

Perspective Taking and Psychological Distance in Children's Picture Books:
Differences between Native and Non-Native Authored Books

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1. Introduction

Picture books populate the lives of infants and young children, serving as sources of enjoyment and as learning tools both in and out of school. Infants as young as 15 months of age successfully learn the names of novel objects and can even extend these names beyond the pictorial representations themselves, using them to name the actual objects as they encounter them in the world (Ganea, et al., 2008; Geraghty et al., 2011; Preissler & Carey, 2004). It is therefore not surprising that picture books have figured in fields as diverse as early education, cognitive, language and social development (Fletcher and Reese, 2005; Mar and Oatley, 2008), and that scholars have sought to identify which structures in children's books most effectively support early literacy and learning (e.g. Reutzel, 1991; Pappas, 1986; Poulsen et. al, 1979). In this paper we focus on one aspect of that structure: book illustrations.

Illustrations, including those in children's books, are not only learning tools but also are cultural products. They manifest the cultural orientation of the illustrator and may also have cognitive consequences for viewers. There is a long history of scholarship which argues that artifacts are tools which are critical mediators of thought (for a review see Cole & Engestrom, 1993). There is also substantial empirical evidence that cultural products both reflect and affect cultural orientations (Morling & Lamoreaux, 2008). For example, recent work reveals that popular storybooks from the US were more likely than those from Taiwan to depict characters in excited (versus calm) states, and that across cultures, exposing preschoolers to exciting (versus calm) storybooks altered their activity

preferences and perceptions of happiness (Tsai, et al., 2007). Evidence like this signals the importance of understanding both the nature of cultural differences and the role of cultural artifacts in maintaining them. Likewise, there is evidence that cultural orientations not only affect what people think (D'Andrade, 1981) but how they think (Nisbett, 2003; Nisbett & Masuda, 2007). Together, these lines of evidence have sharpened questions about the role of artifacts in shaping cultural orientations and learning more generally.

Inspired by these questions, in the current study we focus on illustrations in children's books that were written either by Native Americans or by non-Native Americans. This work fits within a larger project addressing how young children from different cultural communities reason about the natural world (e.g., Anggoro et al., 2010; Atran & Medin, 2008). For purposes of the current work, two related psychological constructs -- psychological distance and perspective taking --are important. We have found that across a range of converging measures, Native Americans¹ view themselves as more psychologically close to the natural world than do European Americans (e.g., Bang et al., 2007). In addition, we have found differences in perspective-taking: Native American children and adults are more likely than their European American counterparts to adopt the perspective of non-human animals and to favor a relational, ecological conceptual organization (as compared to taxonomic organization) (Unsworth, et al., 2012; Medin, et al., 2006). In the current study, we pursue these findings, asking whether

¹ This statement is based on studies conducted in rural Wisconsin with children and adults from the Menominee tribe and conducted in an urban setting in the inter-tribal context provided by the American Indian Center of Chicago. Given that there are more than 560 federally recognized tribes, it would be extremely speculative to claim that these results will hold for all Native Americans, who live in very diverse cultural and environmental contexts. At the same time, our findings do accord well with scholarly writings about Native versus Western Science (e.g., Cajete, 1999).

these cultural differences in psychological distance and perspective taking are reflected in children's book illustrations. Put differently, we ask whether these illustrations reflect the cultural orientations of the authors and might constitute one source of information that shapes young children's reasoning about and relation to the natural world.

To provide a foundation for the current study, we first describe the constructs of psychological distance and perspective taking. This work underlines the potential importance of illustrations for the ways in which readers not only engage with books, but also with the ideas portrayed in them.

1.1. Psychological Distance.

Trope and Liberman (2003) proposed that psychological distance affects cognitive processing. This proposal, known as construal level theory (CLT), has received considerable support (e.g., Liberman et al, 2007; Liberman & Trope, 2008). The notion of psychological distance is quite broad and includes physical distance, temporal distance and social distance.² In other words, an individual's perceived distance from an event influences his or her construal of that event. According to Trope and Liberman's construal level theory, psychologically distant and close events differ in a number of important ways. In particular, psychologically distant events tend to focus attention on: (a) abstract features, (b) desirability rather than feasibility, (c) gains rather than losses and (d) the whys of actions rather than the hows. Psychologically close events are associated with (a) greater attention to context and mitigating factors and (b) a greater likelihood of interpreting social behavioral situationally rather than dispositionally. CLT is also relevant to perspective taking. For example, being in a position of power (by hypothesis,

² Trope and Liberman have even suggested that events having a low probability are more psychologically distant than events with a greater likelihood of occurring (Trope & Liberman, 2010).

being more psychologically distant) may be associated with a failure to take the perspective of other actors or to take situational factors into account in judging the behaviors of others (Galinsky, et al., 2006).

1.2. Perspective Taking and Illustrations.

In another line of work, researchers have considered how different illustrations affect the viewer's tendency to adopt either a first or third person perspective and the cognitive consequences of adopting these perspectives (e.g., Lozano, et al, 2008; Tversky & Hard, 2009; Libby, et al., 2007). Results from this line have strong parallels to the work on psychological distance: a third person perspective is more abstract and focuses more on the why of action than the how. Furthermore, different pictorial representations affect whether one takes a first or third person perspective (Libby et al., 2009).

In short, the data on psychological distance and on perspective taking appear to converge quite nicely. CLT predicts that psychological closeness facilitates perspective taking, and research in which illustrations are used as an independent variable also shows that properties of illustrations can be used to affect perspective taking (presumably with psychological distance as a mediating factor).

There is also evidence suggesting that cultures differ in the ways in which they deploy psychological distance and perceptive taking in visual media. Masuda et al., (2008) reported cultural differences in the psychological distance and inclusion of context in paintings and photographs as well as cultural differences in associated preferences in these media.³

³ There also are correlated cultural differences in the likelihood of spontaneously taking another person's point of view (Wu & Keysar, 2007; Leung & Cohen, 2007).

If these observations on psychological distance from nature and perspective taking are reflected in illustrations in children's book, then we should expect to find differences in the illustrations in Native American and European American picture books.⁴ Books illustrated by Native American authors should be more likely to use illustration devices that minimize the psychological distance between the characters and readers, that invite readers to take on the perspective of a character in the story, that portray non-human animals as animals rather than as human surrogates, and that provide readers with a broader range of views into the story.

2. Present Study.

2.1 Community and Project Context and Ethical Considerations. The current project emerges from a larger “*community-based design research*” project in the Chicago inter-tribal Indian community and the Menominee reservation community. It was designed as part of a collaborative process in which community members and university-based researchers worked together to consider the books, develop coding schemes and conduct analyses. Our project is a collaborative effort involving a Tribal commission, a tribal school, an urban Indian community organization, and two research universities (see Bang et. al., 2010). This configuration is of note because it reflects institutional efforts to acknowledge and amend the long history of research in American Indian communities that has often not been in their best interest, a legacy that has made many Native communities rightly suspect of research and researchers. Over the years Indigenous researchers themselves have worked to develop appropriate research methods and criteria

⁴ By referring to Native American and to non-Native American books, we are collapsing over significant cultural and historicized experiences of the different authors and illustrators. We recognize that this risks operationalizing essentialist meanings of culture; however, our goal in this project is to focus at a grain size that neither minimizes the differences among tribal nations nor makes claims that require it.

(see Battiste & Henderson, 2000; Guyette, 1983; Hermes, 1999; Mihesuah, 1998; Smith, 1999). Our approach is based on an understanding of appropriate research methods for working with Native communities.

2.2 Materials

We selected 86 books, 42 written and illustrated by Native Americans, and 44 by non-Native Americans. See the Appendix for a complete list. The books were selected if they were (a) targeted for 4- to 8-year-olds, (b) included narrative and illustrations, and (c) included humans and/or nonhuman animals as characters. We selected no more than two books by any given author or illustrator. We also excluded books focusing on self-help, counting and naming, and holidays. The Native books were selected from the recommended list at Oyate.com, a website of a Native-operated literacy organization. We selected books for which the author's and/or illustrator's biographies identified them as Native. The non-Native books were selected from the highest selling books listed on Amazon.com.

2.3. Coding scheme.

Guided by film and storyboarding concepts, we designed our codes to capture the illustrative devices used to convey psychological distance between the reader and illustration and the perspective provided to the reader (e.g., as part of the story or as observing it). Finally, we considered whether the illustrations within a given book depicted the same psychological distance and perspective throughout the book, or whether the psychological distance and perspective varied.

2.3.1. Psychological distance.

To codify the apparent (psychological) distance between the reader and the depicted scenes, we developed two complementary codes, (a) subjective distance (ranging from very close to distant), and (b) the distance described in terms of the vocabulary of “camera shots.” With respect to the latter each illustration was rated as providing the reader with either a (a) *close up*, (b) *medium distance*, (c) *wide view*, or (d) *panoramic view of the scene as a whole*. We found that these two measures of psychological distance converged well. Therefore, in what follows, we report the results based on camera shots. Results with this measure are identical to those based on the other.

2.3.2. Perspective taking.

Here, we focused on two illustrative techniques that invite the reader to take a particular perspective on the depicted scene. 2.3.2.1. Camera Shots.

Using once again the vocabulary of “camera shots”, we rated each illustration as offering one of three kinds of perspectives. The first perspective is one that invites the reader into the scene as one of the characters (see Libby et al., 2009); this included *over-the-shoulder* (as if a camera had been placed behind a character’s “shoulder”) and *embodied* (in which part of a character is shown (e.g., hands in the foreground) shots. The second perspective is one that invites the reader into the scene as a close on-looker (*breaking the fourth wall*, where the “wall” between the viewer and the scene is dissolved, providing the reader with the sense of being directly addressed by the characters). The third perspective offered the reader an outsider’s perspective on the scene (*voyeur*, often a default perspective where the viewer is outside the scene and often at some distance from it). 2.3.2.2. Viewing Angle.

Here, we take a different vantage point, considering the *viewing angle* provided in each scene. For each illustration, viewing angle was coded as either (a) above (e.g., viewing the scene from far above, as in a bird's eye view), (b) high angle (looking down on the scene), (c) eye level (the default viewing angle in most illustrations), or (d) low angle (looking up to view the scene).

2.4. Coding procedure.

A Native and a non-Native rater each applied the coding scheme at the level of books. For each book and for each coding category (physical distance; subjective distance; perspective; viewing angle) the raters indicated whether at least one illustration in that book adopted each of its subcodes. For example, when considering viewing angle, raters judged, for each the subcodes (e.g., for viewing angle: above, high, eye level, low), whether it was present in at least one illustration in that book.⁵ Any disagreements were resolved through discussion. Fifty new pictures were subsequently coded independently by both raters; Kappa was 0.72, indicating good inter-rater reliability.

3. Predictions.

If children's book illustrations are cultural products that reflect distinct cultural orientations, then Native illustrations should employ illustrative devices that (a) provide less psychological distance between the reader and the scene, (b) invite more opportunities to take the perspective of a book character, and perhaps (c) offer a greater range of vantage points on the story.

4. Results

As predicted, the illustrations in the Native and non-Native books did indeed differ in psychological distance, in perspective taking, and most dramatically in their

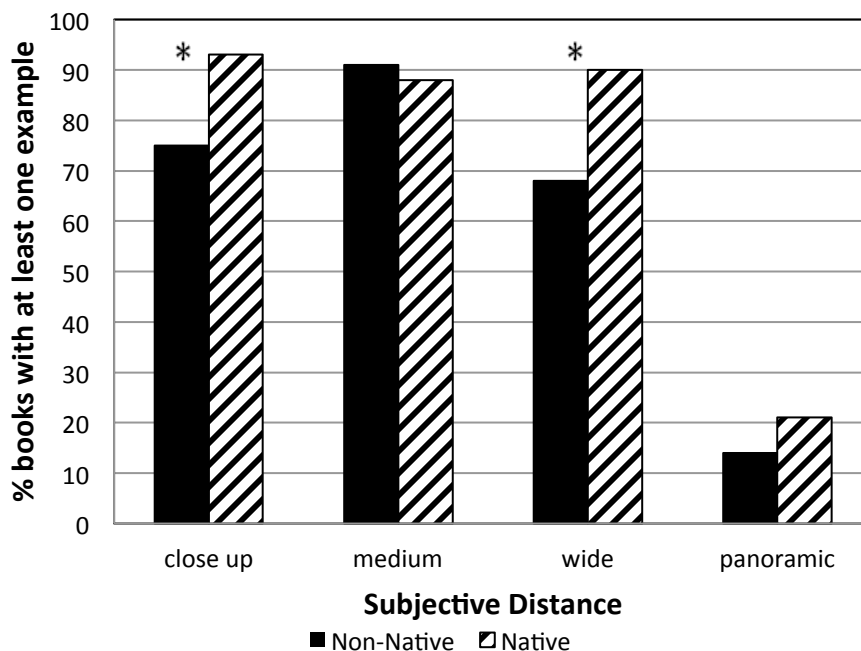
⁵ The effects we report would only be larger if we reported results by illustration rather than by book.

tendency to provide readers with multiple vantage points as the story unfolds.

4.1. *Psychological Distance.*

Figure 1 shows that, as predicted, Native books were more likely than non-Native books to include at least one illustration that was a psychologically close (close up) shot (93% versus 75%) [$F(1,84) = 5.21$, $MSe = 0.31$, $p < 0.05$]. In addition, Native illustrated books offered a greater variety of camera shots for distance, containing an average of 2.9 of the four distance subcodes, while non-native books contained an average of 2.4 per book. This difference is statistically significant [$F(1,84) = 9.74$, $MSe = 0.450$, $p < 0.01$].

Figure 1. Subjective Distance in Terms of Camera Shots



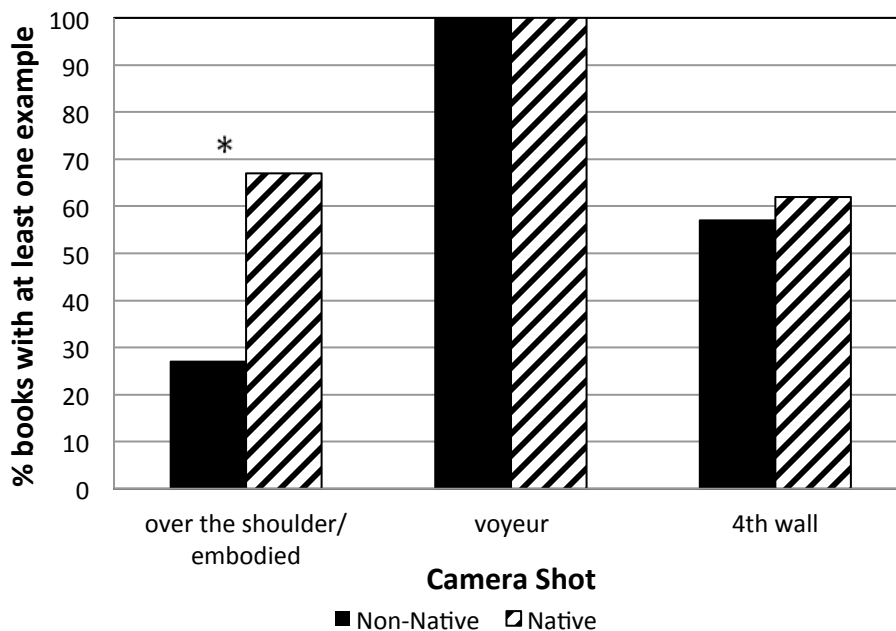
4.2. *Perspective taking.*

4.2.1. Camera shot.

Figure 2 reveals another key difference between the Native and non-Native books. Although there were no differences between Native and non-Native books in the prevalence of shots involving voyeur or breaking the fourth wall, there was a dramatic

difference in their tendency to use embodied / over the shoulder shots (67% versus 27%) [$F(1,84) = 11.71$, $MSe = .219$, $p < 0.001$]. Overall, Native books were more than twice as likely to invite the reader to enter the story as one of the characters (embodied / over-the-shoulder). Non-human animals were the target of these shots for 25% of the Native and the non-Native books.⁶ Interestingly, in the Native illustrations, none of the animals in these shots were anthropomorphized. In contrast, in the non-Native illustrations, all were in books that contained no humans, but rather animals as human surrogates.

Figure 2. Perspective as Conveyed through Camera Shot



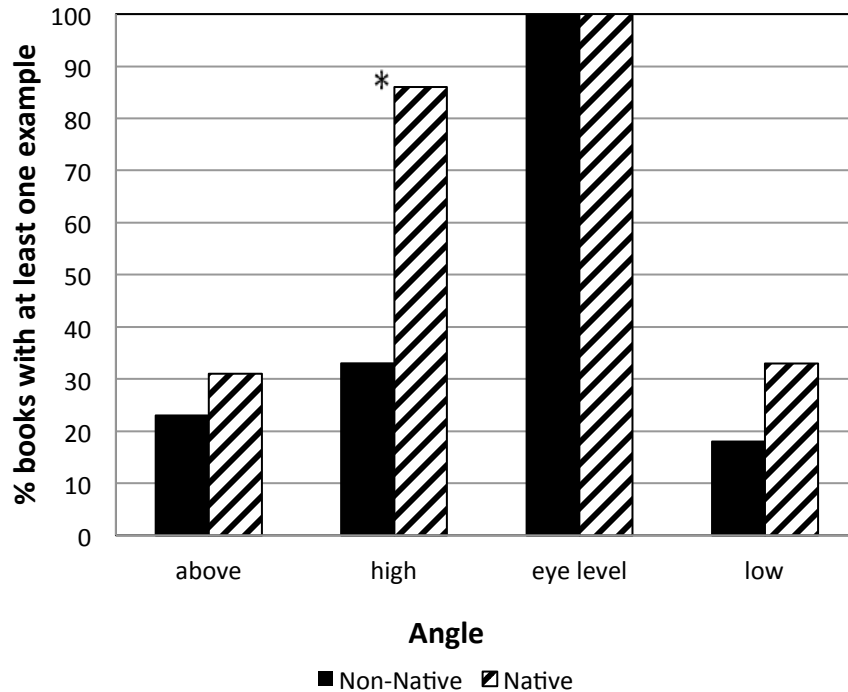
4.2.2. Viewing angle.

Figure 3 reveals that Native books were more likely than non-Native books to have views from above, as well as low and high angle views, though the differences were only significantly different for high angle [$F(1,84) = 4.71$, $MSe = 0.179$, $p < 0.05$]. This is

⁶ It is difficult to compare this percentage with that of non-Native books because the number of non-Native books with these camera shots is so small.

consistent with the prediction that a broader range of views is conveyed in Native than non-Native books.

Figure 3. Angle



4.3. Multiple perspectives.

Perhaps the most striking difference between the Native and non-Native books is in the variety of vantage points offered within a given book. For psychological distance, of the four distance codes (close up, medium, wide, panoramic), 79% of Native books contained three or more different codes compared to 52% of non-Native books [$F(1,84) = 6.917$, $MSe = 0.215$, $p = 0.01$]. For perspective taking, more Native books (90%) than non-Native books (66%) contained more than one different camera shot (over the shoulder/embodied, voyeur, 4th wall) [$F(1,84) = 8.066$, $MSe = 0.161$, $p < 0.01$], and more Native books (90%) than non-Native books (75%) contained more than one different

angle (above, high, eye level, low) [$F(1,84) = 3.64$, $MSe = 0.141$, $p = 0.060$]. In short, Native authored books positioned readers to consider a larger range of vantage points.

5. Discussion and Conclusions

We began this project within the framework of construal level theory and with an intuition that Native illustrations would be more psychologically close than non-Native illustrations. Although this prediction was supported, the most striking finding is that Native authored books used more variety in illustrative tools, encouraging viewers to approach the story from more diverse perspectives. Although Native illustrations were more likely than non-Native illustrations to provide close-ups on the scenes, they were also more likely to provide a distant or panoramic view, to invite the reader into the scene, and to provide a wider range of viewing angles.

Why do these results matter? First, they converge with a growing body of evidence documenting cultural differences in psychological distance and perspective taking. Second, they suggest that children's book illustrations may constitute one source of information that shapes young children's reasoning about and relation to the natural world. If this is the case, then differences like the ones we have described here may have important cognitive consequences. We are currently pursuing this possibility, asking whether and how these distinct cultural conventions may affect Native and non-Native children's cognition, orientation toward nature, and identification with nature. At a minimum we suggest that this diversity of perspective, in alignment with previous impacts of taking first or third person perspective may increase the likelihood of a focus on both "the why" and "the how" of things rather than a separation of these types of foci. This duality of focus may have implications for the differences in reasoning and

knowledge organization we have reported elsewhere (e.g., Unsworth et al, 2012; Medin et al. 2006; Ross et. al., 2007).

Further, we think these results have implications for education in general and science education in particular. Scientific literacy and the need for better science education is an ever increasing public, political and scholarly focus. Recently Pearson et al., (2010) proposed there have been two dominant approaches for understanding scientific literacy: 1) a broad focus on the content of science in the form of familiarity with key concepts, principles, and ways of thinking, and 2) the explicit connection between the language of science, peoples' engagement with various scientific texts and representations, and the resulting knowledge. They argue that much of the work from this second point of view focuses on the need to help students develop proficiencies at being able to make meaning with texts – oral and written language representations – that are parts of the overall construction of scientific knowledge and public discourse.

At minimum, this suggests that the kinds of literary and pictorial conventions that children develop may be significantly different, depending upon the kinds of books with which they were regularly engaged. One would also expect the impacts on reasoning, specifically reasoning about the natural world, as well as the kinds of narrative positioning children developed to differ.

The literature cited that motivated our present study shows that ways of thinking and engagement are affected by the conventions used in illustrations. Consequently, by providing different perspectives and distances and by using devices to encourage identification with characters, different strategies for scientific reasoning may be

recruited. Our study suggests that the conventions associated with Native picture book illustrations may be an important resource in fostering this goal.

Appendix – Books Used

Non-Native Books	Author
Alexander and the Terrible, Horrible, No Good, Very Bad Day	Judith Viorst
Big Words For Little People	Jamie Lee Curtis
Blueberry Girl	Neil Gaiman
Brown Bear, Brown Bear, What Do You See?	Bill Martin
Caps for Sale	Esphyr Slobodkina
Cars and Trucks and Things That Go	Richard Scarry
Cloudy With a Chance of Meatballs	Judi Barrett
Corduroy	Don Freeman
The Country Bunny and the Little Gold Shoes	Dubose Heyward
Don't Let the Pigeon Drive the Bus	Mo Willems
Everyone Poops	Taro Gomi
First the Egg	Laura Vaccaro
From Caterpillar to Butterfly	Deborah Heiligman
The Giving Tree	Shel Silverstein
Goodnight Moon	Margaret Wise Brown
The Grouchy Ladybug	Eric Carle
Harold and the Purple Crayon	Crockett Johnson
The House in the Night	Susan Marie Swanson
If You Give a Cat a Cupcake	Laura Numeroff
The Kissing Hand	Audrey Penn
Knuffle Bunny	Mo Willems
The Little Mouse, the Red Ripe Strawberry and the Big Hungry Bear	Don Wood
Llama Llama Misses Mama	Anna Dewdney
Llama Llama Red Pajama	Anna Dewdney
Love You Forever	Robert N Munsch
Make Way for Ducklings	Robert McCloskey
The Monster at the End of this Book	Jon Stone
Oh, the Places You'll Go!	Dr. Seuss
Olivia	Ian Falconer
On the Night You Were Born	Nancy Tillman
One Fish Two Fish Red Fish Blue Fish	Dr. Seuss
The Paper Bag Princess	Robert N Munsch
Purpicious	Victoria Kann
Richard Scarry's What Do People Do All Day?	Richard Scarry
Sheep in a Jeep	Nancy E Shaw
The Story about Ping	Marjorie Flack
Tear Soup	Pat Schweibert
Tikki Tikki Tembo	Arlene Mosel
The True Story of the Three Little Pigs	Jon Scieszka
The Very Hungry Caterpillar	Eric Carle
We're Going on a Bear Hunt	Michael Rosen

What Do You Do with a Tail Like This?
 Wheels on the Bus
 Where the Wild Things Are

Robin Page
 DK Publishing
 Maurice Sendak

Native Books

Author

Alice Yazzie's Year	Ramona Maher
Brave Wolf and the Thunderbird	Joe Medicine Crow
Buffalo Song	Joseph Bruchac
Ch'askin: A Legend of the Sechelt People	Donna Joe
Coyote and the Sky	Emmett "Shkeme" Garcia
Coyote Sings to the Moon	Thomas King
Crazy Horse's Vision	Joseph Bruchac
Crossing Bok Chitto	Tim Tingle
First Fire	Marijo Moore
First Nations Technology	Karin Clark
Gift Horse	S.D. Nelson
How Chipmunk Got His Stripes	Joseph & James Bruchac
How the Robin Got its Red Breast: A Legend of the Sechelt People	Sechelt Nation
I Can't Have Bannock But the Beaver Has a Dam	Bernelda Wheeler
The Ice Man	Marijo Moore
Jack Pine Fish Camp	Tina Umpherville
The Legend of the Caribou Boy	John Blondin
The Little Duck	Beth & Stan Cuthand
Mary Quequesah's Love Story	Pete Beaverhead
Mayuk the Grizzly Bear: A Legend of the Sechelt People	Sechelt Nation
My Kokum Called Today	Iris Loewen
Nanabosho and the Woodpecker	Joseph McLellan
Nanabosho, Soaring Eagle and the Great Sturgeon	Joseph McLellan
Napi	Antonio Ramirez
Napi Goes to the Mountain	Antonio Ramirez
The Old Man with the Otter Medicine	John Blondin
Onkwehonwe-Neha	Sylvia Miracle
Raccoon's Last Race	Joseph & James Bruchac
Salmon Boy: A Legend of the Sechelt People	Donna Joe
Shi-shi-etko	Nicola L. Campbell
Skysisters	Jan Bourdeau Waboose
Songs of Shiprock Fair	Luci Tapahonso
The Sugar Bush	Winona LaDuke
Thanks to the Animals	Allen Sockabasin
Whale Girl	Diane Silvey
When the Shadbush Blooms	Carla Messinger
When the Turtle Grew Feathers	Tim Tingle
The Wish Wind	Pete Eyvindson

Yamozha and His Beaver Wife
Yetsa's Sweater
Zinnia: How the Corn Was Saved
Zipitio

Vital Thomas
Sylvia Olsen
Patricia Ruby Powell
Jorge Argueta

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