First-grade students have profound discussions when provided with high-quality literature that calls for deep thinking.

After students completed a mandated reading test, first-grade teacher Meridith overheard Eloise (all student names are pseudonyms) say, “That was so easy! They didn’t even ask us to infer!” Meridith shared this story with us (researchers in her classroom) as evidence that our efforts to support comprehension affected how students defined reading. As Meridith implemented discussion and emphasized comprehension, she observed students thinking deeply and sharing insights about texts in a way she had not observed in previous years of teaching.

Here, we share findings from a study in a first-grade classroom designed to support book discussions. We address how students engaged in inferential talk with different text types. We review research on the importance of inferencing, briefly describe our study context and methods, offer results about inferential discussions of children’s literature, and conclude with classroom implications.

The Importance of Inferencing

Despite the common tendency for early literacy instruction to focus on basic skills (Allington, 2013), in our experience, many primary-grade teachers tell us they have the goal of students understanding and decoding texts. A major factor in comprehension is inferencing. When we refer to inferencing, we mean readers connecting ideas and providing details not stated in the text to form a coherent and integrated understanding of the text (Cain & Oakhill, 1999).

Students read between the lines using their background knowledge and textual clues to infer when meaning is not explicit (Harvey & Goudvis, 2007). For example, students make inferences about meanings of unknown words, characters’ motivations, or authors’ purposes.

Numerous studies have established the significance of inferencing for comprehension (Florit, Roch, & Levorato, 2014; Tompkins, Guo, & Justice, 2013). Researchers have suggested that inferencing supports comprehension, whereas increased comprehension supports more advanced inferencing (Cain & Oakhill, 2012). Time spent on inferential comprehension leads to greater reading gains than time spent on literal comprehension (Silverman et al., 2014), and strong readers make high-quality inferences (Carlson et al., 2014).

Both experience and research have shown that students improve inferencing in response to instruction (Hall, 2016). Children as young as 4 have a developing ability to infer (Lepola, Lynch, Laakkonen, Silvén, & Niemi, 2012), and students still learning to decode have responded positively to inferencing instruction (Paris & Paris, 2007).

A variety of support develops students’ inferences. Simply asking inferential (as opposed to literal) questions leads to inferential thinking and talk (Elbro & Buch-Iversen, 2013). Even for young students, Zucker, Justice, Piasta, and Kaderavek (2010) found that “inferential questioning effectively pushes preschool children to use language output for the cognitively challenging tasks of inferencing and analysis” (p. 79).

Teachers have effectively used children’s literature to teach inferencing (Blintz et al., 2012) in shared reading (Van Kleeck, Vander Woude, & Hammett, 2006) and read-alouds (Van Kleeck, 2008). One review found that inferential questioning and
connecting text to students’ lives were among the most effective shared reading strategies for helping students infer (Dunst, Williams, Trivette, Simkus, & Hamby, 2010).

Books create authentic, engaging contexts for comprehension instruction as students actually need to infer to understand. In reading picture books, students use both pictures and texts to create a coherent understanding of the story (Serafini, 2010).

As Sipe (2008) explained, “the best and most fruitful readings of picturebooks are never straightforwardly linear, but rather involve a lot of rereading, turning to previous pages, reviewing, slowing down, and reinterpreting” (p. 27). Thus, students negotiate text and pictures to fill in the gaps or infer in their mental representations of texts (Sipe, 1998).

The discussions that emerge around interpretations of illustrations and text provide rich sites for inference instruction. Research has established the benefits of text-based discussion for comprehension (Nystrand, 2006). Even among students reading in a second language, cognitively challenging discussion supports inferential thinking (Collins, 2016).

Comprehension benefits from both peer and whole-class discussions facilitated by a teacher (Van Den Branden, 2000). Discussion provides these benefits because it offers the opportunity to co-construct meaning. Students return to the text to support their points, establish themselves as competent readers, and settle disagreements among the group (Aukerman, 2007).

In studies of how children make sense of picture books, researchers have found that in discussion, children use visual and textual features (Arizpe & Styles, 2003), revisit the text, and build on one another’s ideas to jointly “navigate texts that require significant coauthoring” (McGuire, Belfatti, & Ghiso, 2008, p. 193). When these authors referred to “co-authoring,” they indicated the mental work of inferring while reading a text that did not make all the details explicit. When students work with each other and their teacher to discuss texts, the social space of the discussion serves as a zone of proximal development (Vygotsky, 1978) that allows students to build understandings that they would not have reached without support.

Literacy instruction, even in the primary grades when students are still learning to decode, should include instruction on inferences. Students need comprehension instruction in the early grades (McNamara & Kendeou, 2011); it helps them understand the ultimate goal of reading as constructing meaning, an important message when students also spend a lot of time developing word-level skills. After researching discussions with preschool English learners, Collins (2016) concluded that “teachers need not wait to engage young learners in cognitively challenging discussion” (p. 932).

To summarize, we conducted this study with several assumptions, based in the current research literature, in mind: that inferring is a critical comprehension skill that can be taught, that discussions about children’s literature provide effective contexts for inferencing instruction, and that teachers should teach inferencing to primary students still learning to decode.

Our Study

This study was part of a larger, yearlong formative study in a Title I first grade. The 28 students had a range of cultural, linguistic, and socioeconomic backgrounds. The teacher, Meridith, had eight years of experience and adopted a literature-based workshop approach to literacy instruction involving minilessons, independent and partner reading, conferring, discussion groups, and small-group instruction over a 90-minute daily period. Meridith created heterogeneous groupings for discussion and selected picture books based on available resources and student interest. Discussion groups included three to six students, and the groups changed regularly.

Together with Meridith, we set pedagogical goals and designed instructional interventions. Following our sociocultural orientation, we wanted students to discuss literature with interpretive (rather than only literal) responses. Meridith introduced students to a book, provided an inferential question to think about while reading (e.g., “What is the author’s message?”), gave time for independent reading (or
partner/audio/guided reading for challenging texts), expected students to record their thinking on sticky notes, and then convened the discussion group several days later. This time frame allowed the students to read the book during reading workshop, sometimes several times, and let Meridith offer guided reading for students who needed support to decode the text. Meridith typically conducted one or two discussion groups weekly, starting two months into the school year.

During the discussion groups, Meridith stayed present but encouraged students to talk to each other and lead. Her role varied according to how well the students discussed independently (Moses, Ogden, & Kelly, 2015). For example, in two of the three transcripts in this article, Meridith does not speak at all. In the other, she guides students with questions, redirections, and affirmations, but they also talk to and challenge each other. In general, Meridith gave students space to talk about their thinking and inferences and wanted students to take ownership of discussions (Aukerman, 2007).

**Methods**

We collected data weekly during the literacy block for an academic year, including video recordings of discussion groups. We used pattern coding (Saldaña, 2013) to identify instances of inferential talk and second cycle coding (Saldaña, 2013) to identify discussions in which students demonstrated inferential talk. We selected examples from the second cycle that demonstrated many instances of inferential talk. We analyzed these events and the children’s literature to identify categories of texts that facilitated inferential talk. We did not initially realize that some texts would facilitate inferential talk better than others. Throughout the year, discussion groups tackled a variety of genres, including humorous books, informational books, hybrid texts, and fairy tales. However, our analysis of the groups with the most inferential talk pointed us to the text types we report here.

**Inferencing Instruction Through Book Discussion for First-Grade Students**

Throughout this section, we identify three types of children’s books that fostered inferential thinking and talk (see Table 1). We share transcripts from discussions and explain how the books facilitated inferencing.

### Table 1

<table>
<thead>
<tr>
<th>Text types that facilitate inferencing</th>
<th>Sample books</th>
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<tbody>
<tr>
<td>Ambiguous books</td>
<td><em>This Is Not My Hat</em> by Jon Klassen</td>
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<tr>
<td></td>
<td><em>Wolves</em> by Emily Gravett</td>
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<td></td>
<td><em>Yo! Yes?</em> by Chris Raschka</td>
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<tr>
<td>Didactic books</td>
<td><em>Drum, Chavi, Drum!/¡Toca, Chavi, Toca!</em> by Mayra Lazara Dole</td>
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<td></td>
<td><em>Please, Mr. Panda/ Por Favor, Sr. Panda</em> by Steve Antony</td>
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<td></td>
<td><em>Stella Brings the Family</em> by Miriam B. Schiffer</td>
</tr>
<tr>
<td>Fractured fairy tales</td>
<td><em>Adelita: A Mexican Cinderella Story</em> by Tomie dePaola</td>
</tr>
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<td></td>
<td><em>The True Story of the Three Little Pigs</em> by Jon Scieszka</td>
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<td></td>
<td><em>Goldilocks and the Three Dinosaurs</em> by Mo Willems</td>
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**Ambiguous Texts for Inferring the Ending**

In the following discussion, students talked about *I Want My Hat Back* by Jon Klassen (2011). In this book, a bear has a hat that goes missing. He asks other forest animals if they have seen it. In the middle, he asks a bunny (who in the illustration is actually wearing the bear’s hat), and the bunny says he has not. After asking more animals, the bear realizes that the bunny had his hat on, and he runs back to the bunny. On the last page, the bear has his hat again, and the bunny is not shown. The texts and illustrations do not say what happened to the bunny. The discussion began with a student summarizing the plot:

Brandi: At the beginning, he can’t find his hat. And then in the middle, he asks all the animals. And then at the end, he runs back to the bunny, and then he gets his hat, and then he eats the bunny.

Lesley: But we don’t know. I think the bear was mad at the bunny, and bears eat rabbits. They eat anything that’s meat, like deers. And he was really mad the bunny stole his hat.

Brandi: And so he ate the bunny.
Brandi matter-of-factly reported that the bear ate the bunny. Lesley immediately jumped in to say that the reader does not know that for sure. However, Lesley did lend support to the idea with her background knowledge that bears are carnivores and her inference that the bear was mad about the stolen hat. At this point in the year, Meredith had not introduced the term inferencing, yet this book provided a nice introduction to it because students authentically needed to infer (even if they did not yet know that term) to make sense of what happened.

Lesley: He ate the rabbit because he was very mad.... And he's red, so you can tell he's mad.

Amena: I think this one is when he's mad because he's like, “You stole my hat,” and the words are big, bigger than the other words, because he was very mad.

Beck: I think he's mad because he's staring right at the rabbit. That's how I know my dad is mad at me, because he's staring at me.

After an author study on Mo Willems and discussion about how design elements support meaning, students identified ways authors use design elements to communicate emotion, intention, and meaning (Kachorsky, Moses, Serafini, & Hoelting, 2017). Here, students relied on four sources to support their inferencing: typography, color, gaze, and background knowledge. For example, Beck drew on his background and design knowledge to infer that staring directly at someone (gaze) could suggest irritation.

Lesley: He's probably sitting on the bunny, because I see a tail.

Beck: No, bears have tails, little tails.

After previously supporting the idea that the bear ate the bunny (when she mentioned that bears eat meat), Lesley briefly entertained an alternate hypothesis: perhaps the bear was sitting on the bunny. She inferred this possibility from seeing a little tail in the picture, but Beck quickly used background knowledge to rebuff this suggestion by indicating that the tail was most likely the bear's. Lesley seemed to accept this notion because the discussion moved on.

Amena: He was like, “I have seen my hat!” because he remembered where his hat was, and he ran to the rabbit, and then he said, “You stole my hat!”

Elizabeth: He ate the rabbit, and he got his hat back.

Amena: [reading the bear’s speech at the end of the book] “Excuse me, have you seen a rabbit wearing a hat? Why are you asking me? I haven’t seen him. I haven’t seen any rabbit anywhere. I would not eat a rabbit. Don’t ask me any more questions.”

Lesley: Wait a minute. He said the same thing as the bunny.

Beck: “I would not eat a rabbit.”

Researcher: Lesley, talk about that. What do you mean, he says the same thing as the bunny?

Lesley: [reading the bunny’s speech in the middle of the book] “Why are you asking me? I haven’t seen it. I haven’t seen any hat anywhere. I would not steal a hat. Don’t ask me anything.”

Amena: I think I have something. I noticed something. He said, “I would not eat a rabbit.” He was lying like the rabbit, because he ate him.... He was lying that he didn’t eat a rabbit with the hat.

Students noticed that two parts of the book were the same. When the rabbit had the hat on, he said he had not seen it, he would not take it, and not to ask him questions. The students knew this was a lie because they could see the rabbit wearing the hat while he spoke. At the end, the bear used the exact same language: he had not seen the rabbit, he would not eat a rabbit, and not to ask him any more questions. Because the first time this language appeared in the book, the character used it to lie, the students inferred that the bear used the same language for the same purpose.

In the final portion of this transcript, students turned their attention to the back cover of the book.

Amena: “Great fun unless you’re a rabbit.” I think it’s if you were a rabbit, you would get eaten. That’s why they wrote, “unless you’re a rabbit.”

Lesley: It says, “Delicious deadpan humor.”

Here, students made inferences from the reviews of the book on the back. Amena determined that when one reviewer wrote, “Great fun unless you’re a rabbit,” it must mean that the rabbit had...
an unfortunate end in the story. Lesley, not familiar with the expression “deadpan humor,” keyed in on the words delicious and dead in her tone, suggesting what she believed happened to the rabbit.

Beck: Well, look. The rabbit’s not eaten. He’s on the back.

Amena: I think it says “delicious” here because the bear ate him, and it was delicious.

As the discussion closed, Beck briefly entertained another alternative when he inferred that a character on the back of the book must have made it out of the story alive. However, Amena dismissed this thinking by returning to the “delicious deadpan humor” review, and the group concluded its discussion.

This discussion showed how students used a variety of tools to make inferences even without the teacher stating the objective that students would infer. Students used illustrations, typography, text, and background knowledge to infer and negotiate meaning.

Later in the year, when Meridith intentionally introduced inferencing, students pointed out that they already knew how and had in fact been making inferences in their discussions all along. The ambiguity in the text and the rich illustrations and design elements afforded students many opportunities to infer in discussing this book.

**Didactic Stories for Inferring the Author’s Message**

In the following discussion, students discussed *Fish Is Fish* by Leo Lionni (1970). In this story, a fish and a tadpole are friends, but when the tadpole grows legs, he leaves the pond to see the world. When he returns, he describes what he saw to his friend, Fish. Fish wants to see the world, too, so he jumps out of the pond only to find that he cannot breathe. Fortunately, Frog comes along in time to help Fish back into the water. The discussion begins with Meridith asking students to share their understanding of the author’s message.

Meridith: I asked you to think about the author’s message. Does anybody want to tell us what they think?

Ethan: Do what you can. Like, what you can do, do it, if you want to, but if you can’t do it, then don’t do it.

Meridith: Don’t do it. What did the fish try that he couldn’t do?

Ethan: Get out of water.

Ethan suggested a message, essentially that people should respect their limits. Meridith requested textual support, and Ethan explained that the fish tried to do something that he could not: survive out of water.

Meridith: It’s not something he can do, right? Brandi, go ahead.

Brandi: Do not try to kill yourself. Because right here—

Beck: I think you can put a little more message into that message, Brandi.

Brandi: Well, because he actually almost died. ’Cause when fish get out of water, you know what happens next.

Ethan: They might not die. They can move back in—

Brandi: No. They die. They die.

Meridith: Beck, you said something. “Brandi, I think you should add a little more to that message.” What do you mean?

Beck: You shouldn’t kill yourself for something you really want to do. You just do what you can but not what you can’t.

Brandi originally stated that the message was “Do not try to kill yourself.” In the subsequent discussion, it became clearer that she meant to not try to kill yourself trying to do something that you just cannot do. However, when she first spoke, other students seemed to immediately object to her language. She was turning to the text (“Because right here...”) when Beck interrupted her asking for “a little more message.” Brandi insisted from the text (“he actually almost died”) and her background knowledge (“you know what happens next”) on the validity of her statement. When Ethan suggested that a fish out of water might flop back in, Brandi did not accept this contribution, perhaps because the fish in the story could not get back into water on his own. Beck finally appropriated Brandi’s language but added his own to create a more “acceptable” message to the group: “You shouldn’t kill yourself for something you really want to do...do what you can, but not what you can’t.”
Meridith: Yeah, it’s that idea of accept who you are, right?
Brandi: But he didn’t know that this would happen, so his friend helped him, and they both lived happily ever after.

The classroom teacher connected this message to messages students had inferred from other stories (e.g., The Sneetches and Other Stories by Dr. Seuss, Giraffes Can’t Dance by Giles Andreae) about accepting who they are. However, Brandi began to form an alternative message. She objected to the message of respecting limits because the fish did not know his limits and thus could not respect them until it was too late. She found it convincing to focus on the friendship between Frog and Fish and began to form a message about friendship.

Meridith: So, I think I heard two messages from you. I heard, Accept who you are. The whole don’t kill yourself thing is important, but I think what it really was is accept who you are and what you can’t do, kind of like what Ethan said.

Logan: It’s be who you are and try to not get hurt.
Amena: I think the author’s message is to do what you can do and to not try something dangerous.

Various students rephrased the message that the group (minus Brandi) had begun to form consensus about. In a departure from her typical practice in discussion groups, the teacher validated one particular message. However, Brandi continued to object:

Brandi: He didn’t know it was dangerous.
Meridith: Oh, Brandi, I was going to come back to this. You said also at the end the frog was a good friend. So, maybe something else is to be a good friend.

Brandi once more objected to the consensus message, suggesting that the fact that Fish did not know that jumping out of water was dangerous undermined the group’s message of doing what you can without trying something dangerous. Her objection reminded Meridith of Brandi’s earlier comment about friendship, and so Meridith validated Brandi’s emerging alternative understanding of another message: Be a good friend.

This transcript raises interesting questions about when students have divergent inferences and the role of the teacher. Divergent inferences allowed the students to make their case to each other. They used background information and returned to the text to defend their interpretations. They summarized and adjusted each other’s messages as a consensus began to emerge even while Brandi developed an alternative and challenged her peers. Meridith used questioning and summarizing to help the group think about the message. However, she also supported a message and affirmed another student in challenging Brandi. Although this action was somewhat uncharacteristic of her practice, it may point to a strong urge among teachers to guide students to “official understandings,” or the most obvious interpretations by adults.

Fractured Fairy Tales for Inferring the Trustworthiness of the Narrator

In this transcript, the students discussed The True Story of the Three Little Pigs by Jon Scieszka (1996). In this book, the wolf tells the story of the Three Little Pigs, but he reframes it from his own perspective. He claims he was visiting the pigs to borrow a cup of sugar when he unexpectedly sneezed, blowing down the pigs’ houses. Once he saw the first little pig in the rubble, he could not “leave a perfectly good ham dinner just lying there” (eighth two-page spread), so he ate him. The wolf suggests that he was framed and that the commonly told story misconstrues his real motives and character. Meridith had asked the students if they believed the narrator and why. In the following transcript, students explain why they did not believe the wolf. Andre, an English learner, began the discussion:

Andre: How is a pig going to be dead with straw? That is not true story.

Sophia: I think it’s no because no one can do that big a sneeze. They can sneeze but not that big to blow a house down, whether sticks or hay. I don’t really believe him because I don’t think he really sneezed. I just think he’s lying to make the story—

Lesley: More jazzy.
Evan: I think he just wanted to call it The True Story.
Although aware that they were reading a fictional narrative, the students still doubted the details. Andre did not think that collapsing straw would have sufficient force to kill a pig, and Sophia did not think a sneeze could be that powerful. They used their background knowledge about the world to infer that the wolf may not have told the truth. They revealed their view that even in a fictional narrative, they still expected a certain level of conformity to the laws of physics from the narrator. Borrowing from the text itself, which suggests that news reporters “jazzed up the story with all that ‘Huff and puff and blow your house down’” (14th two-page spread), Lesley and Sophia co-constructed the idea that the wolf was the one trying to jazz up the story. Evan concluded this line of thinking by suggesting that the wolf just wanted to call it a true story even if, perhaps, it was not.

Mateo took a different view of the wolf’s credibility: “The wolf can’t tell this story. If the wolf told the story, it would be all about him, but it was all about the pigs. But the pigs should tell their story.” Mateo suggested that characters should tell their own story. In Mateo’s view, the wolf’s retelling had too much detail about the pigs, and Mateo questioned whether one character could be telling the truth if he talked so much about other characters. In this inference, Mateo relied on cultural knowledge about who has the authority, credibility, and experience to accurately tell someone else’s story.

Students combined details from the text, knowledge about the physical world, and cultural knowledge about credibility to make judgments about the wolf as a trustworthy narrator. All the students came to the same conclusion, but they took different paths. Students benefited from discussion because they heard peers explaining other processes for arriving at the same inference and because they had to explain their inference to peers who had reasoned differently.

**Classroom Implications**

From our year of researching discussions, we learned several lessons about fostering inferential talk through children’s literature.

**Text Selection Matters**

Some books lend themselves naturally to inferential talk, whereas others tell a more straightforward narrative. The classroom teacher found that books with unclear portions of text provided an important sticky point to discuss, and students would often go straight to this sticky point in discussions. Books with illustrations that contradicted the words, books with narrators of questionable credibility, and didactic books also fostered inferential talk.

Although simpler books did not yield the great discussions illustrated in this article, they still provided some opportunities for inferencing. The teacher encouraged students to infer character feelings and traits, which they did with books as simple as decodable readers. She also encouraged students to infer meaning from illustrations when they provided supplemental (or contradictory) details not included in the text; even emergent readers inferred successfully from illustrations. By the end of the year, students inferred the meanings of unfamiliar words through context clues, an inferencing skill they practiced across text types.

Inferencing is not a one-time skill that students master. Rather, it supports higher-level comprehension that students continually develop through interactions with texts. Questions about what students wonder, character motivations, unfamiliar words, predictions, and illustration elements apply to any picture book and thus offer teachers ideas of questions that support inferential thinking for whatever books are available to them.

**Allow Unexpected Inferences and Ways of Inferring**

The discussion with Brandi illustrates that sometimes students’ inferences will not match what the teacher expected. To foster inferential talk, it is critical that teachers allow students to talk through inferences and not approach the discussion as a means for students to arrive at predetermined inferences. For example, in many stories a main idea or author’s message is readily apparent to an adult reader, but these main ideas are constructions. Authors write texts to communicate many messages or perhaps no particular message. What one student finds “main” because of their interests, experiences, and cultural background may be tangential to the teacher’s way of thinking. Many teachers may want to teach students to find the commonly accepted main idea as a test preparation and comprehension strategy. However, discussion groups provide valuable spaces for exploring alternative ways of thinking about text.

Students defend their inferences in ways that teachers do not anticipate, as in Mateo’s assertion
that the wolf should not be telling the pigs’ story. Discussion groups provide important contexts where students explore nontraditional inferences and explain their thinking. They can test whether their inferences help support their comprehension. Several times in this research, we were surprised by the insights of students as they shared inferences we had not expected and drew our attention to textual or visual details we had not noticed.

The Teacher Plays an Important Role

The role of the teacher in fostering inferential talk is critical. In our case, after thoughtful text selection, Meridith gave students an inferential question to bear in mind as they read. Students used sticky notes to record their thinking as they read. Setting a task set students up for success in discussions.

Additionally, Meridith supported the students during discussion. She asked inferential questions. She taught students to question each other and build on each other’s arguments. She required students to support inferences with textual or visual details. She encouraged all students to share ideas, and she typically accepted multiple interpretations, although she sometimes guided students toward a standard “main idea.” By establishing effective classroom norms of discussion (Kelly, Ogden, & Moses, in press) and asking inferential questions about interesting texts, Meridith created a space for inferential thinking and talk.

Conclusion

Young students are capable of inferencing and providing supporting evidence. We found that inferential questioning moved beyond literal talk to foster deep discussion. This was largely possible because of the teacher’s expertise and careful text selection.


goal

TAKE ACTION!

1. Identify a book that would foster inferential talk. Try one of the books that students discussed in this article or one listed in Table 1.

2. Give students copies of the book and one big inferential question to consider while reading.

3. Convene the discussion! Stay around to offer support, but encourage students to talk to each other.

Ambiguous books, didactic stories, and fractured fairy tales created an authentic need for inferences. Ultimately, text selection, inferential questioning, open-ended discussion, and teacher expertise all play a role in supporting the development of inferencing among primary-age students.

REFERENCES


**LITERATURE CITED**


**MORE TO EXPLORE**