was to determine if there was a relationship between the gender of the perceiver, a stereotypical gendered name label, and emotion identification in gender ambiguous faces. Consistent with the

hypotheses, overall, children were more accurate at identifying emotions expressed by an adolescent than when the same emotions were expressed by an adult. Preschoolers, on average, were more accurate at identifying the emotions seen in ambiguous adolescent faces than in ambiguous adult faces. This finding is consistent with Parmley and Cunningham's (2014) research indicating that people are better at identifying emotions in those who are more similar to them in age. In addition, and consistent with previous research (Izard, 1971; Zhentao & Fuxi, 2006; Bosacki & Moore, 2004; Boyatzis et. al. 1993), our hypothesis that the emotions of "happy" and "sad" would be accurately identified regardless of assigned gender label was supported. Participants consistently recognized and identified "happy" and "sad" in all types of faces shown. The emotions of "happy" and "sad" appear to be more universally understood emotions, and are not dependent on any specific gender label.

Although some researchers have found that females are better at emotion identification than males (Adams et. al., 1993; Bosacki & Moore, 2004; Boyatzis et. al., 1993), others have not found a difference in emotion identification accuracy as a function of the gender of the participant (e.g., Parker, Mathis, & Kupersmidt, 2013). Our results are consistent with research showing that females are not necessarily better at identifying emotions than their male counterparts. The female participants in the current study were not better at emotion identification than male participants. Because we had about half as many male as female participants in our study, this lack of significant difference in emotion identification as a function of gender of the participant could be due to lack of power to find significant differences or it could provide more recent empirical evidence that the gender difference in emotion identification gap is closing.

Another purpose of the present study was to determine if gender label would influence emotion identification for emotions that are stereotypically masculine (e.g., "anger") or feminine ("disgust" and "fear"). We also hypothesized that when "disgust" or "fear" emotions were paired with a female name, participants would be more likely to correctly identify the emotions as "disgust" or "fear", but when paired with a male name, we expected that the emotions of "fear" and "disgust" would be misidentified as "anger". Conversely, we hypothesized that when "anger" was paired with a male name, participants would be more likely to correctly identify the emotion as "anger", but when paired with a female name, we expected the "anger" emotion to be misidentified as "fear" or "disgust." However, gender label did not have an effect on identification of the emotions of "anger", "disgust", or "fear." Specifically, participants were very good at identifying the masculine emotion of "anger" regardless of the gender label and they were also good at correctly identifying "fear" (although not as good as identifying "anger") regardless of the gender label. However, they were highly likely to misinterpret the feminine emotion of "disgust" as "anger" regardless of the gender label. The only condition that approached significance was when a male participant viewed a male or neutrally labeled, adolescent face, displaying "disgust." In this condition, "disgust" was more likely to be described as "anger," which is widely considered to be a masculine descriptor (Skolnick, Bascom, & Wilson, 2013). Although there was no effect of gender name label on rates of identification of masculine or feminine emotions, we did see a trend of interpreting "fear" as either "fear" or "disgust" (i.e., feminine emotions) for all gender label types.

These results replicate previous research involving a difference in identifying complex versus simple emotions (Boyatzis et. al., 1993) and age interactions (Parmley & Cunningham, 2014). Several other studies consistently indicate a relationship between target emotions (anger, disgust, fear) with certain genders (Widen & Russel, 2002; Bauer & Coyne, 1997; Bosacki & Moore, 2004), however our results failed to replicate this relationship with stimuli that were devoid of feminine or masculine hairstyles. This lack of replication may be because we did not have a strong enough priming of gender stereotypes. For example, the lack of hair as a cue for the gender of the facial stimuli, may have inadvertently masculinized all of the faces, reducing any gender stereotypes primed by the gender name label. Alternatively, a small sample size and an uneven ratio of male to female participants may have decreased the power to detect significant differences. However, our results suggest that the emotions themselves that are inherently considered either "male" or "female" may reflect learned stereotyping (Luo et al., 2015). The current study also used adolescent and adult faces; however, using preschool-aged faces may strengthen the evidence for the relationship between age of the stimulus and age of the perceiver. Further research needs to be conducted to test these explanations. A comparable study using faces with stereotypical masculine or feminine hairstyles paired with gender name labels may be beneficial. In addition, future studies might include participants from different age groups (i.e., young adults and preschool-aged participants) in order to reveal any relationships between age, gender label, and emotion identification.

In relation to real world applications, our results show that emotion identification has at least some relationship with gender. This study could be generalized to things such as daily emotion evaluation in others based off of perceived traits (e.g., assessing one's emotion or demeanor with very basic knowledge, such as facial expression and perceived gender).

The limitations of this research are centered on sample size. The unequal ratio of male to female participants could not be avoided in the pool of possible participants; however, random assignment to counterbalance conditions

was still used. The emotions expressed by the faces used in this experiment may not have been clearly interpreted as the correct emotion. In other words, the expressions made by the stimuli may have been difficult to discern in general, not because of any vocabulary deficit or gender associations. A more ambiguously gendered face set (i.e., using the faces of infants) and clearer set of expressions may have aided in more correct responses and replicate previous findings.

Another potential limitation of this research could have been that we did not confirm the gender vs neutral primed names. Children not yet exposed to the names we used may not have been primed by these different types of names. Future researchers might include a manipulation check of the level of the gender neutrality of the names.

This experiment replicated a more general relationship between gender and emotion and extended it to stereotyping of the emotions themselves. However, there was no clear evidence for particular gender associations with the emotions of "anger," "fear," and "disgust." Although our results found that male participants' labeling male adolescent faces and ambiguous adolescent faces displaying "disgust" were approaching significance, we found no other significant results. This could be due to the limited vocabulary of the participants, not fully comprehending the extent of the more complex emotions, or because there were not enough participants to replicate typical findings.

Overall, it can be concluded that there is an interaction between gender (whether it be the gender of the perceiver or the gender of the perceived) and emotion identification or association. Future researchers should investigate different age ranges of participants and put more emphasis on the more complex emotions, leaving out the more universally understood emotions (i.e., "happiness" and "sadness"). Results suggest that unlike in the past, females are not viewed as being "scared" and are recognized as being able to express anger. This may suggest that we are getting passed some of the gender and emotion stereotypes that were found previously.

Acknowledgements

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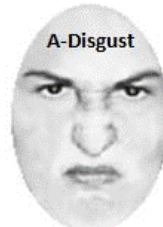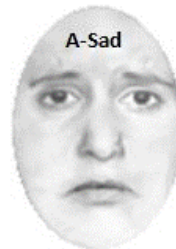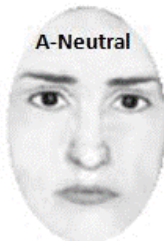
Appendix A
Pictures:
Adolescent Faces

C- Neutral   C-Happy   C-Sad

. . .

C-Scared   C-Anger   C-Disgust

Adult Faces

A-Neutral   A-Happy   A-Sad

A-Fear   A-Anger   A-Disgust

Appendix B
Instructions:
Experimenter (E): Hello! My name is _____. What is your name?
Participant (P): *response*
E: Hello _____ (*insert name*). Would you like to play a game I have with me? We are going to show you some pictures of people and would like you to tell us how you think the person in the picture is feeling. Before we begin, I want to make sure you know what different emotions look like, can you show me what you look like when you're not trying to express any emotion? *(await response)* Good, what about when you are happy? How would you look when you're sad? How would you look when you're angry? How do you look when you're scared? How do you look when you're disgusted, like when you taste something bad or dislike something? (*experimenter holds up mirror so child can see themselves displaying the emotion*) Nice job! Now let's look at the pictures.
E: *starts slideshow*
E: How do you think _____ is feeling in this picture?
E: *Once the slideshow is finished* Thank you for your help, you did a great job! Would you like a sticker? You may choose any one you like.
E: *participant receives sticker and session is completed*