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Fall September 27, 2011

Crabb&Marciano2011-2.pdf

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Available online: 27 Sep 2011

To cite this article: Peter B. Crabb & Deb L. Marciano (2011): Representations of Material Culture and Gender in Award-Winning Children's Books: A 20-Year Follow-Up, Journal of Research in Childhood Education, 25:4, 390-398

To link to this article: http://dx.doi.org/10.1080/02568543.2011.605209

PLEASE SCROLL DOWN FOR ARTICLE
Representations of Material Culture and Gender in Award-Winning Children’s Books: A 20-Year Follow-Up

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This study tested the hypothesis that children’s books accurately reflect the gender-based division of labor in the culture and historical period in which they were published. A content analysis was performed on illustrations in books that won the Caldecott Medal or Honor between 1990 and 2009. The final sample included 490 illustrations in 68 of the 85 books. Character gender and type of material cultural artifact used (household, production) were coded. Larger proportions of female characters in the books used household artifacts, whereas larger proportions of male characters used production artifacts outside the home. The authors discuss the relationship of these representations to the real world of gender, tools, and work, as well as implications for the socialization of children.

Keywords: children’s books, gender schemas, material culture, technology, tool use, Caldecott Books, social representations

One channel by which children are exposed to ideas about the appropriate gender of users of material culture is illustrated children’s books. In the current study, we report on a content analysis of illustrations in award-winning children’s books published in the United States during the 1990s and 2000s. Our expectation was that representations in the children’s books of those decades should mirror concurrent developments in U.S. society. Specifically, we hypothesized that because women continued during that period to do the bulk of housework, most female characters in children’s books would reflect that gendered division of labor. However, because an increasing number of women worked outside the home during those decades, we also expected that children’s books would reflect that change in the division of labor, as well. A broader assumption of the study was that in any culture in which children’s books or other media are significant socialization channels for children, the way that material culture and gender are portrayed may play a significant role in children’s development of beliefs about, preferences for, and expertise in using the array of artifacts that are available. When a society sends the tacit message...
that specific artifacts are gender marked as exclusively for use by either females or males, those artifacts, and the activities they are used for, may be incorporated into normative gender roles (Bandura, 1986).

Material culture—that part of the environment that has been intentionally constructed for practical purposes according to culturally dictated plans (Schlereth, 1985)—routinely structures gender roles (Cockburn & Omrod, 1993; Liss, 1981; Lloyd & Duveen, 1990; Oldenziel, 2004; Wajcman, 1991, 2004). One mechanism for this structuration is the construction and transmission of social representations that prescribe the appropriate gender of users of specific types of material cultural artifacts. Social representations are classification systems used by members of societies to define and make salient the things that are important, as well as the expected responses to those things (Moscovici, 1984). Social representations of material culture and gender are shared classification systems that link the array of human-made objects with gender categories. Numerous material cultural objects have been shown to be gender marked, including toys, clothing, and names (Lloyd & Duveen, 1990). An object’s gender marking indicates that it should be used exclusively by either males or by females. Exposure to representations of gender marking presumably can influence gender roles by differentially directing girls and boys to adopt beliefs, expectations, social norms, and behavioral routines pertaining to specific types of material cultural artifacts.

Based on these ideas, Crabb and Bielawski (1994) predicted that representations of material culture and gender could be observed in mass media content. They examined children’s picture books that had won the prestigious Caldecott Medal or Honor between 1938 and 1989. The Caldecott awards are given annually to the artists of the winning children’s picture books published in the United States. Similar awards given to illustrated children’s books in other countries are the Whitbread Awards (Great Britain and Ireland), the Picture Book of the Year (Australia), and the Children’s Book of the Year (Canada). Illustrations in children’s books may be especially efficacious in transmitting information about gender, because children’s visual attention is directed at pictures more than at text (Evans & Saint-Aubin, 2005; Shapiro, Anderson, & Anderson, 1997), parents or others who read to preliterate children may call children’s attention to pictures more than to text (Bus, Belsky, IJzendoorn, & Crnic, 1997), and children may ask more questions about pictures than about text (Yaden, Smolkin, & Conlon, 1989; Yaden, Smolkin, & MacGillivray, 1993) because they are better able to relate to the illustrations than to yet-unlearned words. The high profile that Caldecott books are given in bookstores, libraries, and book clubs makes them popular among teachers, parents, and children, and thus it is more likely that children will actually read the books or have them read to them.

Crabb and Bielawski (1994) performed a content analysis of illustrations in Caldecott books published over the five decades since the inception of the award and reported that a larger proportion of female characters was shown using household artifacts (such as cooking utensils and cleaning tools) and that a larger proportion of male characters was shown using artifacts outside the home (such as agricultural tools and transportation vehicles). These findings were replicated by Poarch and Monk-Turner (2001) with a sample of non-award-winning illustrated children’s books published in the United States between 1963 and 1995. Crabb and Bielawski also found that female characters’ use of household artifacts did not change over the five decades examined. Crabb and Bielawski interpreted their findings as evidence that children’s books promote a stereotypical gender-marking system and division of labor that were
common during the earlier industrial era but that should have changed, as most women in the late 20th century joined the workforce outside the home. Crabb and Bielawski speculated that the representation of male characters as the typical users of production artifacts outside the home may be due to a cultural lag (Ogburn, 1964), and that as society gained more experience with women working outside the home with production tools, this lag would diminish or disappear.

Since 1989, the last award date of the books examined by Crabb and Bielawski (1994), labor patterns of women and men in the United States have stayed the same in some ways and changed in others. Women continued to do the bulk of housework (Sayer, 2005, 2007), a pattern that is consistent across cultures and historical eras (Bittman, Rice, & Wajcman, 2004; Eagly, Wood, & Johannesen-Schmidt, 2004; Murdock, 1937; Murdock & Provost, 1973; Ross, 1987), suggesting that household material culture should continue to be associated primarily with women. Simultaneously, women’s participation in the workforce outside the home has steadily increased and is projected to continue to increase (Fullerton, 1999). According to the Bureau of Labor Statistics (2009), women’s seasonally adjusted participation rate in the workforce rose from 57.3% in 1989 to 59.4% in 2008. Interestingly, during the same period, men’s workforce participation rate declined from 76.3% in 1989 to 72.7% in 2008, although it is important to note that this rate is still well above women’s rate of working outside the home (Bureau of Labor Statistics, 2009).

Following Crabb and Bielawski (1994), we assumed that female and male characters in children’s books would reflect these trends in household and nondomestic production labor. To examine whether the gender marking of material culture in children’s books followed these historical trends, we conducted a content analysis of illustrations in the 1990–2009 Caldecott Medal and Honor winners. Five hypotheses were tested:

Hypothesis 1: The proportion of illustrations of female characters using household artifacts would be larger than the proportion of illustrations of male characters using household artifacts. This hypothesis is based on evidence that women in the United States performed more housework than men during the two award decades.

Hypothesis 2: The proportion of female characters shown using household artifacts would not change between the two award decades. This hypothesis also was based on evidence that women performed more housework than men during that period.

Hypothesis 3: The proportion of illustrations of male characters using production artifacts would be larger than the proportion of illustrations of female characters using production artifacts. This hypothesis is based on evidence that more men than women worked outside the household during that period.

Hypothesis 4: The proportion of illustrations of female characters using production artifacts would increase over time. This hypothesis is based on evidence that the rate of women working outside the household increased over the two award decades.

Hypothesis 5: The proportion of illustrations of male characters using production artifacts would decrease over time. This hypothesis is based on evidence that the rate of men working outside the home decreased during the award decades.
METHOD

Sample and Coding

Two coders (PBC and a student assistant) examined all of the 85 illustrated children’s books that received the Caldecott Medal \((n = 20)\) or Honor \((n = 65)\) during the period 1990 to 2009 (Association for Library Service to Children, 2009). Codes were assigned by both coders using the coding system of Crabb and Bielawski (1994). Each page containing an illustration was coded on two variables: character gender (female, male) and artifact type (household, production). Household artifacts were defined as human-made objects used to produce effects in the home, including objects used for food preparation, cleaning, family care, repair, home crafts, and gardening. Examples of household tools include pots and pans, knitting needles, brooms, and washing machines. Production artifacts were defined as human-made objects used to produce effects outside the home, including objects used for agriculture, manufacturing, construction, transportation, defense, and science and technology. Examples of production artifacts include hammers, tractors, cars, and guns. Illustrations that did not contain characters using artifacts were excluded. The coders eliminated 17 entire books that did not contain illustrations of characters using artifacts. The final sample included 490 illustrations in 68 of the 85 award-winning books. Interjudge agreement was computed using the codings for all illustrations in the sample and was found to be excellent for both artifact type \((\kappa = .93)\) and character gender \((\kappa = .93)\).

RESULTS

Based on evidence that the proportions of female and male models to which children are exposed can influence learning about gender more than the raw frequencies of models (Bussey & Perry, 1982; Eagly, 1987), relative proportions of illustrations of characters using artifacts were computed and used in the analyses. Tests were conducted using \(z\) tests on independent proportions of illustrations (Fleiss, Levin, & Paik, 2003).

Hypothesis 1 was that the proportion of illustrations showing female characters using household artifacts would be larger than the corresponding proportion of illustrations of male characters. Separate focused tests (Rosenthal & Rosnow, 2008) were conducted for each award decade. For the 1990s, 59\% of illustrations showed females using household artifacts, whereas 12\% showed males using household artifacts, \(z = + 7.86, p < .001\), one-tailed, \(\varphi = .97\) (Figure 1). For the 2000s, 56\% of illustrations showed females using household artifacts and 16\% of illustrations showed males using household artifacts, \(z = +5.57, p < .001\), one-tailed, \(\varphi = .76\) (Figure 1). Consistent with the hypothesis, female characters were more likely to be shown using household artifacts (e.g., bowls, forks, knives, spoons, or sewing machines) than male characters were.

Hypothesis 2 was that the proportion of female characters using household artifacts would not change between the 1990s and 2000s. Consistent with the prediction, no significant difference was detected between the 1990s (59\%) and the 2000s (56\%), \(z = .25\), two-tailed, \(p > .80, \varphi = .03\) (see Figure 1).

Hypothesis 3 was that the proportion of illustrations of male characters using production artifacts would be larger than the proportion of illustrations of female characters using production artifacts. For the 1990s, 88\% of illustrations showed males using production artifacts, while 41\%
showed females using production artifacts, $z = +7.92, p < .001$, one-tailed, $\varphi = .54$ (Figure 2). For the 2000s, 84% of illustrations showed males using production artifacts and 44% of illustrations showed females using production artifacts, $z = +5.57, p < .001$, one-tailed, $\varphi = .44$ (Figure 2). Consistent with the hypothesis, males were more likely than females to be shown using production artifacts (e.g., cars and trucks, fishing nets, tools).

Hypothesis 4 was that the proportion of illustrations of female characters using production artifacts would increase between the 1990s and 2000s. Contrary to this expectation, illustrations of female characters using production artifacts did not change significantly over the two decades ($z = .25, p > .40$, one-tailed, $\varphi = .04$) (see Figure 2).

Hypothesis 5 was that the proportion of illustrations showing male characters using production artifacts would decrease between the 1990s and 2000s. Although a slight decrease was observed, it failed to reach the .05 level of significance ($z = +1.23, p > .11$, one-tailed, $\varphi = .07$) (see Figure 2).

**DISCUSSION**

Children’s books that won the Caldecott Medal or Honor between 1990 and 2009 accurately and inaccurately reflect the gender-based division of labor in U.S. society during those decades. As was the case with the real division of labor, female characters tended to be shown performing
work with household artifacts in the home, whereas male characters were shown working outside the home using production artifacts. Contrary to the trends in the division of labor, an unchanging proportion of female characters was shown using production artifacts outside the home, whereas in the real world, the rate of women working outside the home increased during those decades. Another inaccuracy was the stable representation of male characters using production artifacts despite a declining rate of men working outside the home during that period. When these findings are combined with Crabb and Bielawski’s (1994) earlier work, the picture that emerges is that the representation of such activities in these children’s books remained stable for more than 70 years.

Regarding their earlier data, Crabb and Bielawski (1994) suggested that the disconnect between unchanging representations in children’s books and changing labor patterns may have been symptomatic of a cultural lag (Ogburn, 1964). They speculated that as U.S. society gained more experience with women working outside the home, the exclusive male marking of production artifacts would diminish. The current data cannot definitively rule out a cultural lag explanation, but the fact that the clearly gendered representation persisted for 20 years after Crabb and Bielawski’s sample does call it into question.

Research examining children’s books generally aims to describe the modeling stimuli to which young readers are exposed. The current study similarly assumed that modeled use of material cultural artifacts by females and males can play an important role in children’s constructions of schemas about tools and gender roles. Although neuroimaging studies have identified neural
networks involved in conceptual (knowing about) and production (knowing how to use) operations regarding tools (Johnson-Frey, 2004), it is not yet clear where associations between tools and gender categories are made in the brain. Yet once schemas of material culture and gender are formed in early childhood, continued exposure to sources of schema-consistent information (e.g., children’s books, television, films, advertising, the Internet, and parents’ behavior) would reinforce them (Signorella, Bigler, & Liben, 1997). Gender-inconsistent information would tend to be ignored (Frawley, 2008) or have only short-term effects (Flerx, Fidler, & Rogers, 1976; Scott & Feldman-Summers, 1979). As schemas of material culture and gender strengthen throughout childhood, they presumably influence interests, efficacy expectations, skill acquisition, and educational and career choices. Thus, girls would tend to show interest in household technologies to the exclusion of interest in production technologies, whereas boys would show the reverse pattern of interests. Those patterns of interests would contribute to the construction of normative gender roles.

It is important to note one limitation of our assumption that children’s books should reflect social conditions at the time that they are published. Many of the books in this sample depict non-U.S. cultures and previous historical eras, so that many of those books portray character gender and tool use that may be appropriate for those cultural and historical contexts. It remains to be determined whether young readers can distinguish between their own cultural and historical contexts and other contexts depicted in books without additional information, instruction, and discussion (Marciano, 2001).

We also note that the world of material culture in children’s books does not perfectly reflect the real-world of made things and technology. Many objects shown are from previous historical periods and likely would be unfamiliar to children outside of books (e.g., adzes, pikes, tridents). Other objects, such as computers, cell phones, and MP3 players, would have been familiar to children during at least part of the 1990s and 2000s but were completely absent from the illustrations in these books. This suggests that children’s books may be only one of many sources of information that contribute to schema development (Bigler & Liben, 2007).

We do not want to imply that using household tools requires less competence or is less useful than using production tools outside the home. Operating a home sewing machine demands just as much technical skill as operating a drill press in a factory. We are suggesting that sources of socialization, such as children’s books that point girls in one direction and boys in another, can constrain children’s (and later, adults’) development of interests and opportunities with respect to material culture. Reform of children’s books by, for example, adjusting proportions of female and male characters using different types of tools, would not be likely in and of itself to change schemas and behavior. Changes in the broader culture may be required (Bigler & Liben, 2007; Council on Interracial Books for Children, 1976).

Nevertheless, it would be constructive for children’s book illustrators, authors, editors, and publishers to become familiar with the large body of research about their products and the gender stereotypes they may be promoting to young readers. One goal would be to foster more gender-neutral portrayals of tool use in future children’s books. In addition, parents, teachers, and librarians who share picture books with children can encourage critical thinking about gendered representations in books (Chick, 2002; Frawley, 2008). Pointing out that men also cook meals at home and that women also use computers at work would challenge gender stereotypes in existing books. Such interventions could have a desirable effect on the important developmental task of learning about how material culture can influence oneself, other people, and society.
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