Is Sharing a Bear Necessity?:

Anthropomorphization and Learning Social Lessons from Children’s Books

Sara Friedman

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Advisor: Dr. Judy DeLoache
Second Reader: Dr. Rachel Keen
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Abstract

Animal characters are a popular feature of many children’s book, but little research has investigated the effects that anthropomorphized animal characters might have on children’s ability to learn from these books. Children’s learning about sharing was assessed after they were read a version of a children’s book featuring either animal or human characters. Results showed that the children offered more sharing responses to hypothetical scenarios after having been read the book featuring animal characters, than the a book with human characters. The effect was enhanced if they responded to a hypothetical situation featuring humans after the book reading.
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Parents and teachers often assume that children learn from picture books. Until recently, however, this assumption remained untested. In fact, recent research has found that children’s learning from picture books is not a given. For example, Simcock and DeLoache (2006) found that children could learn facts from picture books, but that certain features of picture books, such as realistic illustrations and iconic images, promote learning better than others do. Similarly, children are better able to learn facts from picture books with few manipulative features (Tare, Chiong, Ganea & DeLoache, 2010). Taken together, these findings suggest that children learn best from picture books when illustrations are highly realistic and less distracting. However, these studies only tested some of the many features that children’s book authors employ. Additionally, both studies focused on fact learning, whereas many children’s books are written to teach social lessons. It is possible that different kinds of book features may affect children’s ability to learn social lessons. One such feature is the use of animal characters.

Humans have a long history of anthropomorphizing animals. To anthropomorphize is to give human characteristics or personalities to non-human animals or inanimate objects (Horowitz, & Bekoff, 2007). Examples range from talking cars, to pets feeling remorse, to computers dying. Anthropomorphizing objects may increase feelings of predictability and control by making the objects appear more human and therefore more knowable (Waytz et al., 2010). Accordingly, studies suggest that children use anthropomorphic language to make educated guesses about the actions of inanimate objects and animals, to reason about their behavior, or to help explain events when they are having difficulty verbalizing (Waytz et al.,
Additional reasons include that animal characters are commonly present in children’s lives, and children often interact with these animals in pets or zoos, often treating them as imaginary friends or the subject of nightmares. Another reason is that children prefer animal characters. Additionally, teachers anthropomorphize animals to make them more interesting and to help children learn about them. Thulin and Pramling (2009) recorded the use of anthropomorphic language in preschool classes over a two-month period. They found that teachers were far more likely than students to use anthropomorphic language, usually in an attempt to make lessons more appealing.

Despite the frequent use of anthropomorphic language, researchers have questioned the benefit of using it to discuss animal behavior (Burghardt, 1985). When we anthropomorphize a non-human animal, we frequently ascribe human thought processes and rationales that do not exist (Sober, 2005). Therefore, anthropomorphization may lead to an exaggeration of the similarities between humans and other animals, hindering acquisition of accurate knowledge about the animal.

Given the prevalence of anthropomorphic language, it is not surprising to find animal characters in children’s books. In fact, there is a thriving market for picture books that feature animal characters. A quick search on Amazon.com for children’s books about sharing yields a curious fact: Four of the five bestselling books for teaching young children how to share feature animal characters. Similarly, as of 2001, seven of the top ten best-selling children’s books of all time feature animal characters (All-Time Bestselling Children's Books, 2001).

There are several reasons why authors may choose to create animal instead of human characters. First, authors know that animals are a common fixture in children’s lives. Children interact with animals as pets or in zoos, and often they figure into their lives as imaginary friends or the subject of nightmares (Melson, 2001). Second, children actually prefer animal characters.
In one study, when children were read identical stories with either human or animal characters, seventy-five percent of them preferred the version with animal characters (Boyd & Mandler, 1955). Third, some theorists suggest that using animal characters can help promote exploration. Children may relate to animal characters more easily than human characters because they lack an obvious gender, age, or race (Krueger, & Krueger, 2005; McCrindle, & Odendaal, 1994). This ambiguity may allow a wider range of children to identify with them.

Despite the frequent appearance of animals in children’s books, it is unclear what purpose they serve. One possibility is that anthropomorphized animal characters will provide a sense of predictability when children are learning about new animals, objects, or situations (Waynx et al., 2010). In addition, animal characters may help children try on new roles and emotions from a safe distance, such as assuming greater independence and feelings of power (Melson, 2001).

Applying this rational to children’s books, Krueger and Krueger (2005) suggest that anthropomorphized animal characters should facilitate children’s learning from picture books. They propose that children can easily project themselves onto animal characters to confront new and potentially threatening scenarios. The animal characters help children confront difficult situations, such as divorce or loss of a loved one, in a context that can be at once familiar and outside of reality (Krueger, & Krueger, 2005). When these difficult topics are addressed with animal characters, children may be able to identify with the character without becoming too emotionally involved.

Krueger and Krueger (2005) also suggest that animal characters may capture a child’s attention while at the same time activating memory processes. E.O. Wilson (1993) makes a
similar claim in his biophilia theory, suggesting that humans have a sense of our affiliation with other life forms, especially other animals. There is some empirical support for this contention.

A preference for animals can be seen early in development. In one study, infants watched films of animals paired with films of inanimate objects (DeLoache, Pickard, & LoBue, 2011). Researchers recorded the infants’ looking times and coded affective responses. Every child looked longer at the animals than the objects. In addition, the infants produced more emotional responses to the animals than the inanimate objects. In another study, Kidd and Kidd (1987) found that infants smiled at and followed real animals more than animated animal toys. Similarly, Nielen and Delude (1989) reported children largely ignored realistic stuffed animals to watch real animals. Furthermore, children ask more questions about animals compared to innate objects, have greater emotional responses to them, and speak about them more anthropomorphically (DeLoache, Pickard, & LoBue, 2011). It is possible that this heightened interest in animals leads to better learning from them.

However, some work suggests that using an animal “stand-in” when teaching children might actually impede learning. When children encounter a symbol, such as an anthropomorphized animal character, they must create a dual representation so that they can think about the referent while looking at the symbol (DeLoache, 1991). DeLoache (2000) found that young children often have difficulty linking dissimilar symbol/referent pairings. This difficulty with establishing dual representations can make it challenging for children to generalize information from books to the real world (Tare, Chiong, Ganea, & DeLoache, 2010).

In order to facilitate early learning, symbols need to be more like their referents (Tare et al., 2010). When pictures and their real-world referent are more similar, young children are
better able to identify correct matches (Callaghan, 2000). Ganea, Pickard, and DeLoache (2008) found that children are better able to apply new labels to pictured objects when using realistic photographs over cartoons. When a symbol looks more like its referent, children are better able to transfer information from one to the other.

It follows that children may have difficulty interpreting anthropomorphized animals as representations of themselves when reading children’s books. Animal characters may increase children’s overall interest in the book, but at the same time they may detract from the lesson being presented. Using animals instead of humans increases the symbolic distance between the characters in the book and the child. Therefore, animal characters require a child to create a dual representation of the animal as a character and as a representation of themselves. This need for dual representation may make the transfer of information from a book with animal characters to the real world more difficult. As a result, children may be less likely to apply a social lesson from a book to their own lives if the book features animal characters.

The aim of this study is to investigate the effects of using anthropomorphized animal characters on children’s ability to learn social lessons from books. We attempt to teach children a lesson about sharing by using a picture book with either human or animal characters. After hearing one version of the story, children are presented with a series of scenarios where they can apply the lesson of sharing to themselves and other characters. We hypothesize that despite children’s elevated interest in animals, the increased symbolic distance between the animal characters and the children they are supposed to represent will impair children’s ability to learn about sharing from the book.

Method
Participants

Thirty-two four-year-olds (16 female, $M_{age} = 53.7$, range = 48.6 to 58.7) were recruited from a largely middle class community using a database of families willing to participate in studies. Sixteen children were in each of two book conditions. One child was excluded from the sample for not completing the study.

Design

In this study, the between subjects variable was book condition. Children were either read a book featuring animal characters or a book featuring human characters. The dependent variable was whether or not the child suggested sharing in response to the scenario questions.

Materials

The stimuli for the study were two versions of a commercial children’s book written to teach children about sharing. The trade version of the book featured animal characters. A human-character version of the book was created by scanning the original book and changing the animal characters into human characters. The two books were identical, except for the type of characters portrayed. An example page from each book can be seen in Appendix C.

Procedure

Children were randomly assigned to either the animal book or the human book condition. Each child was seated next to the experimenter so that they could see the book illustrations while being read the story. The children were not told what the story was about, and the word sharing was never used before the book reading.
Following the book reading, children were asked to respond to two scenarios about sharing. (The full questionnaire is in Appendix A). In the first scenario, children were presented with a story about other children (Others-Scenario). They were shown pictures of two children and were told that one was upset because his/her crayons had broken and he/she could not complete a drawing. Half the children were shown pictures of the characters that were animals, and half were shown pictures of the characters that were human. The pictures of the human characters were matched to the gender of the participant. Animal characters were gender ambiguous. (Both the human and animals pictures can be seen in Appendix B). After hearing the scenario, children were asked what the children in the Others-Scenario would do. If they responded with any answer other than a sharing response, they were then asked how the one character could make the other feel better.

In the second scenario, children were presented with a hypothetical scenario about themselves (Self-Scenario). They were asked to imagine that they had invited a friend to their house to play with blocks, but that they had already used all the blocks to build a great building. Children were then asked what they would do. If the child did not offer a sharing response, they were asked if there was anything they could do to help their friend.

For both scenarios, children’s responses were coded into three categories: sharing, alternative solution, or “don’t know”. Sharing responses consisted of answers such as “give him some of my blocks.” Alternative solution responses ranged from “go to the store to buy new crayons” to “tell him a funny story.”

After responding to the two scenarios, children were given the opportunity to share with the experimenter (Real-World Scenario). Children were given paper and markers to draw
anything they wanted while the researcher pretended to fill out a form. While the child was
drawing, the researcher’s markers stopped working and she asked the child about how she could
finish with a broken marker.

After the completing the Real-World Scenario, children were brought back to the waiting
room to meet their parents. Parents were instructed to ask their children the following question:
“I heard you read a book, can you tell me what it was about?” Children’s responses were coded
into four categories: sharing, animals/kids, non-sharing plot elements, and “don’t know.”
Sharing and “don’t know” responses were coded in the same way as in the first two scenarios.
The animal/kids response included answers such as “it was a book about bears” or “a story about
friends playing.” Non-sharing plot elements included answers such as “it was a book about
cookies.”

Results

General Sharing Results

Children had four opportunities to give a sharing response after having been read the
book. For each scenario, children offered a sharing a response as follows: 28 percent in the
Others-Scenario, 56 percent in the Self-Scenario, 63 in the Real-World Scenario, and 16 percent
when asked what the book was about. The total number of sharing responses for each child were
added to arrive at score between 0 and 4. Overall, children offered an average of 1.4 sharing
responses.

Effect of Book Condition

To test the effect of book condition on the total number of sharing responses offered by
children, we ran a Mann-Whitney test. As seen in Figure 1, the children who were read the
animal book gave more sharing responses \((Mdn = 2)\) than those who were read the human book \((Mdn = 1)\), \(U = 71.00, p = .022, r = .41\).

**Combined Effect of Book and Scenario Condition**

The scenarios were always presented in the same order for all children. Therefore, half the children in each book condition were given an Others-Scenario featuring human characters, and the other half were given an Others-Scenario featuring animal characters. As a result, we tested whether the kind of Others-Scenario presented after the book reading affected whether children were more likely to offer sharing responses. A Mann-Whitney test indicated that receiving an Others-Scenario featuring human characters somewhat enhanced the effect of the animal book on the number of sharing responses children gave, \(U = 15.00, p = .038, r = .37\).

**Discussion**

We hypothesized that children would be more likely to suggest sharing as a solution to scenarios if they had been read the book featuring human characters. Contrary to our hypothesis, children who heard the book featuring animal characters were more likely to suggest sharing.

Although previous research suggests that children are better able to learn from picture books when symbols in the book are more like the real-world objects they represent (Simcock & DeLoache, 2006), children in our study were better able to apply a social lesson to hypothetical scenarios when the characters were animals. Our findings suggest that children's strong interest in animals may facilitate their understanding of animals as symbols, and thus animal characters may facilitate their learning.

An additional important result is that the effect of the animal book on sharing response
was enhanced if children first responded to a scenario featuring other humans. In other words, children were more likely to suggest sharing if they had been read the book featuring animal characters followed by the Others-Scenario featuring human characters. It appears that a human bridge between the animal characters and children may facilitate comprehension. Perhaps children's elevated interest in animals allows them to close the symbolic distance between the animal characters and the humans they represent. Furthermore, experience applying the lesson to other humans may help children understand the relationship between the animal characters and themselves.

Our research has some important implications. There are many products that are marketed for helping children to learn about social lessons. Many of these are books and social-emotional intervention programs that employ animal characters. Popular children's books and television shows, such as the Berenstain Bears and Franklin, use anthropomorphized animal characters to teach lessons like telling the truth and using manners. Prevention programs like Second Step use animal puppets to explain difficult lessons, such as bullying and violence to children. For instance, a popular lesson that teaches kindergarteners how to wait their turn is taught by a puppet called Be-Calm Bunny. Additionally, many pediatric hospitals use animal characters as part of their patient care. Animal puppets are used to help explain procedures to children hospitalized for cardiac catheterization and limb amputation (Cassell & Paul, 1967; Atala & Carter, 1992). The puppets are also used to help the children verbalize their experiences (Liossi & Hain, 2002).

Presumably, these programs use animal characters for the same reason that authors use animal characters in children’s books. Children seem to be naturally interested in animals and the creators of these programs may hope that this strong interest facilitates comprehension of the
lesson being presented. The findings of our study support this claim. Animal characters can help children learn. It also seems as if experience applying this lesson to a hypothetical situation featuring humans enhances the effect of the lesson.

Limitations and Future Directions

We assessed children’s ability to learn a lesson about sharing because many children’s books teach lessons that children are supposed to apply to themselves. We aggregated children’s sharing responses across all scenarios for analysis, because our sample was relatively small. A large sample size would allow a more detailed level of analysis. Additionally, children only received one exposure to the book, which is not typical of most children’s experiences. Children commonly read the same book over and over again, which may allow them to better internalize the lesson.

Future research should examine how the use of anthropomorphized animal characters affects children’s understanding of other social lessons besides sharing. We selected sharing as our social lesson because it is frequently featured in children’s books. Future research should address how the use of anthropomorphic animal characters affects children’s comprehension of more difficult lessons, such as the death of a loved one. Additionally, children’s books frequently employ animal characters when teaching lessons that are unique to humans, such as divorce. Future studies should examine the effect that using animal characters has on children’s ability to learn lessons that are specific to humans. The use of animal characters to teach such lessons may be confusing.

We predicted that children would be better able to learn social lessons from children’s books featuring human characters than they would from books featuring animal characters. Our
finding that children actually seemed to learn more from a book with animal characters suggests that animals may be a special kind of symbol that is easier for children to understand than other types of symbols, possibly due to their high level of interest in animals. Furthermore, our results support the use of animal characters in programs designed to support children’s social and emotional learning.
References


Appendix A

AMP SCENARIO QUESTIONS

-SCENARIO 1:

Sammy and Alex were sitting next to each other in school, drawing pictures of their favorite animals. Sammy noticed that Alex was upset about his/her picture because his/her crayons were broken.

1. What do you think they should do?
2. Well do you think there’s anything Sammy can do to make Alex feel better?

-SCENARIO 2:

Let’s pretend that your friend came over to your house and wants to play with your blocks. You had already used all of your blocks to make a really great building. Now there are no blocks left for your friend to build with.

3. What do you think you would do?
4. Well do you think there’s something you can do to help your best friend?

-SCENARIO 3:

“I have to finish some work before we’re done. These markers are for you to draw a picture while I finish my work”

Have child draw. After a little while, have marker stop working.

“Oh no, my marker stopped working! How am I going to finish?”

Do you have an idea of how I can finish?
Appendix B
Appendix C
Figure 1. Participants’ total number of sharing responses as a factor of book condition.
### TABLE 1
Means and Median Proportions of Sharing Responses by Book Condition

<table>
<thead>
<tr>
<th>Animal Book</th>
<th>Human Book</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td></td>
</tr>
<tr>
<td>(Raw Mean)</td>
<td></td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Sharing Responses</strong></td>
<td>20.06 (1.75)</td>
</tr>
</tbody>
</table>

*Note. Proportions were calculated from the total number of sharing responses given during the scenarios.  
*p < .05.*