

# Coloring Within the Lines: Gender Stereotypes in Contemporary Coloring Books

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Published online: 11 October 2009  
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**Abstract** Extensive research on print media for children such as storybooks reveals that gender stereotypes are prevalent; however, no systematic analysis of coloring books has been conducted since 1974. We analyzed 889 characters in 56 contemporary coloring books published in the United States and selected through stratified random sampling from one region of California, coding for prevalence of each gender, stereotypic gender roles, activity level, type, and age of character. As hypothesized, males were more active; gender stereotypes were common. Gender neutral behaviors were more likely to be done by males. Females were more likely to be depicted as children and humans; whereas males were mostly depicted as animals, adults, and superheroes. Results are discussed in terms of gender schema theory.

**Keywords** Gender stereotypes · Content analysis · Coloring books

## Introduction

Numerous studies investigating gender stereotyping have been performed and have revealed that mass media in the United States aimed at children frequently depict fairly rigid and traditional gender roles (Huesmann and Taylor 2006). Children's television programs and advertising (e.g., Browne 1998; Nolan et al. 1977; Ruble et al. 1981; Wright et al. 1995), cartoons (e.g., Baker and Raney 2007; Davidson et al.

1979; Thompson and Zerbinos 1997), toys (e.g., Blakemore and Centers 2005; Rheingold and Cook 1975), textbooks (e.g., Purcell and Stewart 1990; Women on Words and Images 1972), and children's story and picture books (e.g., McDonald 1989; Oskamp et al. 1996; Turner-Bowker 1996; Weitzman et al. 1972) all have been extensively investigated, both in the past and more recently. However, coloring books have not undergone any recent analyses. The last systematic content analysis of coloring books was conducted over thirty-five years ago by Rachlin and Vogt (1974), using a convenience sample, who found gender stereotypes in that medium as well. Thus, the purpose of this study was to determine if the images in contemporary coloring books available in one area of the United States would display more egalitarian roles for males and females than what has been found in other print media directed at children and in the previous systematic content analysis of coloring books.

## Why Analyze Coloring Books?

Coloring has been part of the American scene for over 100 years, beginning with the use of paints and continuing with crayons. Kate Greenaway is credited with developing one of the first coloring books intended for children to paint in 1884, *A Painting Book* (Spielmann and Layard 1967), later published as *The Little Folks' Paint Book* (Weatherly and Greenaway 1879).

Today it would be rare for a young child not to be exposed to a coloring book. Twelve percent of children's books sold nationwide are coloring and activity books, accounting for over 104 million units sold representing more than \$230 million in annual revenue (Raugust 2003). In 1996, Crayola reported manufacturing their 100 billionth crayon (Crayola 2009). Therefore, it appears parents and others in charge of children are purchasing coloring books

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and boxes of crayons in great numbers. Most young children are introduced to crayons and coloring books before starting school (Mayesky 2009), thus exposing children to an early educational experience, an early art experience, or both. Coloring books are relatively inexpensive (Raugust 2006) and many people can afford to purchase several and bring them into their homes.

According to Gruber and McNinch (1994), children enjoy coloring and report that their favorite thing to do with crayons is to color in coloring books. They view coloring as a positive personal experience and, when asked, they generate a far greater number of positive (95%; e.g., happy, good, fun) than negative (5%; e.g., bad, sad) labels for coloring (Gruber and McNinch 1994). Children spend time coloring; they play as they master their artistic thoughts and fine-motor skills. On the surface, coloring books appears to have many benefits for young growing children (Mayesky 2009). Using crayons facilitates hand-eye coordination, which is an important precursor of future writing (Gruber and McNinch 1994); many expose children to a variety of print for reading; offer children extended periods of focused attention; and appear to foster children's imagination as they participate in the coloring process. When children experiment with crayons and coloring they learn that using writing tools is a pleasurable and rewarding activity (McGee and Richgels 2008). However, coloring books have been criticized for engendering a lack of creativity as children are encouraged to color within the lines (Lowenfeld 1957). On a deeper level, when purchasing a coloring book parents and caregivers must be aware that the content of coloring books is strongly tied to the licensing of mass product merchandizing (e.g., cartoon, television, comic book, and movie characters; Raugust 2003); hence, it is important to determine if they carry the same stereotypes as other media aimed at children.

### Learning Gender Stereotypes

Through observations, children develop systematic schemas about the workings of the world and how society defines what it means to be male or female (Bem 1981; Bussey and Bandura 1999; Martin and Ruble 2004; Martin et al. 2002). Children learn what behaviors are acceptable for them, their peers, and for the adults around them. According to gender schema theory (Bem 1981), once children decide if an object, activity, or behavior belongs with their gender, they use the information to make decisions about whether or not to learn more about it. Exposure to stereotyped information can have lasting effects as children actively search for gender cues that motivate their behavior and thinking (Bem 1981; Martin and Ruble 2004). Martin and Ruble (2004) list three stages in the development of gender related cognitive schema. First, during the toddler and preschool

years, children begin learning about gender-related characteristics. Empirical studies have found that children develop the awareness for gender role appropriateness as early as their second birthday (e.g., Serbin et al. 2002). In the second phase, 4- to 5-year-olds are rapidly learning to distinguish, value, and internalize the gender cues for maleness and femaleness. Between the ages of 5 and 7 children have developed firmly ingrained gender schema that results in a form of either-or thinking (Martin and Ruble 2004). Developmentally, across all three stages, this is also the time when children's initial scribbling evolves into the recognizable symbols of their culture (Gardner 1980) and when most children enjoy working with crayons and coloring books (Gruber and McNinch 1994). Thus it is important to determine if contemporary coloring books carry stereotyped images of males and females that children may be motivated to internalize and imitate.

### Gender Representation in Children's Print Media

Past and more recent examinations of print media aimed at children reveal both unequal gender representation and common gender stereotypes. Differences have been found in prevalence, stereotypic behaviors, activity level, and type of characters based on gender. Age of character may also be different based on gender.

#### *Prevalence of Males*

In their seminal study examining males and females in children's books, Weitzman et al. (1972) found males appeared in the illustrations more than twice as often as females. Similar findings were reported several years later by LaDow (1976) and St. Peter (1979). Over 30 years ago, St. Peter (1979) speculated that as time passes publishers may react to the women's movement and children's books may begin to reflect change. However, this generally does not appear to be the case. There are mixed results. Some studies have found improvement in gender representation, whereas others have not. In an update of the early studies examining gender, Kortenhaus and Demarest (1993) re-examined the female to male ratio in children's books. These new findings revealed that males were still represented more often than females and that male animals were represented twice as often as female animals in both Caldecott and non-award winning books. In addition, images that depict animals being used or cared for usually show the male in control. The picture book *Horses on the Farm* (Schuh 2002) is an example. This book has 13 pages displaying actual photos of horses and people. Of the pictures that show humans, eleven men are shown grooming, riding, and working with horses, whereas only one picture shows a woman, and she is riding "for fun." On the

other hand, some researchers have found an improvement in the amount of representation of female characters. Oskamp et al. (1996) examined 22 Caldecott winners published from 1986 to 1991. Two books could not be rated and of the remaining 20, females appeared in all but one. Hamilton et al. (2006) found a ratio of 1.5 to 1 males to females in book illustrations. These findings are in contrast to the 1960s and 1970s when extreme gender inequality was present. When these findings were compared to two earlier time periods, differences among the four times were significant, displaying a *trend* from gender inequality to equality. However, Kortenhuis and Demarest (1993), based on their study of 150 picture books, made a clear statement that even if the prevalence of genders is becoming more similar, characters are still being portrayed in sexist and biased roles.

Although there has been evidence of change in the male to female ratio in children's picture and storybooks, this may or may not be the case with coloring books. In their 1974 study, Rachlin and Vogt found equal representation of males and females; 52% males and 48% females. It is important to note, however, that those researchers looked only at human characters and not at personified animals or personified objects as some recent researchers have done with other print media directed at children. In children's books, when animals are included in the assessment of males and females, there is a preponderance of male animals over female animals as reported by Weitzman et al. (1972) and more recently by Gooden and Gooden (2001). There is no information on coloring book characters that includes both male and female characters other than humans; thus, it is important to assess this.

#### *Stereotypic Behaviors*

Beginning with Weitzman et al.'s (1972) classic study of picture books and Rachlin and Vogt's (1974) analysis of coloring books up until the present time, it is clear that gender stereotypes remain prevalent in children's print media. For example, in early studies of both coloring books and picture books, females were depicted in service positions (mother, teacher, nurse) or in appearance-focused representations (preening in front of a mirror, princess, Barbie); whereas males were depicted in more dominant, powerful, and adventurous roles (doctor, firefighter, rescuer of females and young children). Similarly, St. Peter (1979) found that male characters were overrepresented in instrumental pursuits and underrepresented in expressive activities. Several studies conducted around the end of the millennium showed that even though the prevalence of stereotypes decreased slightly, the stereotyped images of males and females were still substantial in number (e.g., Gooden and Gooden 2001; Hamilton et al.

2006). Just as males are more likely to be pictured, and stereotypic behaviors of both genders is common, males are more likely to be depicted in active roles.

#### *Activity Level*

Rachlin and Vogt (1974) found that males in coloring books were depicted outdoors, in active play, or in competitive games by ratios ranging from 2:1 up to 5:1 compared to females. On the other hand, females were depicted with limited activity (e.g., tending to their appearance) more than males by a ratio of 30:1. Similarly, Weitzman et al.'s (1972) examination of picture books revealed boys being active, while girls sat and watched; boys being outdoors while girls looked out the window; and boys leading and rescuing while girls did things to please others (e.g., cook and serve). Although females have recently been seen in more instrumental roles, they are still seen in the majority of passive, dependent activities compared to males by a ratio of approximately 5:1 (Kortenhuis and Demarest 1993). In a more recent study, Hamilton et al. (2006) found that male main characters were depicted outdoors rather than indoors; however, about an equal percentage of male (86%) and female (79%) main characters were portrayed as active. Interestingly, they found male and female characters were equally likely to perform rescue behaviors, a highly active pursuit. Thus there are mixed findings on gender differences in activity level; however, it is clear that in most studies males display more activity.

#### *Type of Character*

Characters in children's print media often represent humans, but may also be animals, superheroes, personified objects (e.g., cars with faces), among other things. Several studies have examined the gender of animals in print media and all have found that male animals predominate. Weitzman et al. (1972) reported a ratio of 95:1; Kortenhuis and Demarest (1993) reported 298 male and 94 female animals (a ratio of 3:1); Oskamp et al. (1996) found only 16% female animals in their study; and Gooden and Gooden (2001) reported 116 male to 78 female animals (1.5:1) in their study of notable children's books. As mentioned above, in the early systematic analysis of coloring books, only human characters were coded (Rachlin and Vogt 1974); thus there are no data regarding types of characters in coloring books.

#### *Age of Characters*

Although many researchers report that they code for age of character, we could find no study that reported on the possible relationship between age and gender. For example,

Weitzman et al. (1972) and more recently Hamilton et al. (2006) coded for age to separate activities of children and adults, but focused on gender differences in adult occupations. Similarly, Turner-Bowker (1996) reported coding for age (girls, women; boys, men) but later combined the categories into “females” and “males” when examining characters in books. This lack of findings prompted us to consider whether the ages of males and females are depicted in coloring books in a similar way or, for example, are males more likely than females to be depicted as adults. This examination is relevant to gender development because of the prevalence, or possible lack of, adult role models for boys and girls to see as they actively color the images. Boys and girls learn gender-appropriate behaviors from significant members of their society (Ruble and Martin 1998). According to social learning theory (Bandura 1977), they also pay more attention to models who have prestige, such as adults in comparison to children. If children see adult members of their own gender portrayed more (or less) often, this could affect gender development.

### The Present Study

In sum, children’s picture and storybooks are rife with gender stereotypes, including more active males than females; this was also found in the one previous study of coloring books. In most studies of print media for children there is a predominance of males. The previous coloring book study did find a similar number of males and females; however, only human characters were examined in that study. Research analyzing characters in children’s story and picture books reveals that when animals are depicted, the male to female ratio is very high. When we consider that the majority of coloring books sold today are part of the merchandizing associated with the release of major movie and television cartoon series, it becomes important to investigate this medium in addition to children’s picture books and storybooks. After randomly selecting coloring books, we coded for prevalence of each gender, stereotypic behaviors, activity level of characters, type of character (i.e., human, animal, fantasy, superhero, personified man-made objects), and age of characters.

### *Hypotheses and Question*

Based on research examining children’s picture and storybooks and a 35-year-old study on coloring books, we tested four hypotheses regarding contemporary coloring books:

- H1. Males will appear more often than females
- H2. Both males and females will be depicted in gender-stereotypical roles
- H3. Males will be depicted in more active states than females.

- H4. Animal characters will more likely be depicted as males than as females

Due to a lack of previous data on print media regarding age of characters by gender, we posed one research question:

RQ: Will there be any relation between gender and age of character?

## Method

### Sample Selection

To obtain a representative sample of coloring books, we performed stratified random sampling. That is, at each level of selection (zip code, store, display, and book pages) we employed a random selection process. To ensure that we sampled across socioeconomic areas we used zip codes. From census data for the county of San Diego, CA, we selected zip codes based on median income of lowest (<\$26,000), moderately low, moderately high, and highest (>\$100,000) socioeconomic areas. Using these zip codes, we obtained from the internet and telephone directories the names and addresses of five types of retail outlets in which coloring books are commonly found: discount stores, dollar stores, pharmacies, grocery stores, and toy stores. We discovered that in the highest and lowest socioeconomic zip codes, there were no such retail stores. The lowest represented mostly industrial areas and the highest very expensive homes with few retail outlets. Thus we collected coloring books only from four zip codes in the moderately low (\$30,238–36,557) and moderately high (\$54,042–76,863) socioeconomic areas.

Once we obtained a list of stores in each area, we randomly selected which to use. Next we went to each selected store and randomly selected up to ten coloring books from the display and purchased them for later coding. In an effort to have proportionate representation from each display, we chose 50% of the books through this process. We counted the books from the top left to the bottom right of the display and randomly drew numbers from a box in order to choose each book. In selecting the books, several criteria were used. Books had to cost less than \$5.00, be no larger than a standard 8.5 × 11 in. piece of paper, and no thicker than 1 in. No coloring books with additional items attached such as crayons or paints were included; activity books (e.g., mazes, crossword puzzles) were also excluded. If, in the random procedure, a book did not meet the criteria, the next book was selected. An updated list was maintained to avoid purchasing duplicate books. In addition, using the same random procedure of selecting books from the display, we purchased 16 coloring

books from one national discount store which had stores in both socioeconomic areas under investigation. This was done to avoid having to go to this same national discount store in several areas, as the books this chain carried were the same in each of the zip codes. This stratified random sampling resulted in 56 coloring books. Through this random procedure we obtained 21 books (38%) directed at girls, 19 (34%) directed at boys, and 16 (29%) appropriate for both genders. All but one book ranged from 40 to 140 pages in length (one was 20 pages) and cost from \$.69 to \$4.99. Ten pages from each of the books were randomly selected, and the characters were coded. This resulted in a final sample of 889 characters from which to code the characteristics of interest.

### Measures and Procedure

Many, but certainly not all, coloring books have words on the pages. Researchers coding storybooks have often reported that they use the words as aids in coding. For example, if a character's gender is not clear but the words refer to the character as "her," or more specifically by a female name, the character is coded as female. This makes sense in stories that are read to children because they associate the noun or pronoun with the character. We chose not to do this because coloring books are often used by children who cannot read. In addition, adults do not usually read the words on a coloring book page. Hence we coded only traits and behaviors that a child would see without the cues from words.

### *Gender of Character*

Characters were coded as male, female, or gender unclear based on clothing, hairstyle, presence or absence of facial hair, physical stature, and other distinguishing characteristics. For example, females tended to be shown with long eyelashes, clothing with frills or flowers, or hair accessories and jewelry; whereas males tended to have short or no eyelashes, short cropped hair, male attire such as long pants and plain shirt, and were generally larger in stature when compared to female characters. Characters without a clear gender were coded gender unclear.

### *Gender Roles*

For this category, the gender of the character performing the task did not matter, only the stereotypical role was coded. Female roles included such tasks as cooking, sewing, caring for an infant, grocery shopping, being a teacher, and being a nurse. Male roles included racing, wrestling, rescuing, being a doctor, and driving heavy equipment (e.g., tractors). Gender-neutral behaviors included such things reading,

walking, eating, and sleeping. In the analysis we matched up the characters' gender with roles to determine if males were depicted doing stereotypically male activities and females depicted doing stereotypically female activities.

### *Level of Activity*

Research on other forms of media reveals that there are gender differences in activity level, with males being more active. We wanted to look more carefully at activity level and not simply at a dichotomy between active or passive. Hence, we divided activity into three levels: static, busy, and active. Activity coded as static included being still, such as sitting or standing; activity coded as busy included doing something with fine motor skills such as drawing a picture, eating, sewing, brushing teeth, but no gross motor movement. Characters coded as active were using gross motor movements such as running, walking, or climbing.

### *Age of Character*

Characters were coded as either children, ranging from infants to adolescents, or adults. Category was based on appearance and behavior in the picture. For example, infants were often held, fed, or seen in cribs or strollers. Adults had more adult-like facial structure (leaner faces, shorter foreheads); whereas children had larger eyes and rounder faces. In addition clothing was often used as a cue. Adults wore more professional-looking clothing (e.g., suits), and children wore clothes like jumpers or clothing decorated with trucks, flowers, or hearts. Their relative size in the picture was also taken into account. There were some characters whose age was difficult to assess. For example, several books contained characters who could be either older adolescents or young adults. If we were unable to use clear contextual cues (e.g., a teacher in a classroom looked very young, but we assumed she was an adult), we coded the character's age as unclear.

### *Character Type*

Character type was coded as human, animal, fantasy, superhero, or man-made. Animal characters were only coded if they were personified (i.e., had human characteristics such as wearing clothes, talking, or doing an activity such as cooking). If an animal did not have any human characteristics, it was omitted from analysis. Fantasy characters included wizards, witches, and fairies; superheroes had special powers like flying or extreme strength (e.g., Power Rangers, Spiderman). Man-made characters included robots, cars, trucks, and other mechanical devices. Some of these were personified (e.g., trucks with faces) and others were not. In either case, they were simply coded as man-made.

### Training and Reliability

Four coders were trained extensively on the coding system, using pages from coloring books that were not in the final sample. Training continued until agreement was reached. Cohen's kappa was used to assess agreement because it is more conservative than simple percent agreement (i.e., it accounts for chance agreement). Analysis on 38 characters resulted in high reliability: gender (mean  $k=.82$ ), age (mean  $k=.91$ ), type of character (mean  $k=.94$ ), level of activity (mean  $k=.82$ ), gender role (mean  $k=.94$ ).

Once reliability was achieved, the four coders were randomly assigned ten pages from approximately 15 coloring books each. When half the books had been coded, an agreement check was performed on another sample of characters not included in the final sample. This second reliability also was excellent among the four coders ( $N=28$ ; kappas ranged from .85 to .96 across all categories).

### Results

This content analysis was undertaken to test several hypotheses and address one question regarding the depiction of males and females in coloring books. Of the 889 randomly selected characters, the gender of 116 (13%) was unclear (i.e., it was impossible to tell if the character was male or female) and 31 (3%) showed no gender (e.g., a building with a face, but no other cues). Thus these characters were dropped from the gender analyses, resulting in 742 clearly male or female characters. A summary of the frequencies and percents of each of the coding categories based on gender is presented in Table 1.

#### Hypothesis 1: Prevalence of Males

Hypothesis 1, that males would be more prevalent was supported. For this analysis, all characters whose gender could be distinguished were included. Of the 742 characters whose gender could clearly be distinguished, 436 (59%) were male and 306 (41%) were female. Chi-square goodness of fit analysis revealed that this was a significant difference:  $\chi^2(1, N=742)=22.78, p<.001$ . Of note, only 34% of the characters were human, and of the 253 human characters, 178 (70%) were female and only 75 (30%) were male. This difference was also significant:  $\chi^2(1, N=253)=41.93, p<.001$ .

#### Hypothesis 2: Gender Stereotypes

Hypothesis 2, that both males and females would be depicted in stereotypical behaviors was partially supported. To determine the behaviors of males and females in gender-

**Table 1** Frequencies and percents (%) of characteristics based on gender.

	Males	Females	df	$\chi^2$
Number of Characters	436 (59)	306 (41)	1	22.78***
Behaviors of Characters				
Male stereotypic	192 (44)	19 (6)	2	310.00***
Female stereotypic	14 (3)	177 (58)		
Gender neutral	230 (53)	110 (36)		
Activity of Characters				
Static	120 (28)	143 (47)	2	47.16***
Fine motor	140 (32)	107 (35)		
Gross motor	176 (40)	56 (18)		
Age of Characters <sup>a</sup>				
Child	130 (33)	177 (71)	1	86.07***
Adult	263 (67)	74 (29)		
Type of Character				
Human	75 (17)	178 (58)	4	182.30***
Animal <sup>b</sup>	187 (43)	42 (14)		
Fantasy <sup>c</sup>	85 (20)	77 (25)		
Superhero	63 (14)	7 (2)		
Man-made <sup>d</sup>	26 (6)	2 (1)		

$N=742$

<sup>a</sup> the age of 98 characters could not be determined; thus they were dropped from analysis, resulting in 644 for this category

<sup>b</sup> Animal characters included only personified cartoon-like characters (e.g., mice cooking)

<sup>c</sup> Fantasy characters included wizards, witches, fairies

<sup>d</sup> Man-made characters (e.g., cars with faces) were only included if they were personified and showed a clear gender

\*\*\* $p<.001$ ; \*\* $p<.01$ ; \* $p<.05$

stereotypic, cross-gender, and gender-neutral behaviors, a chi-square test of independence was conducted and revealed that, as hypothesized, there was a significant relationship between gender and type of behavior. As expected, both males and females engaged in gender-stereotypic behaviors. Of the 436 males, 44% engaged in stereotypic behaviors and only 3% in cross-gender behaviors. Interestingly, 53% of the males engaged in gender-neutral behaviors. Thus, males were more likely to engage in gender neutral behaviors than male stereotypic ones, partially refuting our second hypothesis in which we expected both genders to be depicted predominately in gender-stereotypic behaviors. Of the 306 females, 58% engaged in female-stereotypic behaviors and 6% in cross-gender behaviors. In comparison to the 53% of males engaging in gender-neutral behaviors, only 32% of females did. Thus, females were more likely to engage in female-stereotypic behavior than either of the other types of behavior. This overall pattern of differences in depictions of gender stereotypes was significant;  $\chi^2(2, N=742)=310.04, p<.001$ . This effect was large (Cramer's  $V=.65, p<.001$ ). To examine this finding in more detail, we conducted another chi-square

test using only gender and male and female stereotypes. This 2×2 analysis revealed a highly significant difference in the depiction of stereotypic roles by males and females;  $\chi^2(2, N=742)=280.90, p<.001$ . This effect size was very large (Cramer's  $V=.84, p<.001$ )

We conducted secondary analyses on gender stereotypes based on the type of coloring book (those directed at boys ( $n=19$ ), girls ( $n=21$ ), and gender-neutral ( $n=16$ )) and calculated the mean number of stereotypes for each book. Examination of all gender stereotypes within books revealed a significant finding;  $F(2,53)=3.20, p<.05$ . Girls' coloring books ( $M=7.86, SD=4.28$ ) had significantly more stereotypes than gender-neutral books ( $M=4.69, SD=3.07$ ). However, boys' books ( $M=6.00, SD=3.89$ ) did not differ significantly from either the girls' or gender-neutral books in mean number of stereotyped images. Thus, although girls' books had the most gender stereotypes followed by boys' books, and gender neutral had the fewest, there was no significant difference in overall gender stereotypes between coloring books directed at boys and at girls.

Next we examined the means of specific gender stereotypes based on type of book to determine if female stereotypes in girls' books would be more abundant than male stereotypes in boys' books. Results revealed a significant difference;  $t(38)=2.10, p<.05$ . There were significantly more female stereotypes in girls' coloring books ( $M=6.57, SD=4.40$ ) than there were male stereotypes in boys' coloring books ( $M=5.21, SD=3.54$ ).

### Hypothesis 3: Activity Level of Characters

Hypothesis 3, that males would be shown in more active states was supported. To test the third hypothesis, a chi-square test of independence was used. Overall, there was a significant relationship between gender and type of movement. Of the 436 males, 29% were depicted in static poses, 32% were shown using fine motor movements, and 39% used gross motor movements. Of the 306 females, 47% were shown in static positions, 35% were using fine motor movements, and only 18% were using gross motor movements. Thus, males were most likely to be shown using gross motor movements, whereas females were most likely shown in static positions. This pattern was significant;  $\chi^2(2, N=742)=40.06, p<.001$ . This effect size was small to moderate (Cramer's  $V=.23, p<.001$ ).

### Hypothesis 4: Type of Characters

Based on research on storybooks, we hypothesized that males would be more likely depicted as animals than would females. Thus we tested whether there was a relationship between gender and type of character (i.e., human, animal, man-made, fantasy, or superhero). A significant pattern

again was found;  $\chi^2(4, N=742)=182.33, p<.001$ . This effect size was large (Cramer's  $V=.50, p<.001$ ). Females were most often portrayed as human (58%) followed by fantasy (25%), animal (14%), superhero (2%), and were unlikely to be portrayed as man-made objects (e.g., cars with faces) (<1%). Males, on the other hand, were most likely to be portrayed as animals (43%) followed by fantasy characters (20%), humans (17%), superheroes (14%), and man-made (6%). When examining the results across type, 70% of the humans were female, 30% male. In contrast, 82% of the animals were male compared to 18% being female. Another strong pattern showed in the superhero category with 90% male and only 10% female.

### Research Question: Age of Characters

As no previous studies have reported the relationship between gender and age, we examined this question and found a significant difference in the depiction of the ages of the characters based on gender. Of the 742 characters whose gender could be determined, the age of 98 (13%) characters was unclear; of those, 44% were male and 56% were female, not a significant difference. Thus these were dropped from the analysis. The ages of 393 males and 251 females were clear. Characters depicted as children were significantly more likely to be female (58%) than male (42%); in contrast, characters depicted as adults were significantly more likely to be male (78%) than female (22%);  $\chi^2(1, N=644)=86.07, p<.001$ . This effect size was moderate to large (Cramer's  $V=.37, p<.001$ ).

## Discussion

We examined contemporary coloring books to determine if the stereotypes found in them were similar to those found in other print media for children, including in the one systematic content analysis of coloring books that was undertaken over 35 years ago by Rachlin and Vogt (1974). In the following sections, we discuss each of our findings.

### Males are More Prevalent

As hypothesized, males were depicted more often than were females. We made this hypothesis before collecting our sample, and once we had our sample and found that more of the books were directed at females, we were somewhat surprised to find that this hypothesis was still supported. Thus, even with an uneven distribution of boy-directed and girl-directed coloring books, males were still more prevalent. This result has been found in many types of media including children's story and picture books (e.g., Gooden and Gooden 2001; Hamilton et al. 2006; Kortenhaus and

Demarest 1993; Oskamp et al. 1996), children's television programs (e.g., Baker and Raney 2007; Frueh and McGhee 1975), and commercials aimed at children (e.g., Ruble et al. 1981). On the other hand, in their coloring book analysis of human characters, Rachlin and Vogt (1974) found an almost equal representation of males and females. In the present study when only human characters were examined a pattern emerged that was different from any studies of children's books or Rachlin and Vogt's (1974) study of coloring books. Female humans outnumbered male humans by a ratio of 2.4:1. This was an unexpected finding. Thus, care must be taken about character type when reporting prevalence of either gender.

Nevertheless, when children are coloring, they do see a predominance of male characters of all types. We echo other researchers' comments (e.g., Peterson and Lach 1990) that it may be detrimental for young girls to be seeing mostly males in media, whatever form they take (e.g., animals, superheroes, humans). Quantity often implies importance, especially to an impressionable mind. Seeing more of the other gender may lead young girls to view themselves as less important or as second-class citizens. As for boys, seeing themselves represented more often, not only in coloring books, but in all forms of media, may give them an inflated sense of importance. With the sexes in the population almost equally represented, this inflated presence of males in coloring books and other media may skew young children's schemas about gender and gender roles.

#### Stereotypes Predominate, Especially for Females

As hypothesized, stereotypes were common, especially stereotypes in coloring books aimed at girls. Thirty-seven years after Scott Foresman and Company published their 1972 guidelines to reduce stereotypes in textbooks, we are still seeing females in stereotyped female roles and males in stereotyped male roles—in textbooks, storybooks, and coloring books. Although coloring books are not held to the same standard as textbooks that must be approved by a board of education, we had hoped to find more egalitarian images than we did. To find that males engaged in only 3% of what would be considered stereotypically-female behaviors was disheartening. Likewise, we found that only 6% of the female characters engaged in behaviors that would typically be viewed as male activities. We did not find female scientists, truck drivers, or doctors for example. Unlike Hamilton et al. (2006) who found that males and females were equally likely to be seen rescuing others, we did not find any females in this pursuit. We coded gender-neutral behaviors and found that contrary to a 50–50 chance of a male or female engaging in these behaviors, males predominated. Sixty-eight percent of gender-neutral behaviors were carried out by males versus 32% by females.

Except for the depiction of female rescuers found by Hamilton et al., our findings agree with older research on stereotypes in media aimed at children (e.g., Kortenhaus and Demarest 1993; Rachlin and Vogt 1974) as well as with more recent analyses (e.g., Gooden and Gooden 2001).

In our secondary analyses we examined a possible relationship between the type of coloring book (i.e., those directed at girls, boys, or gender-neutral books) and found significant results. Whether looking at the mean overall gender stereotypes or specific gender stereotypes, we found that those books directed at girls contained the most stereotypes. Girls' coloring books depict many more female stereotypes than boys' books depict male stereotypes. Thus young girls view stereotypes, of both females and males, more often than boys view these stereotypes. This skewed view may limit what girls believe they can do or become. As gender schema theory would suggest, these limited views may be affecting girls' decisions about what is possible. What is troubling is that children who use coloring books tend to be at a developmental stage when gender schemas are forming and solidifying.

#### Males are More Active

As hypothesized, males were shown in more active states. As stated in the explanation of our methods, we did not want to look at only an active versus passive dichotomy. We coded three levels of activity—static, busy (static, but using fine motor movements such as drawing), and active (gross motor movements). We hypothesized that males would be depicted in more active roles, based on research from other print media for children (e.g., Gooden and Gooden 2001; Hamilton et al. 2006; Kortenhaus and Demarest 1993; Rachlin and Vogt 1974). However, we thought that females would more often be depicted using fine motor movements, as research reveals that young girls are generally better than young boys at this (e.g., Craty 1986; Robertson 1984). We were surprised to find that in the area of fine motor movements males (57%) were more likely to be depicted than females (43%). It was only in the static category (e.g., sitting or standing and not doing anything) that females predominated. One reason for this finding is that females were often depicted looking in a mirror or simply sitting somewhere. If they were also shown brushing their hair, they were coded as busy, using fine motor movements; however, many of them were simply looking. In the area of gross motor movements there was a very large difference. Males were shown running, climbing, and rescuing others (usually females or young characters). Again, these findings mirror what others have found in different media. From these images, children are reinforced with the long-held stereotype that boys “do” and girls “are” (Key 1971).



## Males are Older, Stronger, and More Powerful

Due to a dearth of literature on coloring books, we posed a research question about age of characters based on gender. There was a significant difference in the depiction of the ages of the characters. Males were almost twice as likely to be shown as adults than as children. The opposite was true for females—they were more than three times as likely to be depicted as children than as adults. Thus boys get to envision their grown-up selves; whereas girls may infer that they remain young and childlike. If children do look to adult role models to have an understanding of what they are to become, as Ruble and Martin (1998) and Bandura (1977) suggest, girls may be limited in this understanding if they see predominately female children as they work with coloring books.

We categorized type of character as human, animal, fantasy, superhero, and man-made (e.g., personified cars or robots). Females were most likely to be depicted as humans, followed by fantasy, followed by animals. They were not likely to be superheroes or personified man-made objects. On the other hand, males were most likely to be portrayed as animals (wild, free, strong), fantasy, humans, and superheroes. In sum, 70% of the humans were females and 63% of the animals were males. The fact that females were mostly depicted as humans is of special note. Had our analysis focused only on human characters, our hypothesis about males being more prevalent would not have been supported. Although girls would be exposed to more human females in coloring books, it is possible that this preponderance of human female characters limits young girls' ability in role taking, especially taken together with the finding that the human females are mostly young girls. For example, unlike boys, girls would not be exposed to the variety of characters and behaviors to which boys would be exposed in their books. Thus the richness and dimension of their models would be limited. Instead of being active, powerful, and multidimensional, they are two-dimensional—much like the reflection in the mirror into which females are often depicted looking. In addition, the activity level of the females tended to be very low (static poses, such as sitting and watching others); this is likely in contrast to the real women in their lives who hold jobs, raise families, or both. Having young boys see a preponderance of male animals is another issue. Many of these images showed fierce, wild, or “untamed” animals. Thus young boys may identify with these male animals. Gender schema theory would suggest that they may incorporate these characteristics into their own schema of what it means to be male.

In the superhero category, 90% were males. This finding about superheroes is similar to that of Baker and Raney (2007) in their study of TV cartoon characters. Taken together, these findings suggest that as young boys color in coloring books, they see males depicted as forces in their

world—wild, strong, powerful, adult-like, and heroic; whereas young girls see females as passive, vulnerable, childlike, and “only human.” Interestingly, many of these adjectives used to describe the characters in the coloring book images are similar to the words Turner-Bowker (1996) found in her study of language used in children's literature. Both her study of words and our study of images, depict males as fierce, great, terrible, brave, and proud; whereas females are beautiful, sweet, kind, frightened, and scared. Whether developing boys and girls read or hear these words or infer these meanings from images, they are learning what it means to be male and female in our society.

## Strengths and Limitations

A particular strength of this study is the use of stratified random sampling. By randomly selecting at each stage, we were able to get a representative sample from one area of southern California. Although the coloring books came from one county in California, most stores from which we gathered books were part of chains that had stores throughout the United States. In addition, most of the coloring books contained images of licensed products and characters (e.g., Spiderman, characters from movies like Cars and Toy Story, and Disney Princesses). Therefore, we suggest our sample is not only regionally representative but may also be relatively nationally representative. Thus, we think our findings are likely to be generalizable to many, but certainly not all, of the coloring books parents and caregivers would typically purchase for children in the United States to use. As with any study that analyzes the content of media, there is always a concern about subjectivity. We trained our coders extensively and assessed agreement both before and midway through data collection. Additionally, if there was doubt, the characters were coded as unclear and dropped from the gender analyses.

## Conclusions and Future Research

Visual media messages that stereotype groups or individuals reinforce rather than challenge social misconceptions. Images on a page or screen become part of our common consciousness, and the role models which are presented provide vicarious experiences that teach and shape our perceptions of the world (Bandura 2001). When images repeatedly present over-simplified conceptions about social and gender roles, occupational pursuits, or other aspects of life, their influence on human development becomes a cause for concern. Representations of stereotypes in the media are of importance because of their impact on the socialization process of children. Although older children often are taught through educational experiences to discount media images, young children come to visual

messages without the protection of learned skepticism. For this reason, media stereotypes often play a powerful role in the social and gender development of young children (Bandura 2001).

The findings from this study show that coloring books are subject to similar gender stereotyping and messages about being male and female as children's storybooks and picture books. Both the prevalence of males and the fact that they are portrayed in more active roles may suggest to young girls, as they color on the page, that girls are the lesser sex and not as important as boys. This inference may cause them to think they should not be active, and instead should preen in front of the mirror or tend to babies as their primary functions. On the other hand, the images may suggest to young boys that they should have super-human strength, not be nurturing, and always be on the move. This means that with the extra time spent and creative processes used, children are coloring and spending time with depictions of characters that maintain long-held stereotypes. As children spend time with these images, deciding colors and strokes and thinking about the characters with which they are working, gender role stereotypes may form or become more ingrained in their thinking. Children tend to imitate same-sex characters more than opposite-sex characters (Bandura 1977); thus, media that repeatedly give higher status to and more exposure of males than females have the potential to limit girls' social and gender development as well as vocational aspirations. According to gender schema theory (Bem 1981), once children decide if an object, activity, or behavior belongs with their gender, they use the information to make decisions about whether or not to learn more about it. Seeing female characters in static positions and male characters in active positions gives young children an unrealistic view of life. In addition, our finding that males are more likely to be represented as adults and females as children is disturbing. It implies that girls do not grow up and become forces in their world, but rather remain young and vulnerable. Future research should examine this new finding in more depth, not only with regard to coloring books but also in other media to which children are exposed at ages at which they develop or strengthen their gender schemas.

Coloring books are a unique medium for children. Children make decisions about what and how to color; they often rip out the pages and attach them to their walls or the refrigerator. Thus their view of these images is often more than a one-time experience. In 1957, Lowenfeld argued that coloring books were not good for children; they stifled children's creativity by forcing them to color within the lines. Later King (1991) argued that Lowenfeld did not have empirical support for this claim about coloring books dampening creativity. We suggest that rather than a concern about creativity, the larger concern should be the messages—both the obvious and

subtle—that they send to children about what it means to be male or female. They may stifle young girls' potential for powerful roles and stifle young boys' potential for nurturing roles. But do children learn these lessons from coloring books? Are coloring books elicitors of behavior? Can they change attitudes? In a recent study, Simcock and DeLoache (2006) demonstrated that children as young as toddlers can imitate specific, novel actions depicted in a storybook. Their findings held even when the pictures were merely line drawings, as are those in coloring books. Thus it would be important to assess whether coloring a picture in a coloring book could affect children's behaviors or change their attitudes. Given the dearth of research on this medium that is ubiquitous in young children's worlds, we suggest that future research should address these questions empirically.

**Acknowledgements** Portions of this research were presented at the annual meeting of the American Psychological Association, San Francisco, CA, August 2007. The authors thank Marie Thomas and three anonymous reviewers for comments on earlier versions of this manuscript and Iliana Grigera, Marlene Armenta, Jennifer Dale, and Tara Miller for coding assistance.

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