**Abstract:**

Readers for whom English is a second language often misinterpret texts. One source for such errors is failing to accurately recognize phonemic and graphemic features, leading to interpreting a text within a framework not intended by the author. Teachers can help second language readers become more perceptive by preparing students for the material and providing practice in recognizing the text's syntactic connections.

**Full Text:**

How second language readers understand a text is influenced greatly by their personal and linguistic backgrounds. Teachers cannot assume that their second language students will interpret texts as native speakers would. This article outlines one model for understanding the second language reading process and then, using think-aloud protocols and retrospective interviews, uses errors in comprehension to illustrate how the reading comprehension process works. Pedagogical implications and suggestions for teaching students to develop and practice better comprehension strategies using think-alouds are discussed.

As teachers and tutors of English as a Second Language (ESL) students, our goal in reading instruction is to help developing second language readers learn how to understand the texts they are going to face on a daily basis, both in academia and on the street. I must confess, however, that one reason I enjoy teaching reading so much is that I am continually amazed by, and frequently get a chuckle from, the leaps of imagination students insert into their interpretations of generally mundane readings. The title for this article, "Yuk, the skin of insects!" is a comment made, as I will discuss later, by a student as she was reading an article about the hazards of lead-based paint peeling off the walls of old homes. How in the world did this student make the mental jump from lead-based paint to insect skin? What is going on in the minds of ESL readers that so frequently leads them to misinterpretations of the texts they are reading? Clearly, to help our ESL students be better readers, we need to understand how the reading process works.

It is now common understanding that the second language (L2) reading process, like the first language (L1) process, needs to be viewed as a "top-down/bottom-up" interaction between the "graphic display in the text, various levels of linguistic knowledge and processes, and various cognitive activities" (Weber, 1984, p. 113). Bottom-up processing--the recognition of letters and words, the accurate representation of temporal and order information, and the efficient coding of verbal information in short-term memory--ensures that readers will be sensitive to information that is novel or that does not fit their own ongoing hypotheses about the content or structure of the text. Top-down processing--the influence of what the reader brings to the text in the way of prior knowledge and processing capabilities--helps readers to resolve ambiguities or to select

between alternative possible interpretations of the incoming data. In short, then, reading is an interactive process involving the reader and the text in the construction of meaning (Aebersold & Field, 1997); or, as Bernhardt (1991) states, it is "an intrapersonal problem-solving task" (p. 6).

Because it is the interaction between the text and reader that constitutes reading, the assessment of comprehension should include measurement techniques which tap this reader-text interaction (Loyd & Steele, 1986). Until recently, the primary means for attempting to observe the reading process have been (a) eye movement studies, where a subject's eye movements are observed and plotted as a text is read; (b) self-reports, where subjects describe what it is they think they do while they read; (c) miscue analyses, where errors that subjects make as they read a text aloud are categorized; and (d) recall protocols, where subjects write down as much about a text they just read as they can remember. None of these techniques, however, captures the reader-text interaction in such a way as to make clear what readers are doing in order to comprehend the text.

Recently, the use of think-aloud protocols has become an accepted toot in getting a more accurate look at the second-language reading process (Bhasin, Block, Cheng, & Martino, 1998). Cohen (1987b) defines think-alouds as the "stream-of-consciousness disclosure of thought processes" (p. 84) which occurs during the act of reading, not after. Since reading is a cognitive activity that is not directly observable, the use of think-alouds in reading research can provide a valuable window on the thought processes that occur as people read. While many instruments used to evaluate reading and reading comprehension focus on products of comprehension (quizzes, recall, etc.) or indirect observations of the thought process (eye movement, miscues, etc.), think-alouds attempt to reflect the process of reading as it occurs. In think-alouds, subjects are asked to verbalize "heeded" information--that is, information that is currently being processed or attended to in their working memory-without trying to control, direct, or observe it (Cohen, & Hosenfeld, 1981; Ericsson & Simon, 1980).

The purpose of the study reported in this paper is to re-examine a relatively recent and widely accepted model of the second-language reading process, Bernhardt's (1991) constructivist model, that was developed using recall protocols--a technique which does not directly observe the reading process--and re-evaluate it in light of data gathered using think-aloud protocols-a technique which provides more direct observation of the reading process.

Based upon recall data generated by intermediate, university-level American readers of German, French, and Spanish, Bernhardt (1986b) proposed what she calls a "constructivist" model of L2 reading to describe how an L2 reader interacts with a text to construct meaning. She sees the comprehension process as "one of taking units of language and building them into a configuration" (Bernhardt, 1986b, p. 3). This configuration represents what is comprehended at any given point in the reading process. Bernhardt's model consists of three text-based and three extratext-based components, but emphasizes the latter.

The text-based components are word recognition, phonemic/ graphemic decoding, and syntactic feature recognition. Bernhardt found that L2 readers often add meaning to L2 words based on their personal concepts of the topic and at the same time often lose or distort the meaning that the word was intended to have in the context. For example, in the text used in one of Bernhardt's

studies the adjective Grosse, which in German means "size" (as in big or small), modified the word Geldstuck (money); however, one of the L2 readers in her study interpreted Grosse to mean "value." Bernhardt hypothesizes that this happened because "with the basic American money schema ... American money is thought of in terms of amount and denomination and, generally, not in terms of size" (Bernhardt, 1986a, p. 104). Thus, she proposes that one component of the meaning construction process is word recognition, defined as the attachment of a semantic value--(either appropriate or inappropriate)--to words that are decoded.

Bernhardt also noticed that L2 readers were influenced when interpreting a text by how words looked or sounded. For example, some English speaking L2 readers of Spanish will interpret the Spanish word triste as "tired" instead of "sad." This reliance on a word's sound, appearance, or both to assist with comprehension she calls phonemic/ graphemic decoding (Bernhardt, 1986a).

Lastly, Bernhardt noticed that L2 readers often misinterpreted how words modified and interacted with each other, "as in misunderstanding me hago amigo de Pedro as `my friend Pedro' instead of as `I made friends with Pedro'" (Tedick, 1986, p. 7). She calls this type of occurrence syntactic feature recognition, and defines it as the interpretation of the relationship between words.

The three extratext-based components of Bernhardt's constructivist model also influence how the reader constructs meaning from the text. These are intratextual perception--the reconciliation of each part of the text to preceding and succeeding elements; prior knowledge--whether the text makes sense with respect to the reader's schemata; and metacognition--the extent to which the reader is thinking about what he or she is comprehending and using strategies to achieve goals.

This constructivist model, with its six text-based and extratext-based components, is interactive and multidimensional. Any one of the components can influence how any of the other components in the comprehension process "interpret" the text, and several or all components work together to achieve meaning-intended or unintended by the author. Furthermore, individual readers employ these components in different ways with different texts. This model contains most of the aspects of the reading process researchers currently believe are determining factors in permitting the reader to construct meaning: "the look and sound of words, how they function in relation to each other, what they mean, and how the reader understands them and creates meaning from expectations and from reading the text as a whole" (Barnett, 1989, p. 48).

As noted earlier, Bernhardt developed her constructivist model based on recall data, an indirect, product-oriented procedure for assessing reading comprehension. Think-aloud reports, however, have the advantage of reflecting what readers are actually thinking about as they are in the process of reading, which should allow for a more accurate evaluation of just what it is that readers do as they seek to comprehend a text. The research question that guided this study was as follows: Are the components described by Bernhardt's (1986a) constructivist model of second language reading comprehension supported by data obtained from think-aloud reports given in both the L1 and L2?

Method

Participants

The participants in this study were 11 native speakers of Japanese. Subjects 1-6 were taking intermediate ESL classes at the Minnesota English Center at the University of Minnesota. Subjects 7-11 were no longer taking ESL classes but were enrolled in academic programs at the University of Minnesota. All the subjects were volunteers who responded to a general letter of invitation to participate in this study, which was sent to current and former Japanese students in the Minnesota English Center. The gender, age, length of time in the U.S., age at which English was first studied and most recent Test of English as a Foreign Language (TOEFL) score are given in Table 1.

Table 1

Subjects and Background

| Subject # | Sex | Age | Time in US | Age English Started | TOEFL |
|-----------|-----|-----|------------|---------------------|-------|
| Subject #1 | M | 25 | 9 months | 12 | 493 |
| Subject #2 | M | 20 | 2 months | 13 | 490 |
| Subject #3 | F | 25 | 7 months | 13 | 453 |
| Subject #4 | F | 27 | 14 months | 12 | 460 |
| Subject #5 | M | 20 | 24 months | 12 | 450 |
| Subject #6 | F | 36 | 34 months | 12 | 500 |
| Subject #7 | F | 21 | 2 months | 12 | 563 |
| Subject #8 | F | 25 | 48 months | 14 | 578 |
| Subject #9 | F | 32 | 50 months | 12 | 600 |
| Subject #10 | F | 26 | 11 months | 13 | 560 |
| Subject #11 | M | 28 | 38 months | 12 | 620 |

Procedure

There were two stages to the data collection in this study. The first stage included the think-aloud protocols. Think-aloud protocols have the advantage of giving a more direct view of how readers process a text because readers indicate what they are doing at the moment they are doing it (Cohen, 1987b). The second stage included the retrospective interviews on the think-aloud protocols. Retrospective interviews provide an opportunity for investigators to ask directed questions to clarify what was reported during the think-aloud. Pressley and Afflerbach (1990), Matsumoto (1993) and Cohen (1987a, 1987b) all provide persuasive arguments for the value and validity of using verbal protocols to investigate the conscious processes of reading in general and reading in a second language in particular.

After a training session, subjects were instructed to verbalize everything they were thinking about and doing as they read and, as much as possible, to do so in the language (L1 or L2) they were thinking in as they read the text. If they were thinking in Japanese, they were asked to think aloud in Japanese. If they were thinking in English, they were asked to think aloud in English.

The passage that the subjects read was taken from Aide Magazine (February, 1992), a quarterly put out by the insurance organization USAA. The text, 231 words long, is titled The Problem with Lead-Based Paint and discusses some of the harmful health effects of lead-based paint as

well as some suggestions for dealing with the problem. A red dot was placed at the end of each sentence in order to visually prompt the subjects to think aloud (Afflerbach, 1990; Pritchard, 1990).

The think-aloud protocols were tape recorded. Immediately upon completing the think-aloud, subjects were asked to listen to their protocols. While listening to comments they made about their thought processes, the subjects were asked to explain what they were doing as they were reading. The interviews were done in Japanese.

Both the think-aloud protocols and the retrospective, self-observation interviews were translated and transcribed by the researcher and an assistant who is a native speaker of Japanese. The retrospective interviews were used as qualitative descriptions to verify and clarify the think-aloud protocols.

Results

It was clear from the think-aloud data and retrospective interviews in the present study that there were many errors in comprehension that could be classified into one or more of Bernhardt's six components. The interactive nature of these six components, which Bernhardt emphasizes, was also quite evident. The following examples illustrate the influence that each of the components outlined by Bernhardt have on comprehension and their interactive nature.

The following key should be used when reading the think-aloud and retrospective interview excerpts:

```
Plain underlined words        = words from the text read aloud during
                                think-aloud

Plain words                   = words spoken by subject in English

Bold words                    = words spoken by subject in Japanese
                                (and translated)

Bold underlined words         = words spoken by interviewer
                                in Japanese (and translated)

Unindented words              = think-aloud protocols

Indented words                = retrospective interview
```

Example 1: Subject #6

... crumbling houses. The stereotype is of inner-city youngsters eating paint chips that have peeled off the walls of crumbling houses ... houses, crumbling houses. I don't understand the meaning. I wonder what "paint chips" are? Does it mean to make holes in the walls of "crumbling houses"?

      **What were you trying to do here?**

```
    Since it was the first sentence of the text, I was trying very hard to
understand it so ! could figure out the genre of the text. But I didn't
understand  the  word  "paint  chips."  I  thought  the  word  "paint"  had
something
to do with drawing, while the word "chips" means a kind of food. And I saw
the word "eat" so at first I guessed this is about food.

(and then later)

    Did you know the meaning of the phrase "lead-based paint" in this
sentence?

    Maybe not. But since it says "-based" I thought it was a kind of paint
that you used as a primer.
```

The above examples illustrate word recognition problems, misunderstanding "paint chips" as a kind of food and "lead-based paint" as a type of paint used as a primer. In both cases, the reader attaches a semantic meaning to the original word from the text that is not reflected in the text.

Example 2: Subject #8

The most ... surfaces. It's like from the surface ... patient ... pain comes ... most harmful. The way the pain is felt.

```
    How did you come up with the sentence "The way the pain is felt?"

    I saw the words "comes from" and I guessed it's talking about how pain
is felt. I saw "created" too.
```

In this instance, the reader misread "paint" as "pain," which graphemically are very similar. Having understood the key word as "pain," she interprets the sentence as describing how pain is felt. Illustrative of how disruptive phonemic/graphemic decoding comprehension mistakes like this can be, and how strongly they influence intratextual perception, are the verbalizations that this subject makes when looking at the ensuing sentences.

Example 3: Subject #8

lead paint can generate lead dust as it deteriorates, even when covered with new paint. However, when the next pain is felt again ... however ... intact ... I wonder if it causes it again ... lead patient ...

```
    What are you trying to do here?

    Since the sentence that starts with "however" usually is important, I'm
trying to understand this sentence, but it is not clear to me.

    Where did you get the phrases "next pain" or "cause?"

    I understood the word "lead" as "to cause." I saw "lead" twice in this
sentence.
```

The first pain causes the next pain when covered.

This subject continues her understanding of the word "paint" as "pain" and ends up with an interpretation of this sentence that is nowhere close to the intended meaning which a typical, educated American reader would easily understand. Clearly, the errors in recognizing phonemic/graphemic features can take a reader far afield from the intended meaning of the text, even if briefly. Based on this one graphemic error, the reader has tried to interpret this text within a framework that is completely different from that which was intended by the author, including misinterpreting the noun "lead" (a metal) as the verb "to lead" (to cause). Another example humorously reinforces this phenomenon:

Example 4: Subject #7

Because these symptoms ... hmm, there is a cartoon like that

        Why did you say this?

        I'm not sure if the family name is "Simstoms", but I have seen a
cartoon
    on TV with a yellow face. Whenever I watch the cartoon I wonder about the
    meaning of the family name.

In this instance, the reader misreads "symptoms" as "Simpsons," due to their phonemic similarity, which made him think of the television cartoon show "The Simpsons." That this relationship even was considered in a context that had absolutely nothing to do with the cartoon show clearly indicates how extensive a role recognition (or mis-recognition) of phonemic/graphemic features plays in text comprehension.

Example 5: Subject #6

    ... It has a significant effect on pregnant women.

        I think you are generalizing the idea in this sentence. Did you
    understand specifically how they were affected?

        I didn't understand the word "retard", but from the word fatal (sic)
    development I understood that effects are irreversible.

        The word "fetal" does not mean "fatal;" it has to do with the human
    fetus. Why do you think you misread this word?

        I have read a lot of articles about the effects of smoking and how bad
    it is for pregnant women, so I think that is why I thought this word was
    "fatal." When I try to read materials like this, I often make predictions
    about the reading from the tone and style of the author.

In this example, there is a clear illustration of how the reader's prior knowledge interacted with and influenced her decoding of the graphemic features of the word "fetal" as "fatal."

Example 6: Subject #10

... the lead dust that is created as the paint comes loose from the worn surfaces. Yuk ... the skin of insects!

> This was not "the skin of insects." The sentence describes paint coming off of the worn surfaces of walls. Why did you misread it as "worm" surfaces?
>
> Probably because such words as "dust" caused me to misread the word. When I saw the word "dust" I had an image of something dirty and that caused me to relate it to "worms."
>
> Were you thinking about lead-based paint then?
>
> I knew lead-based paint was related to this sentence but since the word "dust" was used for the first time in this sentence, I paid more attention to it.
>
> I'll try reading it again and see
>
> Why did you say this?
>
> I thought something was wrong? So you did not understand this sentence clearly? No, I didn't.

The most harmful exposure to lead comes ... the lead dust that is created as the paint comes from ... This might be one of the reasons that it can not be prevented.

> Why did you say this?
>
> I was still thinking that the insects caused the illnesses, and if that is true, we cannot control the problem.
>
> Did you understand the words "inhaling" or "ingesting"?
>
> I understood "inhaling" but not "ingesting".
>
> Could you explain what you understood from this sentence?
>
> My understanding was that insects are carriers of viruses and bacteria, and they cause the problems; for instance kids put everything into their mouths and they get sick.
>
> What is the relation of lead-based paint or lead dust to those viruses and bacteria?
>
> I didn't think about that.

In the extended example given above, several of the six components of comprehension construction are clearly present and interacting. First, there is a graphemic error where "worn" is interpreted as "worm." This seems to have been influenced or supported by the inappropriate application of prior knowledge (worms are dirty). As a result of this misinterpretation, the reader's intratextual perception of the text is influenced as her understanding now revolves around insects, dirt, and disease--none of which is a part of this text. Furthermore, she ignores

clues of syntactic features to help with comprehension as she does not see the relationship between paint and "worn surfaces." Other misuse of syntactic features could also be argued from this data. Obviously, things do not fit together nicely, as her metacognition informs her that something is wrong and that she should read it again, even though she cannot quite figure out where the problem is.

Example 7: Subject #2

The problem of painting is not a serious one.

```
    I read the sentence "Painting over the areas is not a permanent
  solution". Since this sentence contains the word "not" it is negating
  something, and I understood the phrase "a permanent solution" as a serious
  problem, so because it is negated it must not be serious and can be
solved.

    So you understood the word "solution" as a problem?

    Yes.
```

This excerpt provides a nice example of a syntactic feature recognition problem. The student does not understand the function of "not" in this context, resulting in an interpretation of the passage which is in essence the opposite of that intended by the author.

As can be seen in the above examples, the six interactive features that Bernhardt has described as evidence of the comprehension process based on recall errors can also be found in the think-aloud and retrospective interview data. However, their interactive nature can be much more clearly observed in the think-aloud and retrospective data than in the recall data. As the data in this present study show, the creative, constructive, and predictive nature of these readers' interpretations of the text goes well beyond the minor glimpses that reveal themselves through errors in recall.

In Example 6 above, the reader starts with a graphemic feature recognition error-"worn" understood as "worm"-and ends up inferring from the text that insects are carriers of viruses and bacteria which cause kids to get sick because they put them into their mouths. Clearly this interpretation is driven mainly by the reader's power of inferencing. The following examples illustrate vividly how second language readers work to construct meaning when meaning is not obvious to them.

Example 8: Subject #8

Because these symptoms also occur in many other illnesses, prompt medical testing is crucial if you suspect lead-based paint ... I can't figure out what's the "lead-based" paint ... is probably the name of the wall?

```
  You were silent for awhile, why? I knew the word "lead-based paint" is a
  key word for this text, so I was trying to figure out what it is. Reading
  such words as "worn surfaces" I thought it might be some type of gas that
  comes out of walls when the temperature goes up. ... I had an image of gas
```

```
    coming out of the wall.
```

This reader also starts with a graphemic feature recognition error--interpreting "worn" as "warm"--and then uses that one word to develop an image of gas escaping from a wall as temperature rises, from which she infers that lead-based paint must be some type of gas somehow related to the wall. With inferences like this, it is not surprising that she was having trouble figuring out what lead-based paint was.

Example 9: Subject #5

Early symptoms of lead poisoning include unusual fatigue, loss of appetite ... ah, maybe I have heard about this illness before.

```
    Where did you hear about this before?

    I wasn't quite sure then, but I have heard about an illness that is a
  result of an iron deficiency, which many people including pregnant women
  have, that often causes fatigue. I thought this article has something to
do
  with iron deficiency, but I was wrong.
```

This is an example of word recognition and prior knowledge interacting with and influencing inferences that the reader makes. First, she confuses "lead" with "iron," which she then connects with an illness she has heard about before, iron deficiency, and ends up inferring that lead poisoning has something to with iron deficiency. It was only after having read further in the article that she recognized that this inference was wrong.

Example 10: Subject #4

that have peeled off the walls of crumbling houses. Let's see ... chips? which peels off walls ... climbs to the roofs ... paint chips. Maybe it is an animal ... maybe I'm wrong ...

```
    I think you're guessing the meaning by translating.

    I didn't understand the meaning of this sentence, so I was trying to do
  a lot of guessing, but I guessed "chips" as an animal from the words such
  as "youngest" and "eating."
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This last example shows how far afield a reader can get due to highly creative inferences. Here the reader takes the phrase "eating paint chips that have peeled off the walls of crumbling houses" and has inferred from it some sort of understanding that corresponds with animals climbing up to the roof and eating something.

It is clear from this study that the second language reading process is a highly individual process that involves the construction of meaning based on the influence of a variety of text- and extratext-based features, as outlined in Bernhardt's (1986b) constructivist model. It is also quite clear from this data that L2 readers, due to limitations in language, rely to a great extent on their ability to infer meaning based on those components of the text they can--or at least think they can--understand.

Consequently, errors in comprehension are in many respects unpredictable by the reading teacher, and are often times untraceable since most reading is not done while thinking aloud. The reasons for comprehension errors are often much less substantial (e.g., reading "pain" instead of "paint") and the nature of the misinterpretations that result much greater (e.g., interpreting "worn surfaces" as "the skin of insects") than most teachers may have ever realized, even for students who are no longer taking ESL classes and who are performing successfully in an American university. Especially with second language readers, teachers need to be aware that these students can and do create very different interpretations of the texts they are reading because so much of the reading comprehension process is a result of personal, extratext-based influences which they bring to the text. No doubt, understanding a text discussing lead-based paint as having something to do with the skin of insects is but a minor example of the creative interpretations our students apply to the texts we ask them to read.

Pedagogical Implications

We now understand that second language readers actively construct meaning in an interactive process between the text and their own background knowledge. We are also now recognizing that the meaning that is constructed by second language readers is often not the meaning intended by the author of the text, due to the variety of reasons out lined above. The question, then, is how can teachers and tutors help second language readers to be better readers.

One pedagogical strategy strongly supported by this study is to prepare students for what they will be reading. By making sure that students have adequate background knowledge on what they are going to read, the possible options students have for interpreting a text are constrained, increasing reading efficiency and accuracy. Using the test passage from this study as an example, if students had been informed ahead of time that the article was about an important health issue and its effects on the human body, the subject in Example 4 would probably not have spent time wondering if the text was talking about the cartoon show "The Simpsons", he would have known that was not an appropriate interpretation of what he was reading since the focus of the reading was on health. Byrnes (1987) summarizes this idea nicely when she asserts that "the greater the store of background knowledge readers can bring to the task, the less dependent they are on purely linguistic information" (p. 179).

Data from this study also suggest that teachers and tutors should provide plenty of practice in recognizing and interpreting syntactic connections within a text. The goal is to encourage second language readers to look at constructing meaning at the discourse level rather than just at the word or sentence level. This should include the study of the common rhetorical structures (e.g., cause-effect, comparison-contrast) and their signal words (e.g., consequently, unlike) that English texts frequently use. Much miscomprehension occurs because students fail to recognize how ideas in a text build on previous ideas. By seeking to understand the relationship between words and sentences, many errors that occur by focusing only on individual words can be avoided.

Probably the most important point the data from this study reinforces is that teachers and tutors need to help students learn to monitor their own comprehension process. Simply encouraging students to reflect on what they are understanding the text to mean should help them to avoid

drawing illogical conclusions about what they are reading. Assuming the subject in Example 6 had been provided with appropriate background knowledge about the text, she could have probably pretty safely guessed that her understanding of the text as being about worm skins was more than a little illogical and looked for a better interpretation if she had taken a moment to question her understanding of the text. Instead, she spent a fair amount of time trying to reconcile her rather far-fetched interpretations of what she was reading with the information that was given in the text.

An excellent way to help students learn to monitor their comprehension process is to modify the think-aloud procedure used in this study to serve as a training and instructional tool in the classroom. Bereiter and Bird (1985) and Wade (1990) provide models of how think-alouds can be used in instructional settings. Bereiter and Bird (1985) suggest that teachers themselves model thinking-aloud as they read to show second language readers how to recognize comprehension problems and then select appropriate "repair" strategies, including restatement (a simpler paraphrase of the original), backtracking (rereading), demanding relationships (recognition of a gap in understanding that will need to be filled later), and problem formulation. They found that students who, using think-alouds, practiced identifying and using the comprehension monitoring strategies that had been modeled and explained by the teacher scored significantly higher on comprehension tests than groups who did not receive the comprehension monitoring training (Bereiter & Bird, 1985).

Wade (1990) suggests that teachers periodically elicit and tape record think-aloud protocols from students as they read different texts and then use the protocols to help students evaluate their own comprehension process. She recommends that the following questions be used when analyzing a student's think-aloud transcript:

1. Does the reader generate hypotheses?

2. Does he/she support hypotheses with information from the passage?

3. What information from the text does the reader use?

4. Does he/she relate material in the text to background knowledge or previous experience?

5. Does the reader integrate new information with the schema he/ she has already activated?

6. What does the reader do if there is information that conflicts with the schema he/she has generated?

7. At what point does the reader recognize what the story is about?

8. How does the reader deal with unfamiliar words?

9. What kinds of integration strategies does the reader use [to connect information from different parts of a text]?

10. How confident is the reader of his/her hypotheses?

11. What other observations can be made about the reader's behavior, strategies, etc.? (p. 445).

There are some common elements in all effective comprehension instruction. First of all, texts should be used that are appropriate in terms of interest, content, and difficulty. Second, teachers and tutors should provide instructional support through modeling and direct explanations so that the invisible processes of reading become more visible. Third, readers must have an adequate background knowledge, including both general knowledge of the world and specific knowledge of the topic in the text being read. Lastly, readers must be given plenty of guided practice. Think-aloud protocols provide a glimpse of the reading process that no other tool can. Consequently, they are an excellent procedure for assessing comprehension strategies, providing teachers with valuable information about students' strengths and weaknesses which can be used to guide instruction.

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