EFFECTIVE TEACHING OF INFERENCE SKILLS FOR READING: LITERATURE REVIEW

NATIONAL FOUNDATION FOR EDUCATIONAL RESEARCH, 2008

INTRODUCTION

The ability to make inferences is, in simple terms, the ability to use two or more pieces of information from a text in order to arrive at a third piece of information that is implicit. Inference can be as simple as associating the pronoun 'he' with a previously mentioned male person. Or, it can be as complex as understanding a subtle implicit message, conveyed through the choice of particular vocabulary by the writer and drawing on the reader's own background knowledge. Inferencing skills are important for reading comprehension, and also more widely in the area of literary criticism and other approaches to studying texts.

A key understanding is that the ability to draw inferences predetermines reading skills: that is, poor inferencing causes poor comprehension and not vice versa.

Different skills within inference?

Different researchers have identified many different kinds of inference; however, there is no general consensus in the literature about the number of types of inference, or how they should be named. The most frequently cited inference types have been defined and exemplified below. It should be noted that there is some overlap between these categories.

Coherence inferences (also known as text-connecting or intersentence inferences). These maintain textual integrity. For example, in the sentence Peter begged his mother to let him go to the party, the reader would have to realise that the pronouns 'his' and 'him' refer to Peter to fully understand the meaning.

Elaborative inferences (also known as gap-filling inferences). These enrich the mental representation of the text, e.g: Katy dropped the vase. She ran for the dustpan and brush to sweep up the pieces. The reader would have to draw upon life experience and general knowledge to realise that the vase broke to supply the connection between these sentences.

Local inferences. These create a coherent representation at the local level of sentences and paragraphs. This class of inferences includes:

1. coherence inferences (described above).

2. "case structure role assignments", e.g. Dan stood his bike against the tree. The reader needs to realise that the tree is assigned to a location role.

3. some "antecedent causal" inferences, e.g. He rushed off, leaving his bike unchained. The reader would need to infer that Dan was in a hurry and left his bicycle vulnerable to theft.

Global inferences. These create a coherent representation covering the whole text. The reader needs to infer overarching ideas about the theme, main point or moral of a text by drawing on local pieces of information.

On-line inferences: inferences drawn automatically during reading.

Off-line inferences: inferences drawn strategically after reading.

How can pupils best be taught to use inference skills?

The research evidence reviewed suggested that, in order to be good at inferencing, pupils need to:

- ♣ be an active reader who wants to make sense of the text
- ♣ monitor comprehension and repair misunderstandings
- ♣ have a rich vocabulary
- ♣ have a competent working memory

Inferencing skills are also facilitated by:

- ♣ having a wide background knowledge
- sharing the same cultural background as that assumed by the text
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IN THIS DOCUMENT WE WILL LOOK AT THE IMPORTANCE OF UNDERSTANDING THE NARRATIVE STRUCTURE & OF QUESTIONING

UNDERSTANDING NARRATIVE STRUCTURE

In reading narrative texts, readers rely on the presence of conventional features and the familiar structure centred around setting, theme, plot and resolution. Familiarity with the structure is part of the background knowledge that the reader brings to the text to allow reasonable inferences to be made.

Working with young children on narrative texts, Cain (1996) found that the support provided by these structural features was profitably exploited only by abler readers. The results of her study showed that poorer comprehenders do not realise how stories are causally linked through elements such as: desires, motives, actions, goals and consequences. They were less likely than better readers to impose such a structure on a story during reading or listening, because they will not be linking up the individual events and actions through the use of these elements. This suggests the need to develop pupil knowledge about story structure.

The significance of other conventional features of a story also needs to be stressed. The work of Yuill and Joscelyne (1988) showed that less skilled comprehenders understood abstract stories better when provided with a title describing the main consequence of the story. They argued that the more informative sort of title provides a framework in which to interpret the text which aids the less skilled comprehenders more than the good comprehenders because this latter group are already more skilled at selecting and organising ideas in text. Pupils need to be shown the value of a title, perhaps by reading a paragraph with and without the title, to show how much more they can infer and understand when they are alert to it.

The importance of the work conducted by Yuill and Joscelyne (1988) was in showing how aspects of story structure, sometimes more closely attended to in writing instruction, feed into comprehension skill. Cain's work led her to make a link between poor inferencing ability and an immature understanding of stories as fiction. If children believe that stories are true depictions of events... they will be less likely to bring outside knowledge to bear on their interpretation of story events... (p.181) and they may be unwilling to impose their own interpretation, make their own unique inferences.

The results of the work done by Gygax et al. (2004) shows that this is not true of adult readers. Between infancy and adulthood, readers learn that any inference is valid. Adults can draw unique and different inferences and deductions from the same text, arising from the variety of background or prior knowledge that they bring to their interpretations. Gygax et al. worked with undergraduates in determining how specific their inferences about characters' emotions were while reading narratives. In four experiments it was found that during reading, readers appear to be only vaguely

aware whether characters are undergoing negative or positive emotions and that they do not usually refine these impressions to specific inferences of guilt, relief, anguish, etc., unless they are explicitly asked questions about it. This work also generated three other interesting findings, which may have teaching implications for teachers of literary criticism:

1. Longer stories allowed readers to formulate more specific inferences about the characters' emotions off-line, i.e. in discussion after reading
2. The more ambiguous the text, the more specific the inferences drawn about emotions.
3. There is a great variety in inferences that can be drawn from a single piece of text. Even in reacting to texts that were deliberately designed to result in unanimity in the inferences it generated, there was no consensus. In fact some readers inferred emotions that were the precise opposite of that intended. Though not explicitly stated in Gygax's research paper, it would seem that this variety in inferencing may be a point of discussion in Stage 3 classrooms in raising awareness of the nature of inference.

QUESTION ASKING AND QUESTION GENERATION: THE RIGHT QUESTION AT THE RIGHT TIME

Questions constituted a major component of the successful pilot studies carried out by Yuill and Oakhill (1988) and McGee and Johnson (2003). The use of questions, both those posed by the teacher and those generated by the pupil, is a technique that receives coverage and support in the research literature.

Graesser et al.'s (1994) work determined that competent adult readers ask themselves questions tapping potential knowledge gaps, anomalies or contradictions. They established that their comprehension is guided by why- questions, rather than what-happens-next, how, when or where questions. This conclusion corroborated their view of reading because the answers to why-questions expose superordinate goals and causal antecedents and these are precisely the inferences types that the authors claimed were produced automatically by readers during reading.

This does not invalidate the use of other questions but attributes a particular role to why-questions that is not shared by other questions types, as they are useful for prompting the sorts of inferences that occur naturally in good readers. When used by teachers, why-questions may nudge less skilled readers into making these inferences as well. How-questions expose subordinate goals and actions and causal antecedent events; while what-happens-next-questions expose causal consequences. Teachers may find these useful and valid in relation to the particular text they are reading, but, according to Graesser et al. the sorts of inferences they generate are less crucial to the overall construction of a coherent understanding of a text.

This view was supported by Pressley (2000). He stated that why-questions were particularly beneficial to pupils in years 4-8 and recommended that teachers encourage students to ask themselves why the ideas related in a text make sense. Drawing on a study by Wood et al. (1990), he maintained that pupils who are trained to ask themselves why-questions, automatically relate what they know to ideas in the text. This method helps by orienting readers to prior knowledge that can render the facts more sensible, hence more comprehensible and memorable.

Drawing upon a large body of empirical research, Baker (2002) listed a series of questions that teachers should ask themselves aloud in modelling comprehension- monitoring techniques. The following pertain most closely to inferencing: *Is there information that doesn't agree with what I already know? Are there any ideas that don't fit together (because of contradictions, ambiguous referents, misleading topic shifts)? Is there any information missing or not clearly explained?* Baker explained that teachers can use authentic texts to illustrate this purpose or may choose to modify simple texts to contain inconsistencies, difficult words, conflicts with prior knowledge, ambiguous referents and so on. Teachers then model how they would go about answering those questions using fix-up strategies such as rereading, looking ahead in the text for clarification, or consulting an

outside source. Teacher modelling is regarded as the first step in training children to ask and answer questions of this type of themselves.

Richards and Anderson (2003) published an article about the question 'How do you know?' They explained how this question forms the core of the strategy they devised to help young readers make inferences primarily from picture books. In brief, they suggest that when an inference is drawn in discussion of a text, it should be routinely followed by the question 'How do you know?' Teachers should attempt to find texts rich in inferencing possibilities and to have in mind which inferences they will elicit in discussion.

Our think-aloud questioning strategy helps ... readers learn how to make connections between given and implied information. It helps them examine their thinking and reasoning so they can verbalise how they arrived at their assumptions and conclusions. It depends initially upon the teacher modelling her own thinking processes to show pupils how she makes inferential leaps. The authors claim that in bringing out into the open the assumptions upon which pupils make their inferences, one narrows the cultural and linguistic distance between the backgrounds of ethnically diverse students...student discussions about their inferences provide opportunities for second language learners to ... consider peers' disparate views and thinking.

This claim is especially interesting in relation to Narvaez's article (2002) in which she summed up the years of research she and others had. Her view was that inferences are heavily dependent upon a shared cultural background between the text and the reader. The schemas of readers from other backgrounds are the product of their own cultural influences, expectations and conditioning and may result in their drawing 'incorrect' inferences. Narvaez lists a series of inference-generating questions that teachers of older second language learners could be asked in relation to narrative and expository texts. These are illustrated in the following

1. Assist students' awareness that some demands in a story may conflict with others, e.g. by asking: *What was the problem? What was the worst thing the character faced? Were there differences in what the characters wanted?*
2. Increase students' moral sensitivity to the situation. *What was going on? Who was thinking about what was going on? Who could be affected? Who was affected?*
3. Help students reason about possible actions. *What could be done? What would happen if? How might people react?*

Though intended to support second language learners in particular, this form of questioning is consistent with what is regarded as good practice in mainstream literacy work. There is other evidence that questioning of this nature enhances inferencing. Sundbye (1987) found that asking inference questions about relationships between characters, goals and motivations enhanced story understanding as effectively as if the story had been modified so that all this information were explicitly stated.

One of the most detailed studies to be conducted into the asking of questions in relation to inference-making was carried out by Van den Broek et al. in 2001. They were interested in the teaching potential of questions in reading comprehension. The authors wanted to identify the exact role of questions: do they 'raise the game' by increasing the overall attention of the pupil wanting to give good answers, making him / her invest more effort into understanding text as whole or do they encourage specific connections only between the parts of the text targeted by the questions? Either way, it was assumed that questions are beneficial. In a large study, working with 240 children spread across years 4, 7, 10 and undergraduates, they addressed questions to their subjects both during and after reading short narrative texts. The results are unsettling because they show that teachers must exercise caution when asking questions otherwise they may actually interfere with inferencing. Inferences are drawn when two text portions are attended to simultaneously in order to arrive at a third piece of implicit information. If the teacher increases the burden on the working memory by introducing yet another piece of information to be processed (namely a question), this may be detrimental to inference making. Questions posed during reading - and even immediately after reading - compete with other ongoing processes for the limited

cognitive resources which are heavily involved in word identification, understanding of the syntax, as well as self-generated comprehension processes.

This is especially relevant in younger readers. Of the four age- groups tested (the equivalent of Y4, Y7, Y10 and college students), it was the youngest pupils whose comprehension and recall suffered the most from questions asked both during and immediately after reading. The only group who consistently profited from questions (both during and after reading) were the college students, who were quick and efficient at transferring all information and connections into their mental representations of the text and for whom the extra cognitive burden of the questions was not especially damaging. In fact, for more proficient readers in the study, recall was enhanced for those segments of the text featuring in the questions and especially in the answers.

Teachers often ask questions in order to help less able readers, thinking that this will focus pupil attention on a particularly difficult or significant portion of text, but this study would indicate that this is detrimental. Van den Broek et al. (2001) suggest that questioning might benefit younger children provided that the attentional demands of the comprehension task are reduced. Indeed, when the need for decoding is eliminated via aural presentation of the stories, even very young children's comprehension may benefit from questioning.

The evidence produced by Van den Broek et al. (2001) seems to contradict the general research consensus and could have worrying implications for common classroom practice. However, the two views can be reconciled. The message from the Van den Broek study appears to be:

- not to interrupt pupils by asking questions during reading time
- not to launch into questioning too soon afterwards. The teacher must allow time for consolidation of what has been read as a mental representation
- practise inferential questions on aurally presented texts

The implications relate to teachers asking questions of pupils and probably to pupils asking questions of each other in peer-group work. It does not impinge on the practice of teacher modelling of questions or self-questioning during reading or to self-paced comprehension exercises.

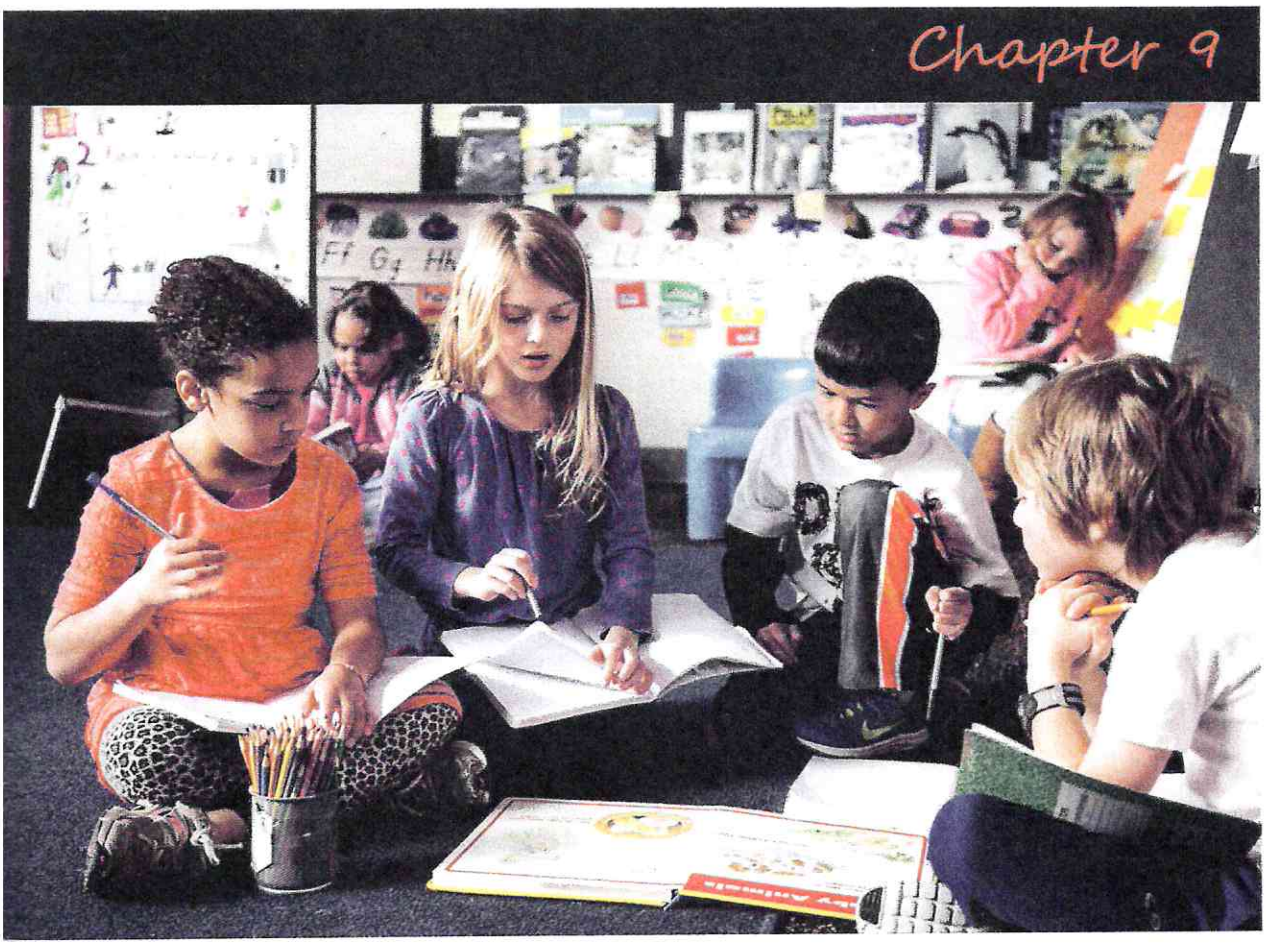
In their major work, Graesser et al. (1994) determined that 'author intent' inferences are not generated during reading because the author of text remains largely invisible to the reader. Similarly, they felt that the status of 'reader emotion' inferences was unclear. However, both of these areas are regarded as legitimate material in traditional comprehension exercises. When considered alongside the findings of Van den Broek et al. (2001), it becomes clear that caution is advisable, as having to make inferences about characters' emotions or author's intent during reading may interrupt ability to achieve global coherence, which is essential to a full understanding of the text. The implication for teachers is that questions which assess these areas may be appropriate only after reading, after the reader has had a chance to secure a firm mental representation of what s/he has read.

CLASSROOM EXAMPLES

On the following pages are examples of questioning techniques from the book by Stephanie Harvey & Anne Goudvis:

"STRATEGIES THAT WORK:
Teaching Comprehension for Understanding, Engagement, and Building Knowledge"

Chapter 9

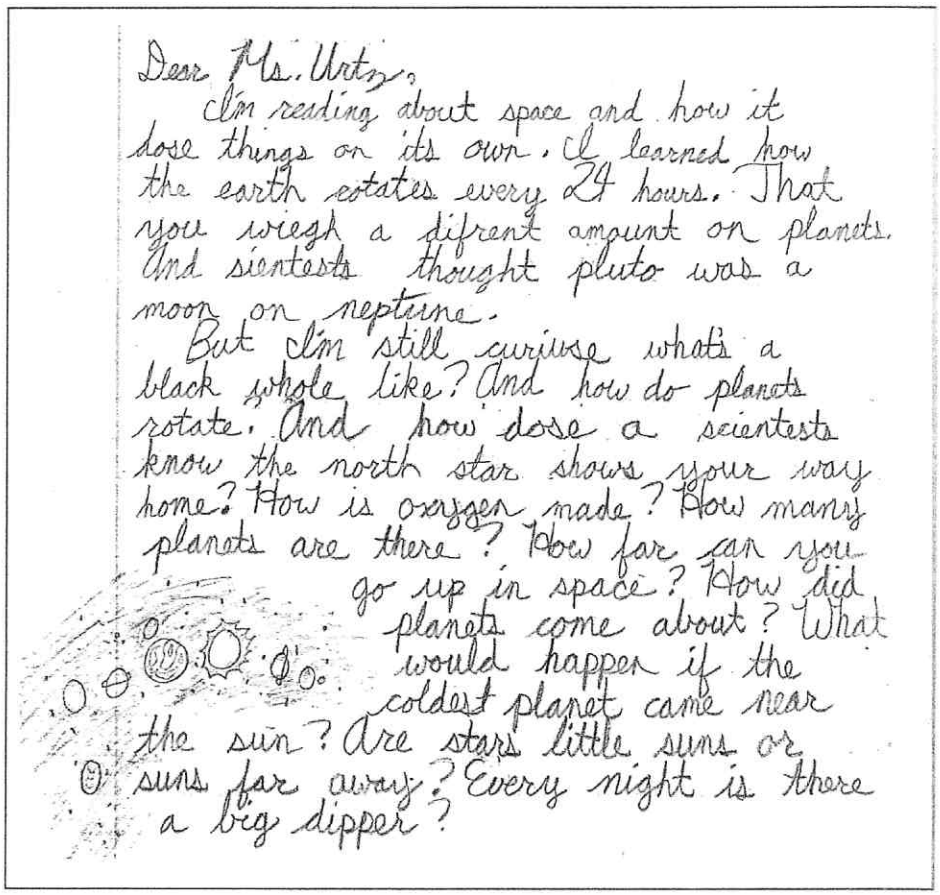


Questioning: The Strategy That Propels Readers Forward

Curiosity spawns questions. Questions are the master key to understanding. Questions clarify confusion. Questions stimulate research efforts. Questions propel us forward and take us deeper into reading. Human beings are driven to find answers and make sense of the world. The Nobel Prize–winning physicist Richard Feynman referred to this need as his "puzzle drive" (Feynman 1985). He couldn't not search for answers to those things that confounded him, those things he didn't understand.

The teachers portrayed in this book encourage this same puzzle drive in their students. Matt, a space lover, began writing what he knew and was learning about his favorite topic. But his curiosity got the better of him, and halfway into a letter to his teacher, his questions burst forth and hijacked his response (see Figure 9.1). Matt reminds us that good questions spring from background knowledge. Matt knew about and loved space; hence he could ask terrific questions. It's

Figure 9.1
Mati's Response, Full of Questions



tough to ask a substantive question about something we know or care nothing about.

As adult readers, we question all the time, often without even thinking about it. When we first began to pay attention to our thinking as we read, we were stunned at the number of questions we had, many of which were inspired by relatively small amounts of text. Kids don't grow up knowing that good readers ask questions. In fact, schools often appear more interested in answers than in questions. So now we teach kids to think about their questions before, during, and after reading. We encourage them to stop, think, and record their questions throughout the reading process. And we always remember to ask them if they have any lingering questions after they read. Those are the most important questions, the ones the reader has.

Our students need to know that their questions matter. They need to see us asking questions as well as answering them. Asking questions engages us and keeps us reading. A reader with no questions might just as well abandon the book. When our students ask questions and search for answers, we know that they are monitoring comprehension and interacting with the text to construct meaning, which is exactly what we hope for in developing readers.

Strategy Lessons: Questioning

Share Your Questions About Your Own Reading

Purpose: **Using adult text to show the questions we have when we read**
Resource: **The novel *All the Light We Cannot See* by Anthony Doerr**
Responses: **Sticky notes coded with ?; follow-up group discussion**
Audience: **Intermediate and middle**

The next time you read a piece of adult text, pay close attention to the questions that surface and share those questions with your kids. Let them know that all readers—even adults—have questions. When introducing questioning to a group of sixth graders, Steph shared an excerpt from the novel *All the Light We Cannot See* by Anthony Doerr, a book that moved her deeply, so much so that she continues to ponder, ask questions, and think about it to this day.

She gathered the kids in front of her and talked about how the text raised questions for her. She wrote her questions on sticky notes, placed them next to the passages that spurred them, and coded them with a question mark. She pointed out that some of her questions were answered in the text and others were not. She explained that her sticky note marked with "I love the title, but why is it called *All The Light We Cannot See*?" did not become apparent until quite late in the book. The answer to her question "What is a windburned corsair?" could be inferred by reading on when the writer followed up with information from the text. When she read on and inferred the answer, she moved her sticky note to the spot where the question was answered, wrote the answer on the sticky note, and recoded it *A* for answered.

When she was mired in confusion, she coded a sticky note *Huh?* to note that meaning had broken down for her. This code signaled her to reread or read a few sentences ahead to try to make sense of the text before going on.

At the conclusion of this mini-lesson, Steph invited the kids to talk about questioning in reading. Robbie commented that he never knew a teacher could have so many questions about her reading. He seemed to be saying, "If she can have questions, so can I."

Some Questions Are Answered, Others Are Not

Purpose: **Listing and categorizing questions to promote understanding**
Resource: **The picture book *Charlie Anderson*, by Barbara Abercrombie**
Responses: **Chart with list of kids' questions; codes for categories of questions, including *A* for answered, *BK* for background knowledge, *I* for inferred, *D* for discussion, *RS* for research, *C* or *Huh?* for confused**
Audience: **Primary and intermediate**

When we begin teaching the strategy of questioning, we simply share the questions we have before, during, and after reading, and talk about them. All written text gives rise to questions, but

sometimes we find a book that spurs questions from start to finish. Barbara Abercrombie's *Charlie Anderson* is just such a book. It tells the story of a cat who moves surreptitiously between two homes, living with one family by day and another by night, unbeknownst to the two separate owners. This story line parallels the lives of the two young characters, Sarah and her sister, Elizabeth, who move between their divorced parents' homes, as many kids do. This is a terrific book for kids who share this lifestyle. In fact, we have noticed that kids who spend their time in two different homes are more likely to pick up on the parallel theme. Alternatively, many young kids never even notice the divorce angle but seem to enjoy the simple story of a mysterious cat who disappears each night and returns home each morning.

Listing Questions

For all kids, however, we have found this to be a useful book to teach questioning, since they brim with questions when they read it. Second-grade teacher Mary Lawlor read *Charlie Anderson* to her class. The text is sparse, with fewer than five or six sentences per page. When she reached the end of each page, she solicited kids' questions. A parent volunteer recorded their questions on a piece of chart paper as Mary read. Their numerous questions emerged from the cover illustration and the prereading discussion as well as from the text and pictures during the reading. At the end of the story, the chart included the following list of questions:

Why is the book called Charlie Anderson?—A
Who is that cat in the yard?—A
Why was the door open just a crack?
Do cats really like french fries?
Where does the cat go every morning?—A
Are these girls twins?
Does Sarah get jealous that he likes Elizabeth's bed best?
Why did he get fatter and fatter every day?—A
Did they miss Charlie when they went to their dad's on the weekends?
Do they like their dad's house better?
Why didn't Charlie come home one night?—A
Is he going to be all right?—A
How come Anderson looks just like Charlie?—A
Which family does Charlie like better?

As Mary read through the questions, she asked the kids to come up and put an *A* for answered next to the questions that were explicitly answered in the text. After reviewing and coding the questions, the class discussed them. In most cases, the unanswered questions were the more intriguing ones, the questions that dug toward deeper themes and bigger ideas. The question about where the girls preferred to live sparked a lively conversation. We have discovered that unanswered questions often stimulate the most stirring discussions.

Categorizing Questions

We can start helping kids categorize questions in primary grades. As we move up through grade levels, we can add different categories of questions. Some question categories and corresponding codes are listed here:

- Questions that are answered in the text—*A*
- Questions that are answered from someone's background knowledge—*BK*
- Questions whose answers can be inferred from the text—*I*
- Questions that can be answered by further discussion—*D*
- Questions that require further research to be answered—*RS*
- Questions that signal confusion—*Huh?* or *C*

The endearing question about whether cats eat french fries would likely require further research, although someone may have the background knowledge to provide an answer. As we look at the questions, we can work together as a class to code them. After kids have had some time to practice together, they practice on their own in their independent reading.

Questioning That Leads to Inferential Thinking

Purpose: **To teach that asking questions may lead to making inferences**
Resource: ***Waiting*** **by Kevin Henkes**
Response: **Sticky notes with questions and inferences**
Audience: **Primary and Intermediate**

Readers don't read with one strategy in mind. When readers read, they integrate strategies. We plan instruction on a single strategy so that readers get an idea of how the strategy works when they read and how they can use it as a tool for understanding. But the truth is, readers use a small repertoire of strategies in combination as they read. For instance, in most cases, the moment we ask a question when reading, an inference follows quickly on its heels.

In this lesson, we show how asking questions often leads to inferential thinking and how some questions are answered in the text and others have to be inferred. Inferring involves taking our background knowledge and merging it with clues in the text to come up with a reasonable idea of what is going on. We let kids know that inferring involves a dialogue with the author and an inference must be based on evidence from the text. Inferring connects to what the author has in mind.

We also share the difference between an inference and a guess. Guessing does not have to be related to the text. Guessing takes our background knowledge and often relies on our imagination to come up with an idea that may or may not be found in the text. But we don't tell kids that they are not allowed to guess! Guessing is derived from their imagination, and we wouldn't want to limit that. We just need for them to understand the very important difference between inferring and guessing. After they have asked questions and made inferences, we ask them to see if their questions were answered and their inferences were confirmed.

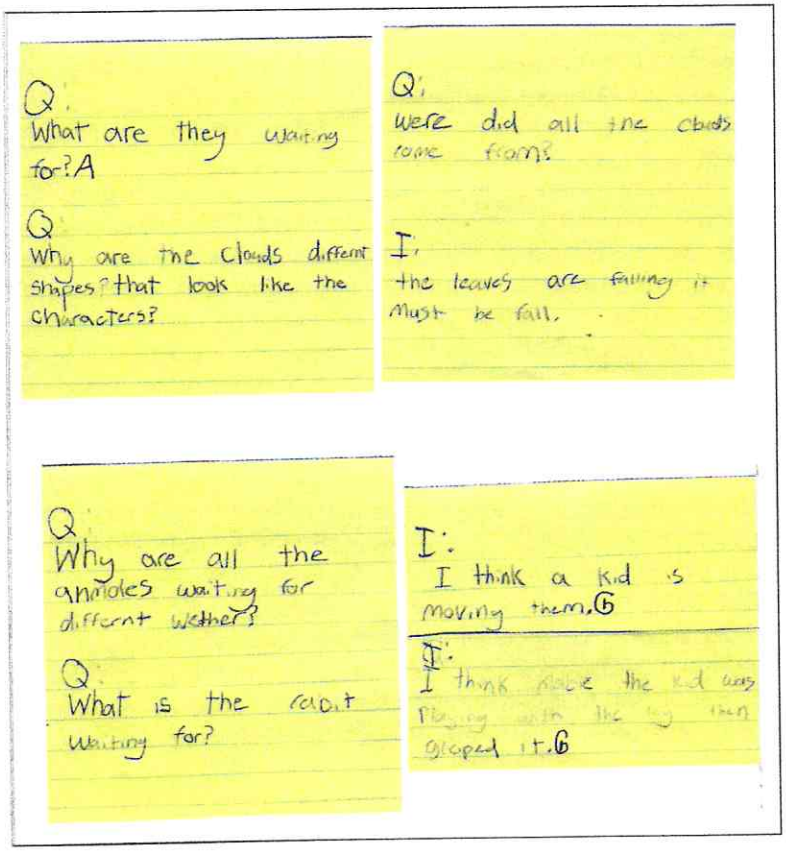
Steph joined fourth-grade teacher Kai Johnson to do this lesson on how asking questions often leads to making inferences, using Kevin Henkes's *Waiting*. Steph led the lesson on the first day, and Kai followed up on the second day, rereading the text to see whether students' questions were answered in the text or had to be inferred. The book is highly inferential. It features five toy animals on a windowsill who, the text says, are waiting there for something. It naturally spurs questions and inferences throughout.

Steph begins by sharing that when we read, we have questions and sometimes those questions are answered directly in the text. But other times, those questions are not answered, and we have to use the text clues to infer the answers to them. Through an interactive read-aloud, Steph models her own thinking by looking at the cover picture with all five toys and the title and saying, "I wonder what they are waiting for. I have to view the pictures very closely to get a reasonable idea." She explains that this book has very little text and that most of the information can be inferred from the pictures, so close viewing will be a big help to understanding. She notices that three of the animals are holding something: the pig has an umbrella, the dog has a sled, and the teddy bear has a kite.

"I wonder why the pig has an umbrella," she says, and jots that down on her sticky note. "The umbrella is a clue that makes me infer that the pig might be waiting for rain. So I'll jot that down and mark it with an *I* for Infer."

She has the kids turn and talk about anything they wonder and then jot down their questions. They have lots of questions and some inferences as well, particularly related to what these animals are waiting for. When she turns the page, the text actually says what they are waiting for, except for the rabbit, which is "not waiting for anything in particular." So kids who asked about the other animals got answers in the text and their inferences were confirmed, and they marked those questions with an *A* for answer. But kids who asked what the rabbit was waiting for didn't get that question answered and can't actually infer the answer from the text or picture. Here is a place where kids might guess what's going on with the rabbit since the text holds no clue whatsoever, a good spot to illustrate the difference between inferring and guessing.

Figure 9.9
Sticky Notes with Questions, Answers, and Inferences



Steph continues with the interactive read-aloud, sharing her thinking occasionally as kids jot down their questions and inferences (see Figure 9.9). Soon the images show the toy animals still on the windowsill but in different positions—lying down, bending over, and so on. One child asks why they are changing positions.

"Wow, interesting question; jot down what you are inferring about that question, and then share your inference with a partner," Steph suggests.

Kids are bursting with thoughts and can't wait to share. Most have inferred that someone is moving them, probably the kid whose room it is, which appears to be the author's point. Yet some kids think it might be a magic story, and there is evidence to suggest that could possibly be fantasy, since the animals stand or lie in certain

positions that would not be feasible even if they were moved by someone. At one point, a Russian nesting doll joins the group. Kids who have background knowledge about them notice the line in the middle and infer that there will be more dolls within. This is a classic example of how our background knowledge can lead to reasonable inferences.

Kai rereads the book the following day, and kids realize that some of their questions were clearly answered, whereas others had to be inferred. But the conversation continues since there are some questions that can't even be answered with reasonable inferences. *Waiting* is a terrific book to demonstrate how asking questions leads to inferential thinking. But since some questions are not answered and can't be reasonably inferred, some readers may still be left pondering what is actually going on. The kids decide that they would like to write to Kevin Henkes and see what he says in relation to their unanswered questions. This is a great idea for those kids who are still curious about ideas in a text after reading it several times.

Authentic Questions or Assessment Questions

P. David Pearson (2010) says that "the questions a student asks after reading a text are a better assessment than the questions a student can answer about that text." What an interesting take on assessment. And we couldn't agree more. When we were in school, the teachers asked the questions, and we supplied the answers, or tried to anyway, whether we knew them or not. The teachers knew the answers to the long list of questions they asked or that appeared at the end of the story in our basal readers or science textbooks. Teachers asked these questions to check on us, to see whether we had done the homework, read the chapter, or memorized our facts. Those were the only questions we remember in school. Our own questions, important or not, were reserved for recess, walking home after school, or the dinner table that night. School was not to be mucked up with a lot of tangential kid questions.

But, as David Pearson points out, the questions that really give us information are those that students have *after* reading, listening, or viewing. Those are the most important questions and the most revealing as well. We can really learn from kids' questions—what they understood or didn't, what they know, what they learned, what they want to learn, what they predict, and so forth. So we pay particular attention to their questions after they have read, listened to, or viewed something. Those questions can drive our teaching and help students go further.

Fortunately, in the classrooms portrayed in this book, authentic student questions are encouraged and valued. Authentic questions, whether asked by students or teachers, have the following characteristics:

- Prompt thinking
- Don't always have one right answer
- May have multiple answers
- Cause us to ponder and wonder
- Dispel or clarify confusion
- Challenge us to rethink our opinions
- Lead us to seek out further information
- Are subject to discussion, debate, and conversation
- Often require further research

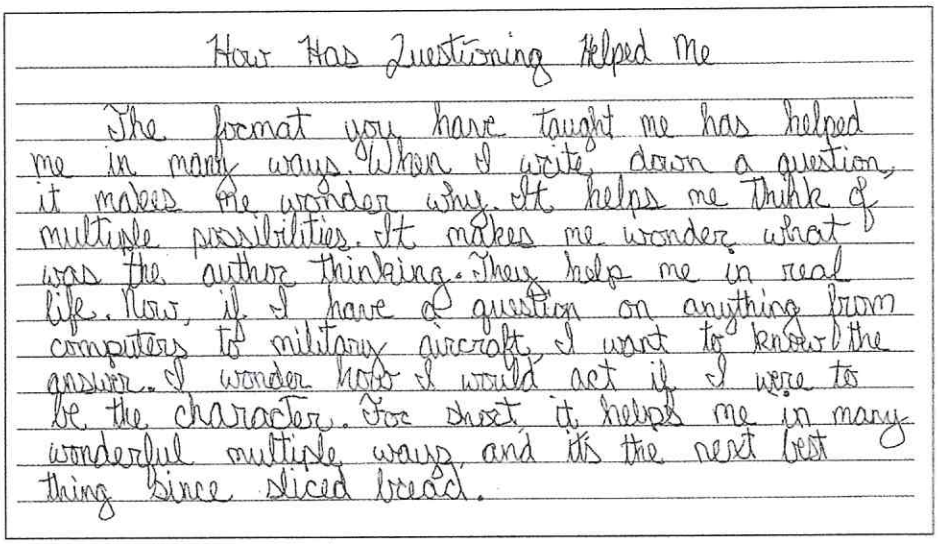
Many tasks we ask kids to do in schools involve what we have to come call *assessment questions*. Assessment questions are questions that we teachers know the answers to and that we ask primarily to check or monitor our students' knowledge. Now, before launching a full-frontal attack on assessment questions, we recognize that we are teachers and that we have both the right and the responsibility to ask assessment questions to monitor our kids' progress. Asking assessment questions represents one way to measure academic growth. But do we need to ask so many? Right now, most of the questions asked in schools fall into the assessment category. Curiosity-driven questions are still rare in classrooms. We need to balance this by allowing more time for kids and teachers to ask and explore authentic questions.

We explain the difference between authentic questions and assessment questions to the kids. Why fake it? When we ask assessment questions, we might tell our students, "This is an assessment question. I know the answer. Here comes the question." With younger primary kids, we might call these *checking questions*. "I know the answer to this question. I'm asking it to check and see if you do." When we consider authentic questions, our response is something like, "I don't know the answer, but let's see if we can find out."

Peter Johnston (2004) lists a number of ways that teachers can ask students authentic questions that prompt thinking. Authentic questions are typically open-ended and encourage divergent thinking rather than one right answer. Some that we use frequently include the following:

- What makes you think that?
- Why do you say that?
- Can you elaborate on that?
- Can you tell me more about your thinking?
- How did you come up with that?

When all is said and done, these kinds of questions have an authentic feel. We ask these kinds of questions to probe and find out about what kids are thinking, not to check whether or not they did their homework. Authentic questions such as these, whether asked by kids or adults, are more likely to encourage new thinking and prompt new insight. In his enthusiastic response to his teacher Eleanor Wright, fifth-grader Brandon reminds us how questioning helps him in both reading and life (see Figure 9.10). We think that's terrific!



How Has Questioning Helped Me

The format you have taught me has helped me in many ways. When I write down a question, it makes me wonder why. It helps me think of multiple possibilities. It makes me wonder what was the author thinking. They help me in real life. Now, if I have a question on anything from computers to military aircraft, I want to know the answer. I wonder how I would act if I were to be the character. For short it helps me in many wonderful multiple ways, and it's the next best thing since sliced bread.

Figure 9.10
Brandon's Opinion About the Questioning Strategy