Vocabulary and Syntax as Factors in ESL Text Readability

by Teresa Cox

Introduction

During the 1985 and 1986 academic years, I have been involved in a materials development project, writing and field testing a series of content readings and supporting exercises on American history and culture. These materials were intended for EFL students in a Japanese junior college course. The goal of the course was to teach a content area, American history and culture, in English, but not to teach English language or reading skills directly.

Before writing the materials, I investigated the research and literature on EFL and ESL readability in an attempt to ascertain what factors were important in determining the readability of a text, and to develop an approach to writing the materials. Text format, reader motivation, background knowledge, text organization, information load, and vocabulary and syntax all seemed to be key factors affecting readability. In this paper, I will discuss how vocabulary and syntax may affect readability and consider some approaches to controlling them to make a text more readable.

Although it is generally agreed that the complexity of syntax and vocabulary affect the readability of a text, current theory and research seem to be undecided as to what degree of complexity can be tolerated by readers, and which of these two linguistic variables is more crucial to understanding. Many of the studies made have dealt with only one of these factors at a time, or dealt with first language rather than second language reading, making it even more difficult to draw reliable conclusions to guide the writer of EFL/ESL materials. I am considering research and theory about syntax and vocabulary together because they are both linguistic variables, and because they are often treated together in the literature. Rather than the two functioning as isolated elements, there seems to be an interrelationship between vocabulary and syntax when a reader is drawing meaning from reading, as from language in general.

Krashen and Terrell state that the first criterion for the appropriateness of a reading for a given reader is the level of complexity. However, there are various sources of complexity in reading, including lexical, syntactic, and semantic factors, and these seem to be interrelated.[1]

Vocabulary as a Key to Meaning

Krashen and Terrell believe that lexical and semantic factors can outweigh syntactic factors because readers will use their familiarity with a topic and their existing lexical knowledge to get through passages which are syntactically too difficult. They cite research indicating that readers can understand passages that contain structures which are "over their heads"—well beyond their $i+1$—perhaps because they use a semantic strategy, making hypotheses about meaning based mostly on words used in the text, but also using context and grammar they have acquired.[2] Krashen and Terrell's hypotheses are supported by other research,[3] including recent studies considering reader background knowledge. ,which are discussed below under "Familiarity with Content."

Thus Krashen places great importance on vocabulary as both an aid to comprehension and a potential source of difficulty in reading, and also seems to argue in favor of some unspecified limit to the number of unknown words in a text.[4] It is difficult to determine how many unknown lexical items can be tolerated by a reader, but if word by word translation is necessary, then the number of unknown words is certainly too high.[5] It would seem that some sort of fine balance of known and unfamiliar words is necessary. Second language learners do need to expand their vocabulary and develop techniques and strategies for approaching new words, so some exposure to unknown words is desirable. Also, some unfamiliar words should be included just to maintain interest and challenge for the reader.

The content or topic of a reading will help determine to some extent what vocabulary, familiar and unfamiliar, should be used.[6] For example, readings on American history and culture will require some topic-specific vocabulary which cannot easily be paraphrased, but could be guessed from context if materials are well written, and possibly acquired through reading. Some examples of topic specific words used in the American history and culture readings developed for this project are colony, explorer, revolution, and settler.

The Effect of Glossing or Pre-teaching Vocabulary

Leki summarizes the current thinking of researchers that reading word by word, intolerance of ambiguity, and continual reference to glossaries or dictionaries hinder the construction of meaning from a text.[7] She argues against the inclusion of glossing or extensive vocabulary lists in a reading because they discourage the reader from forming the necessary habit of intelligent guessing. The emphasis in schema theory on hypothesizing in reading indicates that vocabulary work should not be a part of the reading process, but a separate learning activity. Clarke and Silberstein also emphasize that students must become aware of the many linguistic clues to meaning present in the text. When they are stopped by unfamiliar words, they can usually continue reading and still have a general understanding.[8] It follows that a writer should try to maximize these clues—which include both lexical and syntactic redundancy, punctuation, syntax, semantic, and discourse clues—when preparing materials. They argue against the use of glossaries and instead recommend introducing unfamiliar vocabulary in several sentences with clear context, a method which they claim has proven successful.[9] Clarke and Silberstein recommend that pre-reading vocabulary work be limited to items which are not made clear in the passage.

In other research on the relationship between vocabulary complexity and reading comprehension, Carrell found that vocabulary difficulty did seem to affect comprehension of ESL readers,[10] and other researchers have found strong correlations between a) knowledge of word meanings and ability to comprehend passages containing these words, and b) word difficulty and reading passage difficulty for *first* language learners.[11] However, Johnson and others have concluded that specific teaching of vocabulary seems to have little impact on understanding.[12] In fact, in one study, Johnson found that a group which studied vocabulary before reading and also had words glossed in the text actually recalled less of what they read, whereas the group with no prior vocabulary study or glossing showed no significant difference from other groups in overall comprehension.[13] She hypothesized that the stress on vocabulary with the one group may have encouraged word by word reading, which interfered with general comprehension. Another explanation might be Krashen's distinction between language acquisition and learning; it is possible that only vocabulary that is already "acquired" will aid in comprehension.[14]

Since research and theory seemed to conclude that neither pre-teaching of vocabulary nor the use of glossaries with texts seemed to be of much benefit to readers, and possibly even to have a negative effect on comprehension, I decided not to gloss words or do formal pre-teaching of vocabulary used in the readings, and to restrict the use of dictionaries.

Familiarity with Content

Johnson claims that both the level of vocabulary difficulty and the cultural background of the topic have a significant influence on reading comprehension.[15] Because of incomplete linguistic knowledge, EFL/ESL readers would probably have to sample more from a text, and they might not successfully recover from wrong guesses as to meaning, leading to inaccurate predictions and comprehension. They may depend much more on background knowledge than first language readers, and they need to be given lots of cues in the text. Vocabulary difficulty may influence comprehension at the word or sentence level, but background knowledge seems to have a much clearer effect on comprehension. She concludes that it may take a very high amount of difficult vocabulary to significantly affect comprehension, and that normal redundancy may allow readers to deal with unfamiliar words without too much disruption, especially if the reader is familiar with the topic. Johnson argues against the emphasis on development of vocabulary knowledge in many reading texts, because it may encourage word by word reading, which hinders meaningful comprehension[16] and prevents the reader from developing more mature reading skills. However, Johnson found in one study that comprehension of a passage of foreign cultural origin—where background knowledge was presumably quite weak—was better when both vocabulary and structure were simplified.[17]

Approaches to Controlling Vocabulary

Since the American history and culture readings developed for this project contained information and cultural material that was to some degree unfamiliar to the EFL readers who were my target group, I felt the need to exercise some degree of control on the amount of unfamiliar vocabulary in each reading in addition to writing in a way that would provide cues for inferencing. The problems were two-fold: how

to determine which words were actually unfamiliar to my students, and how many of these unfamiliar words they could be expected to tolerate in a passage without significant adverse effects on comprehension.

One approach to controlling vocabulary used by writers and publishers of both first and second language graded reading materials is to limit most of the vocabulary in a text using one of several developmental word lists or word frequency lists, such as the Dolch Basic Sight Word List, Dale Easy Word List and Dale 3000 Word List familiar to American elementary school teachers, or surveys of the frequency of word use by native speakers of English such as *The American Heritage Word Frequency List* or Longman's *A General Service List of English Words*.

However, I felt that there were several problems with such an approach. First, using a general word list as a limit showed no consideration for either the topic or the audience. Such word lists were compiled for native speakers of English—some for British speakers, some for American, and some for both—but might not have any relation whatsoever to the vocabulary that non-native speakers at various ages and levels of liguistic development in countries outside the U. S. or U. K. might be expected to know. The Japan Association of College English Teachers, JACET, has compiled a list of approximately four thousand words which they believe should be familiar to all college bound students in Japan after six years of English study in Japanese secondary schools. However, after four years of experience as a college teacher in Japan, I could see that my students did not have even a passive vocabulary this large. In addition to problems with content nouns and verbs on the JACET list, even many seemingly common expressions of time, place, or transition were difficult or incomprehensible to them.

Secondly, most word lists, with the exception of Hofland and Johansson's *Word Frequency in British and American English*, were compiled many years ago, some originally fifty years ago or more, with only minor revisions in the interim. Thus they do not reflect current language or usage.

A final argument against basing my readings on such word lists was the impracticality of having to check every word in each reading against such a list.

I decided instead to use a subjective approach to controlling the vocabulary, based largely on my ten years of teaching experience in Japan, including four years at the college level. I had taught this course in American History and Culture during two previous years, using published texts. I had also taught oral English to the same

students who would be in this course during the previous school year, when they were first year students at the college, so I had a fair idea of their English ability.

Besides relying on my experience and knowledge of the students to guide my writing, I also asked them for feedback on the readings and on the vocabulary used, so that I could rewrite anything that proved too difficult before using it the following year. The students gave feedback by responding to questionnaires evaluating the difficulty and interest levels of each reading, and by indicating which vocabulary words they felt were causing difficulties.

Since Fry recommends limiting new vocabulary to 5% of a text, and 10% is considered to be the frustration level for native speakers, I tried to insure that the unfamiliar vocabulary in the readings remained below about five percent. Another source suggests limiting unfamiliar vocabulary to one new word in thirty-five, or 2.85%, for EFL/ESL students when the new words contain concepts central to the passage, which might often be the case in these readings.[18]

Controlling Structure

Many publishers of graded readers for English language learners have applied structural controls to their readers and these controls may be very carefully prescribed for different levels.[19] However, this sort of rigid structural approach seems to be losing favor, and the same publishers are now producing some readers which take a more intuitive, common sense approach to controlling structure. One publisher advocates the use of a generally intuitive approach to controlling syntax in some readers, but recommends avoiding overly complex sentences and difficult structures such as the perfect, conditionals, and relative clauses.[20]

Krashen's theory of language acquisition argues against excessive grammatical grading, because comprehensible input should be supplied in quantity and variety so that learners will be exposed to the structures they are ready to acquire next.[21] However, Krashen and Terrell do agree that long sentences, especially those with embedded clauses, will be more difficult for learners to process.[22] Krashen proposes a sort of "rough tuning" approach to controlling structure.[23]

Schema theory, with support from research, says that syntactic complexity is not an absolute determiner of the difficulty of a text. In fact, it is a mistake to reduce the syntactic difficulty of a text with the intention of making it easier for

limited English proficiency readers to comprehend. On the contrary, this may actually make the text more difficult to process if natural redundancy and relational markers are removed.[24] In one study, it was found that the exclusive use of short, primarily simple sentences in a text was actually an obstacle to comprehension.[25] The formation of complex sentences can give the reader more information about relationships and meaning, particularly if markers such as relative pronouns or subjects in subordinate clauses are retained. By the same reasoning, shorter texts are not necessarily easier to understand.

This argument for redundancy and syntactic complexity agrees with Goodman's description of the good reader as one who takes advantage of the inherent redundancy of language to reconstruct an entire text while actually sampling only a portion of it.[26] The reader constructs the meaning by sampling the text, predicting, testing hypotheses, and confirming or disproving them. The problem for many second language learners seems to be lack of skill in these processes. EFL/ESL readers do not seem to use the cues available for inferencing efficiently, although it is not clear why—lack of these skills in the first language, lack of transfer to the second language, or just overload on the system.[27] For Japanese, it may be possible that they do not use such skills as much when reading in their native language, perhaps because of the nature of the character-based writing system, or because the educational system in Japan does not encourage guessing.

Blau notes that there are several other factors which may interact with syntax and vocabulary to affect readability, including text organization, density of ideas, conceptual difficulty, interest, and prior knowledge.[28]

Readability Formulas

In an effort to provide a readily applicable tool for primary and secondary level teachers of first language English reading, researchers and educators have developed a number of so called readability indexes or formulas such as the Spache Formula, the Dale-Chall Readability Formula, the Fog Index, and the Fry Readability Graph. The criteria used in these formulas are generally limited to number and/or average length of sentences in a sample of a text, and word difficulty, which is determined variously by the number of syllables in the case of the Fog Index and the Fry Readability Graph, or by the number of words not on a certain developmental list, such

as the Dale Easy Word List for the Spache Formula, or the Dale 3000 list for the Dale-Chall Readability Formula. The number result of a calculation based on a sample text will give an approximate grade level for that text.[29]

It seemed inappropriate to me to try and apply any of these readability formulas to the materials I was writing for a number of reasons. First, the formulas were not designed for use with college level EFL or ESL readers, but for American native English speaking school children. Second, the criteria for the formulas seemed too limited and simplistic, and some of the assumptions seemed questionable. In the previous section, I mentioned research which indicates that it is wrong to assume that simple sentences are necessarily easier to read; in fact, the exclusive use of short simple sentences may make it more difficult for a reader to make logical connections between sentences and therefore comprehend overall meaning. In addition, a string of simple sentences may require more words to express an idea than if compound or complex sentences are used. It is also doubtful that all polysyllabic words are more difficult or likely to be unfamiliar, and the word lists which serve as a basis for some formulas may suffer from the same shortcomings of age and applicability as the word lists discussed in the earlier section on Approaches to Controlling Vocabulary.

The most serious shortcoming of these readability formulas is that they fail to take factors other than syntax and vocabulary into consideration at all. They deal with only some of the factors present in the actual text, deal with those in a way which may be theorectically unsound, and fail to consider any factors outside the text—that is, they do not consider the reader.

One other method of testing readability which does involve the reader is the cloze test. The usual procedure when using a cloze to determine readability is to take a sample of one hundred to three hundred words of the text, preferably a section which is complete in itself, and delete every fifth word, except in the first and last sentences, which are left intact. The target group is then asked to try and fill in the exact words deleted, with no time limit. If the group scores an average of sixty percent or higher, the reading is said to be at their independent reading level. Forty to sixty percent correct would also be suitable reading material for the group at the "instructional" level, but below forty percent is considered the frustration level.

Although the cloze test seemed to me to be a theoretically acceptable way of

checking readability, since it considers the reader and seems to test global language ability, I did not use it to test in part or in full any of the readings I developed. Since the focus was on the information contained in the readings, the students would have to be given the complete text of each reading for study after working on the cloze. Although it would have been interesting to see the results, time simply did not allow for cloze testing in addition to the reading and other feedback procedures I had devised. However, it might be useful to try cloze testing a portion of the revised readings on the following year's class, or to employ the cloze test as a post-reading exercise or testing tool.

Conclusion

After research into the nature of the reading process to identify potential sources of reading comprehension problems, and a survey of various vocabulary lists and structural grading approaches now in use, I decided to use an intuitive, common sense approach to controlling vocabulary and structures used in the texts I was developing, rather than a formal word or structure list or readability formula approach. I was guided both by my knowledge of the students in the target group and by the vocabulary I felt was needed for the content material.

In order to keep a check on how well I was succeeding in writing readable materials, I decided to solicit feedback from the students after each reading. This feedback would help me in the preparation of subsequent readings, and could also be used to revise the existing readings to make them better when used in the future.

Since research indicated that vocabulary is a major factor in determining meaning when reading, I tried to limit the amount of unfamiliar vocabulary to an acceptable level, probably between three and five percent of the total text in each reading. In order to check on how much vocabulary the students actually felt was unfamiliar in the readings tested, I asked them to underline words they could not understand after the second or third reading of each text, and I kept a record of the results.

In order to help students infer meaning of difficult vocabulary items, so that they would be able to read smoothly and confidently at a speed which would be conducive to reading for meaning rather than surface decoding, I attempted to provide a number of clues to the meaning of possibly unfamiliar words within the text itself. This was done by using illustrations, redundancy in the text, paraphrasing vocabulary

items in the text itself, and providing a clear context for difficult or new words.

Since much of the research seemed to agree that simpler sentence structure does not necessarily aid reading comprehension, I decided not to impose formal constraints on syntax. However, in order to manage information load, I tried to intuitively limit the number and complexity of clauses and the amount of new information in each sentence, with particular caution on the use of embedded sentences, which seem to be most difficult for EFL/ESL readers to negotiate.

The readings and exercises were well received by the students, and I felt that the American History and Culture course was considerably more successful than in previous years. In particular, the students responded well to my requests for feedback, perhaps because they could see the effects of their input on subsequent readings, and this sort of student-teacher dialogue seemed to have a beneficial effect on the atmosphere of the class. As a result of the constructive comments given by students, I can see many improvements which can be made in the materials, and I am revising and expanding them with a new class during the current 1986 academic year in the hope of making the texts more readable for future classes.

Notes

1. Steven D. Krashen and Tracy D. Terrell, *The Natural Approach : Language Acquisition in the Classroom* (Oxford : The Alemany Press/Pergamon Press Ltd., 1983), p. 132-133.
2. Krashen and Terrell, *Natural Approach*, p. 133.
3. For one example of supporting research and references to others, see Patricia Johnson, "The Effects on Reading Comprehension of Language Complexity and Cultural Background of a Text," *TESOL Quarterly*, 15 (1981), 169-181.
4. Stephen D. Krashen, *Principles and Practice in Second Language Acquisition* (New York : Pergamon, 1982), p. 109.
5. Krashen and Terrell, *Natural Approach*, p. 132.
6. John Milne, *Heinemann Guided Readers Handbook* (London : Heinemann Educational Books, 1977), pp. 16-19.
7. Ilona Leki, Review of *Outsiders : American Short Stories for Students of ESL* by Jean S. Mullen, and *Literature for Discussion : A Reader for Advanced Students of English as a Second Language*, by John F. Povey, in *TESOL Quarterly*, 18 (1984), 729-735.
8. Mark A. Clarke and Sandra Silberstein, "Towards a Realization of Psycholinguistic Principles in the ESL Reading Class," in *Reading a Second Language*, ed. Ronald Mackay, Bruce Barkman, and R. R. Jordan (Rowley, Mass.: Newbury House, 1979), p. 50 and 57.
9. Patrica L. Carrell and Bill Wallace's article on "Background Knowledge : Context and Familiarity in Reading Comprehension," in *On TESOL '82 : Pacific Perspectives on Language and*

Teaching, ed. Mark A. Clarke and Jean Handscombe, (Washington D. C., TESOL, 1983), p. 306, notes that ESL readers often do not seem to efficiently exploit the contextual clues available to them.

10. See the discussion of a 1982 research report by Carrell in Leki's previously cited review of *Outsiders* and *Literature for Discussion*, p. 729.

11. Patricia Johnson, "Effects on Reading Comprehension of Building Background Knowledge," *TESOLQuartery*, 16 (1982), p. 505.

12. A discussion of relevant research can be found in Leki's review of *Outsiders* and *Literature for Discussion*, previously cited, pp. 729-730, and in Johnson, "Effects of Building Background Knowledge," p. 505.

13. Johnson, "Effects of Building Background Knowledge," p. 514.

14. Leki, p. 730.

15. Johnson, "Effects of Building Background Knowledge," p. 504.

16. Johnson, "Effects of Building Background Knowledge," p. 514.

17. Johnson, "Effects of Building Background Knowledge," p. 505. She refers to her own research reported in an earlier article, "Effects of Language Complexity and Cultural Background of a Text," *TESOL Quarterly*, 15 (1981), 169-181.

18. Dr. Donald J. Bowen, Dr. Harold Madsen, and Ann Hilferty, *TESOL Techniques and Procedures* (Rowley, Mass.: Newbury House, 1985), p. 231.

19. For examples, see D. K. Swan, *The Longman Guide to Graded Reading* (London: Longman, 1977), p. 16.

20. John Milne, *Heinemann Guided Readers Handbook* (London: Heinemann Educational Books, 1977), pp. 11-16.

21. Krashen, *Writing: Research, Theory, and Applications* (Oxford: Pergamon Institute of English, 1984), p. 22.

22. Krashen and Terrell, *Natural Approach*, p. 133.

23. Krashen, *Principles and Practice in Second Language Acquisition*, p. 164-167.

24. Leki, p. 730.

25. Eileen K. Blau, "The Effect of Syntax on Readability for ESL Students in Puerto Rico," *TESOL Quartery*, 16 (1982), 517-528.

26. Johnson, "Effects of Building Background Knowledge," p. 503.

27. Carrell and Wallace, "Background Knowledge," p. 305-306.

28. Blau, p. 526.

29. For much of the background information on readability formulas, and some invaluable insights into their potential shortcomings, I am indebted to a workshop by Barbara Lindsay Sosna and Elizabeth Templin, "Readability: How to Adapt and Write Reading Materials for Beginning to Intermediate Students," TESOL Twentieth Annual Convention, Anaheim, California, March 3, 1986.