

I share with my students shows black people overcoming adversity and reaching for the stars. It allows students to envision themselves transforming their own lives and not being confined to the roles of athletes and entertainers.

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How Do You Know? A strategy to help emergent readers make inferences

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Inferencing has been described as central “to the overall process of comprehension” (Anderson & Pearson, 1984, p. 269) and as the glue that cements the construction of meaning (see Suh & Trabasso, 1993). It is the strategic process of generating assumptions, making predictions, and coming to conclusions based upon given information in text and in illustrations. Theories that attempt to explain inference generation conclude that inferring requires readers to spontaneously engage in complex thinking as they encode and process text information (Long, Seely, Oppy, & Golding, 1996).

Causal and relational inferences

Distinctions can be made between two main types of inferences. Causal inferences in part require readers to infer the antecedent or consequences of an action. Here is an example: “David did not feel well. He had eaten five hamburgers, 11 cookies, and three ice cream cones at the school fair.” Readers must conclude that David felt ill because he ate a large amount of food. Relational inferences require readers to integrate information

across sentences, as in this example: “Morgan sat at the kitchen table doing addition problems. She could hear the TV. It was her favorite show. Morgan sighed and got to work.” Readers must deduce here that Morgan was doing her homework, the TV was not in the kitchen, and Morgan wanted to watch her favorite TV program.

In nearly every quality children’s picture book, emergent readers must infer information from text *and* illustrations to fully comprehend and enjoy the story. For example, in *Gregory Cool* (Binch, 1994), Gregory flies to a tropical island where his grandmother meets him at the airport. With a broad smile, she says, “My, my, Gregory, you just like your photos.... It’s your granny got to kiss you at last.” It is vital that young students infer from Granny’s greeting that Gregory had never visited his grandmother because this piece of information explains his reluctant attitude and indecisive behavior throughout much of the story.

Readers have to make another important inference in the Creole folk tale *The Talking Eggs* (San Souci, 1989) when the author explains that Blanche had to iron the clothes each morning using an old iron filled with hot coals. Unless young readers

conclude that Blanche's farmhouse had no electricity, they gloss over two important pieces of information—the setting (i.e., in the past) and the family's poverty, which is the reason Blanche's mother hungered for riches.

In the Latino story *Too Many Tamales* (Soto, 1993), emergent readers must generate inferences from the text and the illustrations to build a complete understanding of Maria's multifaceted personality and her goals and actions. Early in the story, Maria and her mother happily make tamales. Maria's mother leaves the kitchen, and an illustration shows Maria wiping her hands on her apron with a sly yet triumphant smile on her face as she looks at her mother's diamond ring on the kitchen counter. When she glances furtively at the doorway, readers must deduce that Maria knows she is about to do something wrong and wants to be sure her mother won't return while she puts on the ring, "just for a minute." A later illustration shows Maria with her cousins—she looks down at her hand and screams, "The ring!" Emergent readers must infer that Maria has panicked because the ring is missing from her finger.

Helping emergent readers

In our work with young students, we often note that they do not generate inferences naturally and spontaneously. They can usually deduce information from one segment of the text, but they fail to integrate it with implied information in other parts of the story or in storybook illustrations. Often, emergent readers experience problems because of text constraints, such as syntactic or vocabulary difficulty (Dewitz & Dewitz, 2003). Their underdeveloped reasoning abilities, lack of prior knowledge for story content, or overdependence on prior knowledge that causes them to invent plausible but inaccurate answers also may create barriers to comprehension (Anderson & Pearson, 1984; Dewitz & Dewitz, 2003; Neuman, 1990; Trabasso & Suh, 1993).

Readers can improve their abilities to infer information when teachers model how to reason, make assumptions, and come to conclusions (Hansen, 1981; Hansen & Pearson, 1983; Mantione & Smead, 2003; Raphael & Wonnacott, 1985). Therefore, we have developed a think-aloud questioning strategy to

develop emergent readers' abilities to make causal and relational inferences. We call it How Do You Know? The strategy helps emergent readers focus their attention on important information that is explicitly stated in storybooks and depicted in their illustrations. It also helps emergent readers to (a) make connections between given and implied information and (b) examine their thinking and reasoning so that they can verbalize how they arrived at their assumptions and conclusions.

Preparing for How Do You Know?

Before introducing this questioning strategy, teachers should carefully preview quality children's literature to identify what types of inferential connections can and should be made. For example, in *Doctor De Soto* (Steig, 1982), a mouse, who is a dentist, reluctantly accepts a sly, hungry fox as a patient. Near the midpoint of the story, the mouse gives the fox anesthesia so he can extract an infected tooth. The fox starts dreaming and mumbles, "M-m-m, yummy.... How I love them raw...with just a pinch of salt." The mouse and his spouse make their own clever inference and immediately put a long pole in the fox's mouth to keep it open.

Presenting How Do You Know?

To introduce this questioning strategy, tell your students they are going to learn a new way to understand stories by making inferences. Explain that inferences are two or more connections that readers make as they read and listen to stories and view their illustrations. Next, model the strategy by reading a picture book aloud, stopping at a place in the story where an inference can and should be made. For example, in presenting the scene in *Gregory Cool* (Binch, 1994) where Granny greets Gregory, we stopped and asked, "Do you think Gregory got to see his grandmother often?" The students replied, "No," and we confirmed, "Good thinking. Does the story say Gregory did not get to see his grandmother often?" When the students said, "No," we asked them, "Then, *how do you know?*" With some probing, they explained their reasoning. One boy answered, "The part when Granny said 'got to kiss you at last' and 'You just like your photos' gave me clues."

We followed the same questioning procedure with *The Talking Eggs* (San Souci, 1989). When we

STEPS IN HOW DO YOU KNOW?

- Read a picture book aloud and stop where students should make an inference.
- Ask a question that prompts students to infer important information (e.g., "Do you think Gregory got to see his grandmother often?").
- When students respond, confirm their answer and ask, "Does the author say that?"
- When students reply, "No," ask them, "Then how do you know?"
- When students are familiar with the strategy, ask them, "Are there any inferences you can make in this paragraph? Explain how you figured out the connections."

read the part where the author explained that Blanche had to iron the clothes each morning using an old iron filled with hot coals, we stopped and asked, "Do you think the family had electricity?" When the students said, "No," we responded, "Good thinking." Then, we asked, "Does the author say that the family didn't have electricity? When the students replied, "No," we probed, "Then, *how do you know?*" One student explained, "Because if the family had electricity, Blanche could plug the iron in an electric socket, and she wouldn't need to use hot coals."

Expanding How Do You Know?

When emergent readers are familiar with the think-aloud questioning strategy, teachers can gradually shift responsibility for identifying inferential connections to them. For example, the teacher can identify relevant paragraphs in stories and ask students, "Can you think of any inferences you might make in this paragraph? Explain your thinking. How did you figure out the connections?" These types of questions provide opportunities for emergent readers to communicate their developing understanding of inferences and to interact with peers as they share the processes they used to construct meaning from text (Kucan & Beck, 1997).

As students become more proficient in recognizing inferential linkages in picture books, teachers can encourage them to engage in a reading and writing connection and to work with a partner, fill-

ing in charts (see Sample Chart). In addition, teachers can provide opportunities for students to participate in multiple literacy experiences by portraying inferential connections through informal dramatic enactments, such as Readers Theatre, puppet shows, and role-play (Paris & Upton, 1976; Richards & McKenna, 2003). Students also can engage in multiple literacy activities by creating illustrations that depict causal and relational inferences they discover in stories (see Sadoski & Paivio, 2001, for an explanation of the connection between imagery and mental models of inferences).

Benefits and assessments

The ability to make inferences is vital to emergent readers' effective comprehension of picture books. Our think-aloud questioning strategy helps these readers learn how to make connections between given and implied information. It also helps them examine their thinking and reasoning so they can verbalize how they arrived at their assumptions and conclusions. Keeping a record of student responses to the think-aloud questions provides an alternative way to document growth in students' abilities to make inferential connections in picture books, frame relevant questions independently, engage in more complex reasoning, and share their thinking with peers.

Our strategy can be used with individual students and with small or large groups of readers. We have found that it promotes student interactions and discussions that help narrow the cultural and linguistic distance between the backgrounds of ethnically diverse students and the vocabulary and concepts presented in stories (Barnitz, 2002). Student discussions about their inferences provide opportunities for second-language learners to hear peers' language and consider peers' disparate views and thinking (Mora & Grisham, 2001). Struggling readers and older readers of content material can also benefit from How Do You Know?

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SAMPLE CHART
How Do You Know?

Book title:	<i>The Talking Eggs*</i>
Page and paragraph number:	page 2, paragraph 3
My inference:	Blanche's family had no electricity.
How Do I Know?	Blanche had to fill the iron with hot coals so she could iron the clothes.

*(San Souci, 1989)

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