

Second-guessing Guessing: Questioning the Top-down Reading Strategy of Guessing Word Meaning from Context

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In 1967, Kenneth Goodman published a paper on reading that included his now famous view of "reading as a psycholinguistic guessing game." He went on in later years to refine a model of reading reflecting this perspective (see Goodman, 1967; 1973; 1975 (in Carrell, et al, 1988). The dominant view prior to this was of reading as a linear process starting with the written symbol and then moving on through stages of phonemic, syntactic, and semantic stages of processing that led to comprehension. This is commonly known as "bottom-up" processing, which involves data-driven, part-to-whole processing, as opposed to a conceptually driven, whole-to-part "top-down" process (Carrell, 1988; Eskey, 1988; Nation and Coady, 1988). Goodman's model proposes that readers rely mostly on high-level knowledge of existing syntactic and semantic structures and much less on graphic information and symbol-to-sound-to-meaning. The model, while recognizing the interaction of both bottom-up and top-down processes, emphasizes that reading is basically concept driven (Grabe, 1988). Frank Smith (1982) expanded upon Goodman's original work and produced a complementary model of reading. The work of the two is similar and influential enough that the model of "reading as a psycholinguistic guessing game" is often referred to as the Goodman-Smith model (Underwood and Batt, 1996). Coady's (1979) model of the ESL reader (as opposed to the L1 reader, which is the focus of the Goodman model) has also been influential. It, too, leans more towards the importance of higher level processing and ties in with the general orientation of the Goodman-Smith model as well (Barnett, 1989).

The psycholinguistic approach to reading has benefited from the influence of schema theory on language learning pedagogy. Schema theory is the result of the convergence of research interests in linguistics, psychology, and artificial intelligence. In brief, it proposes that higher-level knowledge structures affect and/or guide the reading and comprehension processes (Anderson and Pearson, 1984; Carrell and Eisterhold, 1987; Seffensen and Joag-Dev, 1984). Research findings and speculation based upon them lend support to the psycholinguistic approach and its emphasis on the function

and importance of high-level knowledge sources and top-down processing in reading, and they dovetail with the depiction of "reading as a psycholinguistic guessing game."

In L1 and L2 reading research circles today interactive models with a balanced integration of both top-down and bottom-up processing are at the forefront (see Samuels and Kamil, 1988, for a summary). They propose that skills at all processing levels are interactively available to the reader for the tasks of processing and comprehending text, and raise questions about the dominance of top-down processing in general and about the applicability of the Goodman-Smith model to ESL/EFL readers (Eskey and Grabe, 1988; Grabe, 1984). Still, the Goodman-Smith model is arguably the most influential of all models preceding and following it, and due to this influence a bias towards the primacy of top-down processing has come to dominate literature on L2 reading (Eskey, 1988; Paran, 1996). In fact, "[s]o strong has been this impact that it is not uncommon to hear or read about THE psycholinguistic approach to reading or THE whole language approach to reading (Samuels and Kamil, 1984, p. 187)."

One spinoff of the psycholinguistic approach has been the emphasis on guessing word meaning from context (hereafter referred to as the "guessing strategy"). Although the strategy is not new (Johnson and Bauman, 1984, cite studies on it from the 1940's), it has definitely received a boost from the psycholinguistic approach and its emphasis on making, testing, and confirming predictions while reading. There are many supporters of the strategy of guessing word meanings from context (i.e. Coady and Nation, 1988; Liu and Coady, 1985; Grellet, 1981; Twaddell, 1973, van Parreren and Schouten-van Parreren, 1981) to facilitate receptive learning of vocabulary through incidental exposure to words during reading (Barnett, 1989). The strategy is also intuitively appealing and appears to offer numerous advantages over laborious, time-consuming, and methodical instruction in vocabulary and collocation.

However, there is also ample research that brings the value of this strategy into question, and these findings have implications for L2 reading instruction, which in turn have implications for the psycholinguistic approach to reading. In this paper I will discuss what context is, what factors facilitate or inhibit guessing from context, some of the research about the importance and effect of context on word recognition, and the effectiveness or lack thereof of the strategy of guessing meaning from context. This subject is related to wider questions about the relative importance of "the top" and "the bottom" in interactive models, which will also be discussed.

Justification for guessing meaning from context

Arguably, the biggest spinoff of the psycholinguistic approach to reading has been the emphasis on the strategy of guessing word meaning from context (Barnett, 1989). This is not surprising considering the enormous number of words in the English language. Webster's Third New International Dictionary contains 460,000 words, and this number does not include plural forms of nouns, different present and past tenses of verbs, neologisms, and some technical terms (Denning and Leben, 1995, p. 3). Although much smaller, the size of an average native English speaker's working vocabulary is also impressive. Diller (1978) notes that according to common wisdom, conservative estimates place a high school graduate's vocabulary at roughly 50,000 words, but with only about 10,000 used in writing and even fewer in speaking. In his own study, Diller challenges these numbers as far too low, and estimates that an average twelve year old already has a vocabulary of 135,000 words, a high school graduate has 216,000, and a college professor around 247,000 words (p. 129–130).

Regardless of whether or not an average native speaker's stock of vocabulary is 50,000 words or five times as many, it is clear that a second or foreign language learner cannot be expected to match it. It is inevitable that at some point guesses must be made. As mentioned above, the biggest justification for the guessing strategy is the perception that it is the only reasonable way for L2 learners to learn enough words to form suitably large active and passive vocabularies. Some people suggest that the guessing strategy should be encouraged because it involves generalizable skills of interpreting surrounding text, predicting, and testing predictions, which enhance reading skills as a whole (Coady and Nation, 1988; Liu and Nation, 1985). Furthermore, such guessing has been advocated instead of dictionary use because stopping to use a dictionary interrupts the flow of reading (Brown, 1972).

Types of context

Contextual analysis, the word identification strategy where a reader tries to guess the meaning (and possibly the pronunciation) of a word by the way it is used in a sentence or passage (Johnson and Baumann, 1984) must, of course, involve context. But "context" is a slippery term. At a most basic level, it can be seen as information. Information can in turn be defined as that which reduces uncertainty. Specifically regarding reading, context can be defined as information that reduces uncertainty about the elements of a text, their meanings, and the meaning of the text as a whole. Uncer-

tainty is reduced in part because context, when properly identified and utilized, constrains choices (Alderson, 1984).

Context can be the product of many different sources and types of information. Carton (1971; cited in Barnett, 1989) specifies *intralingual* (morphological and syntactic) contextual cues, *interlingual* contextual cues (those things which can be inferred from comparing L1 with L2, L3, etc.), and *extralingual* contextual cues (derived from background knowledge about the topic of the text). Not surprisingly, as a leader in schema theory research, Carrell (1983; cited in Barnett, 1989), sees context as coming mostly from high level knowledge sources. She proposes that context is the product of *transparency* (the extent to which lexis reveals the topic of a text) and *familiarity* (how much a reader knows about the topic and can apply to the text). Bialystok (1983; cited in Barnett, 1989), hypothesizes that context exists in relation and proportion to the reader's *implicit knowledge* (intuitive and unanalyzed knowledge of the L2), *other knowledge* (knowledge of other languages and world knowledge), and *context* (linguistic and physical aspects (in this case, of a text) which provide clues to its meaning). From this perspective, context is not an absolute presence in a text, but is instead *created* by the reader, and is therefore influenced by the reader's linguistic and world knowledge.

These perspectives show that there are many items and aspects of lexis, syntax, text, and world knowledge that can make up context, and many ways of seeing and grouping them. Still, most can be listed under the category of either *local* or *global* context. Local context refers intrasentential and sentential context, while global context refers to intersentential to discourse level context, as well as world knowledge.

Of the categories and types of context discussed above, intralingual context, some interlingual context, transparency, implicit knowledge, and (Bialystok's) context are all aspects of local context. Local context includes things like typographical clues (like punctuation and footnotes) and linguistic clues. Linguistic clues, which include syntactic information (such as word positioning) and semantic information, are powerful (Garnham, 1985). This is especially true of syntactic information (Coady and Nation, 1988; Garnham, 1985). Cziko (1978; cited in Alderson, 1984) identifies two local contextual constraints resulting from syntactic and semantic cues. The first, *syntactic constraint*, involves rules of language and the influence of the previously occurring word in a text (i.e. "the" is generally followed by a noun). The second, *semantic constraint*, is the result of meaning and selection restrictions imposed by preceding words (i.e. "The boy" is most likely to constrain the verb that follows to one describing the boy's action).

Cooper (1984) stresses the importance of the disambiguating effect of the local

contextual information provided by *lexical relationships* and *semantic relationships*. Lexical relationships include hyponymy, synonymy, and antonymy. Semantic relationships include particularization, contrast, affirmation, addition, and reason.

Global context can include both intrasentential textual information and non-textual information. Extralingual context, familiarity, and (Bialystok's) other knowledge (in part) can be grouped under this heading, as well as *discourse constraint* (Cziko, 1978; cited in Alderson, 1984) which is provided by the topic of a text, and works to limit possible interpretations. Discourse connectors such as *in contrast*, *similarly*, and *nevertheless* play a part in comprehending intersentential relations and the development of ideas (Cooper, 1984). Global context can include pictures and graphs that accompany a text, discourse level constraints on the topic, and world knowledge. World knowledge includes background information, shared knowledge (Coady and Nation, 1988; Garnham, 1985), general cultural background knowledge (Carrell and Eisterhold, 1987; Steffensen and Joag-Dev, 1984), and cultural background specifically related to target language literacy (Dycus, 1994).

Finally, there are congruous and incongruous contexts. Incongruous texts are the result of being purposely reorganized to disrupt their coherence, discourse structure, logical development for experimental purposes. In most cases, authentic and well-written text is naturally congruous. However, the research findings involving the use of incongruous (scrambled) texts with L1 and L2 readers is relevant to this paper, and will be discussed later.

Context effects

Word recognition studies have confirmed that context plays a role in the identification of words in text (Garnham, 1985; Gough, 1984; Underhill and Batt, 1996). Studies of context effects have established, among other things, that words are recognized better in context than out of context, and that simple word association enhances word recognition.

Studies have consistently shown that context can affect latency, which is how long it takes to do something, in experimental word recognition tasks. Lexical decision latency for a word is significantly reduced if it is preceded by a semantically related word (like the word "husband" appearing before the target word, "wife"). Appropriate sentential context has also been shown to improve the speed of lexical decision. But although the influence of context on word recognition has been clearly demonstrated, it is dependent on factors like age and language ability (Gough, 1984). Still, context

effects have been seen as justification for the guessing strategy.

Studies on guessing word meaning from context

Studies of both word recognition and of natural reading have produced results that have been interpreted as supporting the view that instruction in contextual analysis and the guessing of word meaning from context should be encouraged (Coady and Nation, 1988; Johnson and Baumann, 1984; Liu and Nation 1985; Twaddell, 1973; van Parreren and Schouten-van Parreren, 1981). Support for the strategy can be found in many reading textbooks and resource books. This is true despite the fact that there is also research that shows it to be of questionable value, which has been discounted or ignored.

For example, Bensoussan and Laufer (1984) found that their subjects could successfully guess only 25% of the unknown words in a text used in their study. Drawing on their own study, Schatz and Baldwin (1986) go even further, claiming that guessing is such an unproductive strategy that it should not be taught at all.

Haynes (1983) found that guessability was limited by readers' knowledge of the words immediately surrounding the word to be guessed. It was better when the surrounding words were known and worse when the words were not known. This indicates a threshold in language proficiency (Devine, 1988) is necessary before the guessing strategy can be really effective. Another finding was that guessing which only required reference to immediate sentence context was more effective than guessing which depended on textual elements farther away from the target word. In other words, guessing using local context is superior to guessing using global context. Because of this, Haynes believes we should only encourage guessing strategies if clues are in the immediate context, but that we should also teach when not to guess. Accordingly, if guessing requires global context, the guessing strategy should be abandoned and a dictionary or other resource should be used instead.

Chihara, Oller, Weaver and Chavez-Oller conducted a comparative study of Japanese EFL students of all levels of proficiency and native English speakers using congruous (unscrambled) and incongruous (scrambled) texts. All the subjects filled in words blanked out of each type of text according to cloze procedure. One of several findings was that the EFL students (all were Japanese) with higher language ability were able to deal with the blanked out words than those with lower ability, regardless of whether incongruous or congruous intersentential context was used. One implication of the study is that a higher levels of language ability allowed the advanced

subjects to make greater use of context. Cloze tasks, however, force subjects to use context. This does not necessarily mean that because they have the ability to use context that they actually *do* under normal circumstances using unaltered texts.

Research by West and Stanovich (1983; cited in Underhill and Batt, 1996), has shown that congruous or incongruous contexts have little effect on skilled readers while context had a significant effect on younger and poorer readers. Other studies support the conclusion that younger and poorer readers benefit more from context than skilled readers (Underhill and Batt, 1996). This implies that although skilled readers can make use of context when processing problems arise, they generally don't need to, while poorer readers use contextual clues because they have to.

Barnett (1988, p.80–81) has summarized the findings of reading research up to 1988 regarding guessing word meaning from context. She concludes that:

- a) all second language readers can guess word meanings to some extent,
- b) most readers depend on the form of the word to guess its meaning, especially when that form is similar to a word in L1,
- c) readers' guesses are usually defined by the schema they are using as they read,
- d) readers familiar with text topic guess word meanings better than those unfamiliar with the topic,
- e) usable context varies from rich to poor, and is affected by the proportion of known to unknown words,
- f) readers with larger active vocabularies can use available context better than those with smaller vocabularies, and,
- g) learners vary in their willingness to guess.

In a way, this lists raises as many questions as it answers. It indicates that both top-down and bottom-up processes play an important role in guessing word meaning from context but does not indicate the relative importance of one or the other. We are still left wondering whether reading is mostly concept driven or data driven. The research regarding the guessing strategy unfortunately points in two nearly opposite directions. The context effect has been amply demonstrated in experimental conditions and support for the strategy also comes from reading studies using more naturalistic texts and settings. Yet there is also reasonable evidence that the guessing strategy can be used to little or no effect. Clearly, these two disparate findings must be reconciled.

Questions about context effects

At the word recognition level, as distinguished from the more complex act of reading, context clearly plays some role. Semantic priming is one of the established context effects that supports a top-down view of processing. But semantically related words rarely occur together in such a way in authentic texts, casting doubt on the applicability of these findings on true reading (Gough, 1984).

The influence of context on word identification and the guessability of word meanings is also firmly established. The results of many studies indicate that sentential context does indeed affect word recognition, which in turn implies that reading is a top-down process because, if it were bottom-up, words would have to be recognized before contextual factors could come in to play (Gough, 1984). Still, while context has an effect on word recognition, that effect is not at all constant. Studies have consistently shown “larger effects with younger and poorer readers than with older and better ones” (Gough, 1984, p. 245) and a reasonable explanation is that poor readers resort to context as a way to compensate for problems in recognizing words because of stimulus degradation or lack of language ability. It is fair to conclude that the effects of context decrease in importance as readers become increasingly skilled.

Gough (1984) makes the point that the contexts in the studies he surveyed are not representative of those average readers encounter in average texts. In these studies target words were always nouns in the final position in a sentence. These factors make the targets highly predictable. In addition, nouns make up only a small part of all content words, and content words themselves only make up only about half of the words in a running text. He points out that the “context” used in studies does not correspond well with real world reading conditions at all, and goes as far to say that it may play almost no role at all in skilled reading, which he concludes is probably a bottom-up, language driven process most of the time (Gough, 1984).

The importance of a large available vocabulary

There are factors affecting guessability that are the result of the text and the L2 linguistic level of the reader. The context that can be utilized by the reader is in great part created by the reader (Bialystok, 1983), a product of knowledge of L2, the topic of the text, and applicable background knowledge.

There is good evidence that vocabulary plays an important role in the successful use of the guessing strategy. In fact, it is a prerequisite for fluent reading (Barrett,

1988; Coady and Nation, 1988). In guessing word meanings from context, it has become clear that the more words one knows the more one can guess, and the better one can read in general. A large vocabulary reduces the need for guessing meanings from context, and by reducing the density of unknown words in a text, the guessing that does have to be done can be done quickly and efficiently. In fact, good readers can be distinguished from those who are not so good simply on the basis of their skill, accuracy, and relatively high speed at recognizing words in context free settings (Eskey, 1988, cites Stanovich, 1980; van Dijk and Kintsch, 1983; Perfetti, 1985 to support this claim). In actual reading, Haynes (1983) found that low proficiency students have trouble guessing even local context sensitive words *because of their limited vocabulary* (emphasis added). Cooper (1984) comes to a similar conclusion in his study of poor readers (which he refers to as “unpracticed readers”) among a group of Malaysian university students.

Diller has pointed out that the vast majority of words encountered on a given page come from a relatively small group of words. For example, the 25 most common words account for one-third of the words on a page; 135 words takes one up to 50%. After that, the number of words needed increases in lognormal distribution. It takes just 2500 words to cover 78% of the page, but 5000 to reach 86%, and 10,000 to get to 92% of the text. The remaining 8% come from the roughly 200,000 words Diller says an educated adult native speaker of English knows. As a teaching goal, he recommends a minimum target of 10,000 of the most frequent words (Diller, 1978, p. 131–133). If context is seen as a construct relative to language ability (among other things) then it is clear that a solid knowledge of even the 5000 most frequently appearing words will give an EFL reader ample vocabulary to “build” enough context to use in guessing many (but certainly not all) unknown words. This would be a reasonable minimum goal for basic instruction.

The importance of syntactic knowledge and overall language ability

Deficits in syntactic knowledge is another demonstrated impediment to comprehending L2 text successfully (Cooper, 1984; Devine, 1988). Reading difficulties for ESL/EFL readers include bottom level processing problems in syntactic constraints, grammatical affixes, verb tense and aspect, and grammatical and lexical cohesion (Devine, 1988).

Readers must deal with both the macrostructure (the interrelationships between sentences and the arrangement of the text as a whole) and microstructure (the relation-

ship of linguistic units within sentences) of a text. Anderson and Pearson (1984, p. 278) discuss a study showing that while both fast and slow readers dealt with macrostructure variables roughly equally as well, slow readers were significantly slower than fast readers in dealing with microstructural variables (i. e. lexis and syntax). Syntactic/grammatical variables can confound even highly advanced L2 learners. An example of this are so-called "heavy noun phrases" (i. e. *Holding suspects in jail while waiting for evidence to be gathered is a violation of human rights.*), which pose problems for even advanced ESL/EFL readers (Eskey and Grabe, 1988).

Density and readability as factors affecting the guessing strategy

Guessability can be affected by density (ratio of known to unknown words in a text), the number of times a given word appears, the variety of contexts in which it appears, the importance of the word to understanding the context it is used in, and the usefulness of prior knowledge (Nation and Coady, 1988). All but the last of these factors combine to affect readability, which in turn affects context. Of these factors, density is seen as strongly affecting the guessing strategy.

Liu and Nation (1985) conducted a study on the effect of texts with high-density versus low-density of unknown words. They found that subjects scored better guessing target words from the text with a low density of unknown words than from the high-density text. Recommendations on the optimum number of unknown to known words in a text have yielded ratios ranging from as high as 1 in 12 to as low as 1 in 50 (Nation and Coady, 1988, p. 98–99). In studies with high proficiency L2 learners, Liu and Nation (1985) found that the subjects could correctly guess 85% to 100% of unknown low frequency words from context. They conclude that low proficiency L2 readers should be taught to use context clues, and can reasonably be expected to guess 60% to 80% of the unknown words they encounter. However, a different but reasonable implication is that the high proficiency readers guessed well because they already possess a good vocabulary and solid overall language ability. This well developed language base allows them to create and utilize ample context to successfully use the guessing strategy when needed.

Implications for teaching

The reasonable conclusion to draw at present is that for highly skilled readers reading is automatic and is not reliant on context under most normal circumstances

because they have greater knowledge of language. Less skilled readers and skilled child readers make more use of context to compensate for the difficulties they have when dealing with unknown words and difficult text. Their lack of language knowledge forces them to use context to help them apply what knowledge they do possess to the process of guessing word meanings. The fact that highly skilled readers do not make much use of context in normal conditions while poor and developing readers do indicates that an important part of being a skilled reader is knowledge of language and ability to use it. I would argue that language ability is more important than simple awareness and willingness to use the guessing strategy.

Beginning readers and advanced readers have been shown to use guessing strategies more than readers in the middle levels (Barnett, 1988). This is probably because beginners don't know much language and have to guess, although that guessing is highly dependent on L1 language knowledge and reading strategies. Advanced learners guess for the opposite reason; they know enough L2 to successfully apply it to unknown words and text organization. This indicates a pattern of learning needs that we should exploit as teachers. At the early stages, language skills and vocabulary should be built up before reading begins and extensive learning of language should not be expected to take place *through* reading. In Eskey's (1988) words, the emphasis would be on "learning to read" as opposed to "reading to learn." As proficiency increases this reverses, and extensive learning can take place through reading. It is the post-beginner to intermediate stages that are the most problematic, partly because it is at these levels that individual areas of proficiency begin to diverge and personal learning needs become pronounced (as opposed to when everyone is starting at roughly the same level), but it can be argued that intermediate level learners need a great deal of vocabulary development and less work on the guessing strategy because it is itself dependent on knowledge of language. *Some* guessing may be useful to teach because it encourages readers to make and test predictions, which is a skill which is of great use as readers move on to higher levels of proficiency (Liu and Nation, 1985). But the evidence discussed above dictates a *selective* approach, both by the L2 reader and by the reading instructor. This approach must include training in what contexts dependably provide the best opportunities for successful guessing, and must avoid urging use of the guessing strategy in all cases where readers encounter unknown words. Used improperly, the guessing strategy becomes a vehicle for frustration and demotivation (Barnett, 1988).

Problems in summary studies

Before concluding, it is important to point out problems in summary studies that make it difficult to accurately compare or assess the results of research on guessing word meaning from context. A major problem in summaries of reading research is that exactly what constitutes “context” is not always explained. Therefore, while it can be said that studies A, B, and C all indicate that readers use context, it is not always true that they are talking about the same things. Another problem is that the L1 reading ability of subjects in L2 reading studies is seldom determined, so it is difficult to say if problems and differences in ability are the result of a deficit in L2 language knowledge and ability for use or a reflection of the fact that subjects can't read well in L1, much less in L2 (Alderson, 1984). Relevant factors like age, reading ability, and language background (in L1 as well as L2) are important factors that should be clearly determined and stated in any discussion of this topic. Otherwise we run the risk of assuming that L1 findings automatically apply to L2 reading, or that research with children necessarily has direct implications for adults. There is in turn can lead to patronizing comparisons between L1 children and beginning or weak L2 readers, even though L2 adults are in most cases linguistically and cognitively mature and are already skilled reading in their L1. What are needed are more studies of L2 readers which take L1 reading ability into account, and a stronger L2 reading pedagogy so that we do not have to over-rely on L1 findings and their implications.

Conclusion

There is a growing body of research and critical speculation that indicates that the strategy of guessing word meanings from context has important limitations and therefore should be used selectively. This is especially clear if context is viewed not as an absolute presence in text but instead as existing in large degree relative to a reader's knowledge of the target language.

This in turn challenges the heavy top-down bias of models of reading such as the Goodman-Smith model, and brings assumptions based on them into question. There is ample evidence that language intensive bottom-up processing plays a more important role than higher level knowledge structures in post-beginner and intermediate level ESL/EFL readers. There is also evidence that beginning ESL/EFL readers make greater use of context than intermediate level learners, and that advanced readers can make use of context but generally don't need to probably because of the strong base

they have developed in L2 vocabulary, syntax, and general language knowledge. These factors all imply a need for encouraging use of the guessing strategy in a limited way and not as a cure-all for all learners at all levels of L2 development.

REFERENCES

- Alderson, J. C. (1984). Reading: a reading problem or a language problem? In J. Alderson & A. Urquhart (Eds.), *Reading in a foreign language*. London and New York: Longman, 1–24.
- Anderson, R., & Pearson, P. (1984). A schema-theoretic view of basic processes in reading comprehension. In *Handbook of reading research*. New York and London: Longman, 255–291.
- Bensoussan M., & Laufer, B. (1984). Lexical guessing in context in EFL reading comprehension. *Journal of Research in Reading*, 7 (1), 15–32
- Bialystok, E. (1983). Inferencing: Testing the “hypothesis-testing” hypothesis. In H. Seliger & M. Long (Eds.), *Classroom oriented research in second language acquisition*. Rowley, Mass: Newbury House, 104–133.
- Brown, H. D. (1972). Cognitive pruning and second language acquisition. *The Modern Language Journal*, 56 (4), 218–227.
- Carrell, P. (1988). Introduction: Interactive approaches to second language reading. In P. Carrell, J. Devine, and D. Eskey (Eds.), *Interactive approaches to second language reading*. Cambridge: Cambridge Univ. Press, 1–7.
- Carrell, P., Devine, J., & Eskey, D. (Eds.). (1988). *Interactive approaches to second language reading*. Cambridge: Cambridge Univ. Press
- Carrell, P., and Eisterhold, J. (1987) Schema theory and ESL reading pedagogy. In M. Long and J. Richards (Eds.), *Methodology in TESOL: A book of readings*. New York: Newbury House, 218–232.
- Coady, J. (1979) A psycholinguistic model of the ESL reader. In R. MacKay, B. Barkman, & R. Jordan (Eds.), *Reading in a second language*. Rowley, Mass.: Newbury House, 5–12.
- Cooper, M. (1984) Linguistic competence of non-native readers. In J. Alderson & A. Urquhart (Eds.), *Reading in a foreign language*. London and New York: Longman, 122–135.
- Denning, K, and Leben, W. (1995). *English vocabulary elements*. Oxford, U.K Oxford Univ. Press.
- Diller, K. (1978). *The language teaching controversy*. Rowley, Mass.: Newbury House
- Devine, J. (1988). The relationship between general language competence and second language reading proficiency: implications for teaching. In P. Carell, J. Devine, and D. Eskey (Eds.), *Interactive approaches to second language reading*. Cambridge, U.K.: Cambridge Univ. Press, 260–278.
- Dycus, D. (1994). The cultural literacy concept and foreign language learning. *Aichi Shukutoku Tanki Daigaku Kiyō*, 33, 109–120.
- Eskey, D. & Grabe, W. (1988). Interactive models for second language reading. In P. Carell, J. Devine, and D. Eskey (Eds.), *Interactive approaches to second language reading*. Cambridge,

- U. K.: Cambridge Univ. Press, 223–238.
- Garnham, A. (1985). *Psycholinguistics: Central topics*. London and New York: Routledge.
- Goh, Soo Tian. (1990). The effects of rhetorical organization in expository prose on ESL readers in Singapore. *RELC Journal*, 21 (2), pp. 1–13.
- Goodman, K. (1967) Reading: a psycholinguistic guessing game. *Journal of the Reading Specialist*, 6 (1), 126–135.
- Goodman, K. (1973) On the psycholinguistic method of teaching reading. In F. Smith (Ed.), *Psycholinguistics and reading*. New York: Holt Rinehart and Winston, 158–176.
- Goodman (1975) The reading process. In P. Carrell, J. Devine, & D. Eskey (Eds.), *Interactive approaches to second language reading*. Cambridge: Cambridge Univ. Press, 11–21. Originally published in F. W. Gollasche (Ed.), *Language and literacy: The selected writings of Kenneth Goodman*. London: Routledge and Kegan Paul, 5–16.
- Gough, P. (1984). Word recognition. In P. D. Pearson (Ed.), *Handbook of reading research*. New York and London: Longman, 225–253.
- Grabe, W. (1988) Reassessing the term “interactive.” In P. Carrell, J. Devine, and D. Eskey (Eds.), *Interactive approaches to second language reading*. Cambridge: Cambridge Univ. Press, 56–70.
- Grellet, F. (1987). *Developing reading skills: A practical guide to reading comprehension exercises* (8th edition). Cambridge: Cambridge Univ. Press.
- Haynes, M. (1983). Patterns and perils of guessing in second language reading. in J. Handsome, R. A. Orem, & B. P. Taylor, On TESOL '83: The question of control. Selected papers from the Seventeenth Annual Convention of Teachers of English to Speakers of Other Languages, Toronto, Canada, March 15–20, 1983.
- Johnson, D., and Bauman, J. (1984). Word identification. In P. D. Pearson (Ed.), *Handbook of reading research*. New York and London: Longman, pp. 583–608.
- Liu, Na & Nation, I. S. P. (1985) Factors affecting guessing vocabulary in context. *RELC Journal*, 16 (1), pp. ?
- Nation, P. & Coady, J. (1988) Vocabulary and reading. In R. Carter & M. McCarthy (Eds.), *Vocabulary and language teaching*. London and New York: Longman, 97–110.
- Paran, A. (1996) Reading in EFL: facts and fictions. *ELT Journal*, 50 (1), 25–34.
- Samuels, S. J., & Kamil, M. (1984). Models of the reading process. In P. D. Pearson (Ed.), *Handbook of reading research*. New York and London: Longman, pp. 185–224.
- Schatz, E. K., & Baldwin, R.S. (1986). Context clues are unreliable predictors of word meanings. *Reading Research Quarterly*, 21 (4), pp. 439–453.
- Smith, F. (1982) *Understanding reading*. New York: Holt, Rinehart and Winston.
- Spiro, R. J., & Myers, A. (1984). Individual differences and underlying cognitive processes in reading. In P. D. Pearson (Ed.), *Handbook of reading research*. New York and London: Longman, pp. 471–501.
- Seffensen, M., & Joag–Dev, C. (1984). Cultural knowledge and reading. In J. Alderson and A. Urquhart (Eds.), *Reading in a foreign language*. London and New York: Longman, 213–26.
- Twaddell, W. (1973). Vocabulary expansion in the TESOL classroom. *TESOL Quarterly*, 7 (1), 61–78.

- Underwood, G., & Batt, V. (1996). *Reading and understanding*. London: Blackwell Publishers.
- van Parreren, C., & Schouten-van Parreren, M. (1981). Contextual guessing: A trainable reader strategy. *System*, 9, 235-41.