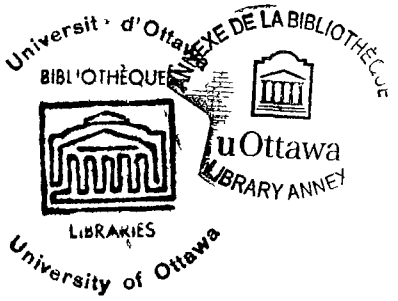
ERROR ANALYSIS, INTERLANGUAGE AND SECOND LANGUAGE READING STRATEGIES

by Raymond Théberge

Thesis presented to the School of Graduate Studies
of the University of Ottawa as partial fulfilment
of the requirements for the degree of
Master of Arts



Ottawa, September, 1976.

ABSTRACT

Current first language reading theory proposes the following components for reading ability: the use of cues, the reader's prior linguistic knowledge, his decoding strategies and his knowledge of the world. The study described in this thesis attempted to measure the extent to which the theoretical components were discernible among L2 students.

The tool by which the investigation was conducted consisted of an experimental reading test. The following components of L2 reading were investigated: the reader's linguistic knowledge at a certain point in his learning career (his interlanguage) and its effects on the use of cues and reading strategies. Error analysis was the procedure by which cues and interlanguage were studied.

The general conclusions of this study, applied to theories of reading, cognition, and comprehension, were obtained. 1) The results of the study substantiate certain principles of L1 reading theory: a) There is a positive relationship between reading ability and the knowledge of grammar and vocabulary. b) A good reader extracts the maximum amount of information from a minimum of cues. c) In addition, it was found that grammatical knowledge seems to supersede lexical knowledge since fluent reading depends on the recognition of grammatical patterning. 2) The psychological model of processing stimuli seems to be applicable to L2 reading. 3) No conclusive results were obtained to add to existing theories of comprehension.

ACKNOWLEDGEMENTS

I take this opportunity to thank my thesis director, Dr. P.C. Hauptman, for his help, advice and patience during the writing of this thesis. I am grateful to all members of the Department of Linguistics for my training in linguistics.

TABLE OF CONTENTS

CHAPTER I

REVIEW OF THE LITERATURE

1.0 INTRODUCTION

The purpose of this chapter is five-fold. The first part outlines the history of native language (L1) reading theory and of second language (L2) reading theory. The second part states the underlying principles and concepts of contemporary reading theory in terms of L1 and L2. The error analysis hypothesis is discussed in the third part. The fourth part deals with cloze testing procedures. The fifth part states the questions and problems to be investigated.

1.1 HISTORY OF READING

1.1.1 FIRST LANGUAGE READING

The literature through 1967, dealing with the theoretical foundations of reading is primarily based on purely pedagogical considerations. The literature consists of a series of methods for teaching reading.

The history of reading is characterized by a great debate focusing on two views of reading. The two approaches are known as the code-breaking approach and the whole-word approach. The debate is centered on the problem of the units specific to reading: letters, words, phrases and sentences. This controversy was historically based on the letter-word opposition.

The code-breaking approach is based on the identification of the

smallest units i.e. letters. From this approach two types of teaching methods resulted: the alphabet method and the phonic method. The alphabet method is the oldest method having been used from the early Greeks through the 1880's in the United States. The method was spelling-based. The student's task was to learn the names of the small and large letters of the alphabet. This stage could take up to a year. The next step was to combine these letters into monosyllables and progressively attain the polysyllabic or word-level. "It was assumed that there was a necessary connection between naming the letters of a word and pronouncing them." (Huey 1968:255).

The code-breaking approach also fostered the phonic method which is rooted in the Jansenist tradition (1790) and the Port-Royal schools. "In the phonic method the words are spelled by producing the succession of sounds forming them." (Huey 1968:260).

The fundamental problem with the phonic method is the proliferation of symbols since it attempts to provide one symbol for each sound. Its main advantage with respect to the alphabet method was that naming a letter gave no indication as to its pronunciation. The phonic method signalled the end of the alphabet method.

The second major orientation, the whole-word approach, originated in 1657 with the publishing of Comenius's "Orbis Pictus". The method was advocated by Jacotot in France, Worcester and Mann in America (1870). Huey (1968:272) described the whole-word approach as one in which the whole sound of the word is associated with the word's total appearance, and is suggested just as the name of any

object comes to mind on seeing the whole object."

The proponents of this approach argue that the child can learn a word just as quickly as a letter. This assumption is based on the notion that the word is not the sum of its letter parts but rather that it is a unique configuration and should be learnt as such. The detractors of the approach argue that the word method is insufficient since it must be complemented with phonics since naming a word does not indicate its pronunciation.

During the twentieth century, new factors played a role in the explanation of the reading process. The advent of new theories in psychology and linguistics supplied the insights into the reading process. Two of the dominant psychological theories of this century have been behaviorism and cognitive psychology. From a linguistic viewpoint, the reading process was investigated by Leonard Bloomfield and Charles Fries. Their research was based on formal linguistic evidence. The field of language teaching can be viewed as a triad of disciplines: linguistics, psychology and pedagogy.

Bloomfield's view of reading was related to the code-breaking approach but his view was a refutation of the traditional code-breaking approach known as phonics. Bloomfield (1961)* constructed a teaching method based on phoneme-grapheme correspondances. These relationships are based on the phonological contrasts in English. Therefore one can assume that Bloomfield viewed writing as a fairly

* Bloomfield had devised his own method of teaching his son to read. The method along with his opinions were incorporated into Let's Read (Bloomfield, Barnhart 1961) and was known as the Bloomfield system for teaching reading.

systematic representation of speech.

According to Fries (1963) the basic task in reading was not the discrimination between the units of the alphabet but rather to differentiate between larger units i.e. words and their meanings. Therefore in order to learn how to read one must learn contrastive word patterns.

The majority of the literature of the first part of the twentieth century reflects the influence of behaviorism and structuralism in psychology and linguistics respectively. However, many modern researchers have neglected the work of E.B. Huey (1908), The Psychology and Pedagogy of Reading. This work represents the earliest cognitive investigation of the reading process. Huey viewed reading as an information processing activity where the symbols on a page of print provide the input to the processing mechanisms. His study of reading is based on the research results of eye mouvements during reading, according to Emile Javal (1878, 1879). The eyes do not smoothly scan a page of print but rather they move in jumps termed saccades. Furthermore the eyes do not continuously move forward but there are backward hops to parts of the text which have already been scanned.

Such a view of reading was ahead of its time and had minimal direct influence on the reading materials. However, Huey can be considered the precursor of contemporary psycholinguistic theory and research pertinent to the reading process.

1.1.2 CONTEMPORARY READING THEORY

The present view of reading is expressed by Kenneth S. Goodman (1967, 1968, 1969) and Frank Smith (1971, 1974), "... reading is a rapid series of guesses, tentative information processing. The less available information the reader uses the more rapid and efficient is his reading." (Goodman 1968:19). These guesses are based on information provided by the cue systems in the written language.

A similar view of reading is adopted by Smith (1971). Smith's model is feature-analytic and postulates the following hypotheses. Reading is a communication process in which the reader plays an active role: he reduces uncertainty. Furthermore, the elements that are distinctive features of the visual configurations may also be the distinctive features of words and that the same process of immediate identification may be used for whole words as well as letters (Smith 1971).

1.2 SECOND LANGUAGE READING

Smith's and Goodman's reading theory deals with the reading process in terms of the native language. The study of the reading process in a second language is related to the more general scheme of language teaching.

Historically, the grammar translation method of language teaching considered reading as central. In 1929, The Coleman Report viewed reading as the most useful skill in learning the literary

heritage and culture of the respective languages.

The goal was the knowledge gleaned from decoding the printed page. To attain reading proficiency, one was taught a lexical repertoire and grammar. The grammar provided morphological and syntactic signals (cues) necessary to fluent reading. For this purpose, frequency lists were compiled and grammars written, e.g. French Idiom List by Frederich C. Cheydleur, 1929, Standard French Grammar by William H. Fraser and J.S. Squair, 1901.

In order to test comprehension the student was asked to translate the text he had just read. Consequently, ability in translation was generally believed to be synonymous with proficiency in L2.

The audio-lingual methods which closely adhered to dogma of structural linguistics aimed to make students orally proficient. Because of the structural belief in the primacy of speech it is not difficult to understand the practioner's consequent view of reading as reinforcing the oral aspect of language. Writing was, thus, a transcription of the oral units of language. "To read is to grasp language patterns from their written representation." (Lado 1964:132). Consequently, "The program moves on a double track. One track is laid out systematically, the association of sounds and symbols. On the other is handled the reading of sentences already mastered orally." (Lado 1964:137).

A serious application of contemporary psycholinguistic prin-

ciples to L2 reading can be found in a paper by Mark A. Clarke and Sandra Silberstein (1975). Their exercises are intended to help students in two areas central to Goodman's theory: using the cue system of L2 and in increasing general L2 proficiency. Clarke and Silberstein show that learning to read is most efficient through the acquisition of various reading skills: scanning, skimming, reading for thorough comprehension and critical reading. The texts chosen for instruction should reflect the 'real world' in order to make use of the reader's knowledge of the world. But more importantly the texts should be suited to the skill one is attempting to confer. The skills of scanning and skimming enable the learner to focus on cues and increase his power of prediction. The reading skills exercises are coupled with language skills exercises: vocabulary, structure and discourse since reading fluency appears to be related to overall linguistic competence. Such a combination of exercises will enable the student to read more efficiently by using a minimum number of cues to extract maximum information.

1.3 ERROR ANALYSIS

The error analysis hypothesis was postulated by S. Pit Corder (1967, 1971, 1972, 1973, 1974) and later expounded by J.C. Richards (1971) and L. Selinker (1972). Error analysis is the psycho-procedure which will enable us to investigate the reading process. According to Corder (1973) error analysis has two uses: one practical and the other theoretical. From a practical point of view, errors

are of use to the teacher since they provide feedback. Theoretically, errors provide certain kinds of information pertinent to second language acquisition. "From his (learner's) errors we are able to infer the nature of his language at that point in his learning career and discover what he still has to learn." (257).

The goal of error analysis is not simply to describe the errors but to provide explanations. These explanations constitute a series of hypotheses concerning language learning strategies. The term strategy can be defined as a systematic attempt to deal with the data i.e. the syllabus (Richards 1971). These learning strategies permit the learner to acquire a functional communication system. Such a system is termed interlanguage (Selinker 1972, Richards 1971). Interlanguage is a transitional competence (Corder 1967). According to the error analysis hypothesis, errors are systematic as opposed to mistakes which are idiosyncratic. Thus interlanguage can not only be described but it can be constructed according to the errors. This reconstruction of the learner's interlanguage enables one to see the relationships between the native and target language. In terms of reading strategies, one can see the application of L1 reading strategies to L2 reading tasks. Therefore a reconstruction of the learner's interlanguage is a comparative procedure where the learner's L2 output is compared to his native language.

1.4 CLOZE PROCEDURES

The testing procedure to be employed to gather our data is the cloze technique. The cloze technique was first reported on by W.C. Taylor (1953). The procedure has evolved from a type of readability test to its present usage as an integrative skills test.

In constructing a cloze test, one deletes every n^{th} word from a written text. However, it has been demonstrated by Oller and Conrad (1971) that any test deleting less than every fifth word is much too difficult while more than every tenth is not demanding. The reason for random deletion is to prevent biasing the text in favor of certain grammatical categories. The student's task is to restore the text.

The main problem associated with cloze testing is the method of correction. The debate is centered on the two possible ways of correcting a cloze test: the correct word method and the acceptable word method. When testing native speakers either method of correction yields approximately similar results (Oller, Conrad 1971). However when dealing with non-native speakers, as is the present case, the best results occur when the acceptable word method is used (Oller, Conrad 1971). Acceptable word should not be equated with the term synonym. The acceptable word method considers as correct any item which is applicable to the context. "Also, by allowing acceptable substitutes as well as exact words, a significant increase in correlation with the UCLA ESL Placement Examination was achieved." (Oller,

Conrad 1971:193).

The most important argument in favor of the cloze test is that it requires the student to perform a task which is not unlike what native speakers do in sending and receiving messages. In terms of listening comprehension one often predicts what the speaker will say. The same can be said for the skills of reading and writing (Oller, Conrad 1971).

The cloze procedure is not only a testing device but a teaching device. M. Friedman (1964) has shown that cloze exercises improve reading comprehension with non-native speakers. Other studies on reading comprehension favor the use of the cloze procedure: A.N. Crawford (1970), Nina Devons (1969). Oller (1973) suggests that second language competence is best characterized by a grammar of expectancy. Furthermore, the best means of measuring this kind of competence is through the use of cloze tests (Oller 1973).

1.5 SUMMARY

The purpose of this paper is to apply Smith's and Goodman's reading theory to second language learning. According to the theory the reader brings to the reading activity prior linguistic knowledge and general background information. The questions, then, are the following: 1) Is reading fluency in a second language related to the various levels of proficiency in L2? 2) Is there a transfer of L1 reading strategies to L2? 3) What kinds of information does the L2

learner use to predict and reduce uncertainty? 4) Are reading strategies systematic? 5) Are reading strategies similar or distinct at all levels of competence? 6) Is it possible to characterize the levels of proficiency in terms of reading strategies?

Reading strategies seek information: What types of information are sought? What types of information serve as cues in L2 reading? Are the cue systems used by L2 readers consistent at all levels of competence?

The present study attempts to provide answers to these questions.

CHAPTER II

RELATED RESEARCH

2.0 INTRODUCTION

This chapter will survey four areas of research closely related to the reading process. These areas are: cognitive psychology, theories of comprehension, cue systems and interlanguage.

2.1 COGNITIVE PSYCHOLOGY

Cognition is defined as all the processes by which the sensory input is transformed, elaborated, stored, recovered and used. (Neisser 1967). This definition of cognition could also serve as a definition for reading since the marks on a page of print serve as sensory input. (Geyer 1970). Furthermore one can only speak of reading once this sensory input is in some way internalized i.e. processed. However, before processing, perception of the marks on a page is required. The marks on a page are patterned; therefore how is this pattern perceived by the reader, i.e. letter, word and pattern recognition?

Neisser (1967) has constructed a perceptual model, analysis by synthesis, which is applicable not only to perception in general but to the role of perception in reading. The analysis by synthesis model has the following underlying principles. The model is constructive in nature implying that perception is not a passive activity. According to such a model, stored information consists of traces of previous constructive mental actions. Neisser postulates two different types

of processes which permit this constructive mental activity. The primary process is a multiple activity: parallel, wholistic, both in terms of the stimulus information they use and of the properties of the constructive figures. Its products are only fleetingly conscious, unless they undergo elaboration by the secondary processes. The secondary processes are directed thought and deliberate recall. They are serial in character and construct ideas and images which are determined partly by the preliminary processes and partly by needs and expectations. These secondary processes are acquired through experience.

In terms of reading, this model stipulates the use of both processes since the absence of primary processing would eliminate secondary processing because there will be no information to elaborate i.e. to process.

Another implication of Neisser's model is that the secondary process is selective. Reading is selective. The fluent reader does not process all the marks on a page; he does not identify every word. The type of reading one is doing will generally dictate what one will process, what one will select for processing. The more one processes, the more one's reading speed is diminished. The reading rate is controlled by the holding capacity of short-term memory which can only store up to seven items (Miller 1956) for a period not exceeding two seconds (Neisser 1967).

Reading is a specialized activity utilizing the existing pro-

cessing capacities. It is within the parameters of Neisser's model of pattern recognition that Smith (1971) situates his feature-analytic model of reading. Consequently Smith postulates two methods of identification which are reading specific. These two methods of identification are applicable to letters, words and meaning. The two methods of identification are: immediate identification and mediated identification.

The two methods of identification are based on Smith's view of what constitutes a word. "A word may be regarded as a cognitive category to which a set of acoustical or visual distinctive features - an acoustic or visual configuration may be allocated." (Smith 1971:153). Features are defined as irreducible elements of the physical structure of words. The combination of features specifies each word in terms of feature lists: acoustic, visual and semantic. The term category represents the intersection of two or more feature lists. One can say that the feature list is the name assigned to the configuration.

Word identification is divided into two methods of identification to account for the role of short-term memory in fluent and beginning reading. "The term immediate is not used in the sense of instantaneous ...but to mean not mediated, indicating that a word is identified directly from its features." (Smith 1971:142). This type of identification must necessarily be wholistic in nature. In terms of Neisser's model this implies the use of only the primary

processes. "Mediated word identification is required when a visual configuration cannot be allocated to an acoustic-semantic category - perhaps, but not necessarily, because no category exists." (Smith 1971: 161). Ill-defined categories are the rule rather than the exception. (Neisser 1967). Mediated word identification implies a search for more featural information i.e. acoustic, visual, semantic in order to create or relate the input to a category.

2.2 THEORIES OF COMPREHENSION

Reading is an activity which is more than word or letter identification since one must be capable of extracting meaning from the marks on the page. The definition of meaning and comprehension supports the claim that reading is not letter identification and much more than word identification. The following theories of comprehension limit the role of orthography in explanations of the reading process.

Meaning can either be viewed as extracted or constructed. According to Neisser, "In reading for meaning, we continuously construct novel thought processes." (Neisser 1967:196).

Paul Kolers (1969), whose work is based on the research of E. Llewellyn-Thomas (1962) and E.A. Taylor (1957), also views meaning as a construction. The studies carried out by Taylor and Llewellyn-Thomas concerning the eye-mouvements during speed reading conclude that there is no fixed serial sequence for scanning a page

of print. Consequently Kolers states, "This representation (meaning) is thematic or semantic or informational - no single word exists to describe it - and not literal. In effect the reader tells himself a story, one based on clues he has picked up from his rapid scanning of the array of printed words." (Kolers 1969:15).

John R. Bormuth (1969) provides a general definition of comprehension, "...comprehension ability is thought to be a set of generalized knowledge-acquisition skills which permit people to acquire and exhibit information gained as a consequence of reading printed language." (Bormuth 1969:50).

Reading is not the decoding of the visual stimuli but rather the recoding of the stimuli in such a way as to assign a meaning. Reading without comprehension is not reading but simply the identification of letter arrays.

2.3 CUE SYSTEMS

In discussing the theories of cognition and comprehension the terms features, clues and information were used. These different terms can all be related to the notion of cue systems which is discussed by Goodman (1967, 1968, 1969), P. David Allen (1972) and P.C. Hauptman (1976). The notion of cue systems states that features and information present in written language is patterned.

The reading activity involves two basic components: the reader and the written text. Both of these components possess comp-

lementary cue systems. The written language has two systems of cues: cue systems within words and the cue systems in the flow of language (Goodman, 1967). The cue systems within words are a series of relationships: letter-sound, spelling-pattern-phonemic pattern and word shape-word name. These relationships reflect the link between the oral and written patterns of language. "The cue systems in words primarily are used by the reader for recoding." (Goodman 1968:21).

The cue systems present in the flow of language enable the reader to utilize the same decoding procedures to decode written input which he uses to decode oral input. Ultimately, once these cue systems in the flow of language are acquired, they render the written language similar to oral language. The young reader finds that grammatical patterning present in oral language is also present in written language. Thus, according to Goodman, the reader searches for function words and structural signals to locate patterns. One can only speak of reading once the learner passes from the identification of minimal units to the identification of larger units i.e. patterns.

> "The cue systems that the reader supplies from within himself are: 1) The recoding strategies he knows. 2) His past language experience, knowledge of the structure, intonation, and vocabulary of the language (if it is his language but a different dialect he is reading, decoding may be impeded). 3) His general experiental background. 4) His general conceptual background," (Goodman 1968:25).

Goodman's observations on cue systems are based on L1 reading. In terms of L2 reading, little work has been done on the use of the

cue systems by the second language reader. Hauptman (1976) demonstrated that university level students who scored low on a proficiency test relied more on the orthography. Furthermore some of the students who scored high on the proficiency test scored even better on the orthographic tests thus indicating a possible difference between L1 and L2 readers. L1 readers seem to utilize the cues in the flow of language while L2 readers search for cues within words and more specifically function words.

Therefore it can be said that there are three main sources of information available to the reader: grapho-phonic, syntactic and semantic. These sources appear to be used differently by L1 and L2 readers and differently among the various proficiency levels of L2 learners.

2.4 INTERLANGUAGE

The observation concerning the use of cue systems by L2 learners of various proficiency levels is a possible indication of the relationship between overall linguistic proficiency and reading proficiency. The linguistic system that one possesses at a certain point of his learning career is an interlanguage (Corder 1967, Selinker 1972), a transitional competence.

A fundamental notion with respect to interlanguage is fossilization (Selinker 1972, Richards 1971). Fossilization attempts to explain the relationship between the native language and the target

language. A certain amount of linguistic knowledge of the first language is fossilized i.e. which is present through the complete learning process. Fossilized linguistic phenomena is present in the learner's interlanguage. The choice of fossilized items, rules, etc. is made relative to the target language. The interlanguage corpus reflects a number of psycholinguistic processes.

> "I consider the following to be processes central to second language learning: first, language transfer; second, transfer-of-training; third, strategies of second-language learning; fourth, strategies of second-language communication, and fifth, overgeneralization of TL (target language) linguistic material." (Selinker 1972:215).

The psycholinguistic processes can be investigated through the use of error analysis. Errors are viewed as systematic; hence the errors present at various levels of competence should be systematic. Consequently, groups of learners with a similar linguistic knowledge should have a common interlanguage.

The search for a common interlanguage is done according to a series of procedures established by Corder (1974) to elicit data from learners. First, one sets up tentative hypotheses about the learner's grammar. The elimination of possibly incorrect hypotheses is done by comparison of the mother tongue and the target language. Our hypotheses concern the learner's use of different cue systems in terms of reading strategies. These hypotheses are then submitted to experimental validation or refutation by means of a set of elicitation

procedures (Corder 1974).

Myint Su (1971), Wolfgang Zydatiss (1972) and Michael Evans (1972) represent work done using the following elicitation procedures. One uses informants who are bilingual. In our case the informants are of different levels of proficiency. The informants should however be at such a level of competence as to be able to report their intuitions about their interlanguage. The experiment conducted for this thesis seeks information about the learner's opinions concerning reading. The value of interlanguage lies not in its description but in the insights it can provide into second language acquisition.

2.5 SUMMARY

The most relevant research for this study is the work dealing with cue systems (Goodman 1968, Hauptman 1976) and interlanguage (Selinker 1972, Richards 1971). The present study concerns L2 reading in terms of reading strategies based on cue systems and the differences among various levels of proficiency in terms of these strategies i.e. interlanguage.

CHAPTER III

DESIGN OF THE EXPERIMENT

3.0 INTRODUCTION

The purpose of the experiment was to gain further insight in the reading process. The method used was to increase uncertainty in a text in order to observe its effects on the reading process in terms of cues, strategies and its relationship to overall linguistic proficiency.

3.1 SUBJECTS

The subjects were all students registered in intermediate-advanced Anglais classes during the summer session, 1976 at the University of Ottawa, a bilingual institution.

3.2 MEASURE OF PROFICIENCY

All the students enroled in the Anglais classes were administered the Michigan Test of English Language Proficiency (form B) to determine their proficiency level in English. Of the 25 students enroled in the two sections, 24 agreed to take part in the experiment.

The Michigan Test, a 100-item test booklet-answer sheet type test, is divided into three parts: grammar (40 items), vocabulary (40 items) and reading comprehension (20 items). The raw score is a tabulation of the scores of the three subtests. The raw scores were all converted to equated scores. The equated test scores

ranges from 64 to 96. Within the range of subjects' scores, one could distinguish three levels of proficiency. The lower group (64-70) contained the fewest (4) people. The mid group (77-87) had the most (9). The high group (89-96) had 8 subjects. The total of 21 is explained by 3 students dropping the course. The three were in the low group.

3.3 THE TEST

The experimental test consisted of an altered text, two series of instructions and an answer sheet. The text was chosen on the basis of two criteria: first, it had to be a general interest story and second, the text had to be of average reading difficulty. To select a text of general interest, it was decided to use one from the S.R.A. College Reading Program. Experience in intermediate and advanced Anglais classes at the University of Ottawa has shown these texts to be of general enough content to be interesting to most students. To measure the second criterion, the Flesch reading formula was applied to the S.R.A. texts. The Flesch standard range of difficulty, 65-70 on the scale was chosen as the difficulty range desired; the text selected was within that range.

Two additional sample tests, using texts at the same level of difficulty, were constructed and given to a number of adult native English speakers, to be assured that the tasks were not too difficult for even native speakers: also these native speaker results would indicate the type of information used by native English speakers in

performing the tasks and could serve as a comparison with those of L2 speakers. The native speakers were linguists. They were simply told to restore the text and to provide explanations for their choice of items.

In the final experimental test every fifth item was deleted. The first two sentences of the text were left intact to enable the subject to have a brief introduction to the text before being required to restore. The chosen text was "Six Little Dots", taken from the S.R.A. College Reading Program 2, a short, 200 words, biography of Louis Braille. The text rated 67 on the readability scale. A total of 34 items were deleted. The lines and blanks in the text were numbered.

3.4 THE EXPERIMENT

The subjects in the experiment were tested individually to enable each student to ask questions pertaining to the instructions. Furthermore, individual testing permitted those students who felt more comfortable giving oral responses than written to record their responses. There was no established time constraints for the test. However, all the students completed the test within 45 minutes.

There were two series of instructions. The first series was brief. The subject was told to read the text without attempting to find the missing items. No other task was assigned. This was done to allow the subject to become acquainted with the storyline. The text was then read.

The second series of instructions was detailed and precise. The instructions were written in such a way as to permit the subject to rely on his intuitions. Certain terms were defined and explained. The parts of speech were defined to ensure that all the subjects would be familiar with the notion of part of speech. They were defined as word-types. A list of the parts of speech was with a series of examples for each. The term information was also defined. Information was defined as the words, sentences or phrases which supplied the clues to finding the missing item. The example that followed showed the different types of information one could use. The example illustrated syntactic, semantic and contextual clues. This series of instructions consisted of four parts.

In the first part, the subject was asked to find what he thought was the missing word and to write his choice on the answer sheet under column I beside its corresponding number or record it into the tape recorder. This was followed by an example.

In the second part, the subject was presented an alternative if he was unable to make a reasonable guess. He was asked to write under column II what part of speech could possibly fit into the blank. This enabled us to assess the value of grammatical clues in reading.

In the third part, the subject was asked to give the information he used to make his choice and to write this information under

column III.

In the fourth part, the subject was advised to give his explanations in English whenever possible otherwise he was permitted to write in his native language, French. The subject who was unable to write his answer was advised of the tape recorder.

The answer sheet consisted of the item numbers on the right and the three columns titled (I) Word, (II) Part of Speech, (III) Information used to make choice. The lines were numbered to aid the subject in specifying the context. The term word was used since the term item might cause problems with its meaning.

The test was corrected using the acceptable word method. An item could be incorrect either in terms of the syntax or the semantics. For our purposes a syntactic item is defined as a function word and a semantic item is defined as a content word. The explanations provided by the subjects was also a criterion in marking an item as either syntactically or semantically incorrect.

CHAPTER IV

ANALYSIS OF THE DATA

4.1 RESULTS

The means and standard deviations for the three groups were computed. The results are found in table 1.

Correlations were performed between the experimental reading test and the Michigan Test of English Language Proficiency. Correlations were then computed among the experimental reading test and the three subtests: grammar, vocabulary and reading comprehension of the Michigan Test. Intercorrelations were then performed between the Michigan Test and its subtests. The results of all the above computations showed a positive correlation, significant at the .001 level. Intercorrelations between the grammatical subtest, the vocabulary subtest and the comprehension subtest were computed. The results for the grammatical subtest versus the vocabulary subtest and the grammatical subtest versus the reading comprehension subtest showed a positive correlation, significant at the .01 level. The results between the vocabulary subtest and the reading comprehension subtest showed a positive correlation, significant at the .05 level. The results are found in table 2.

A one-way analysis of variance was performed between groups for each variable: the experimental reading test, the Michigan Test,

TABLE 1

Distribution of measures

Criterion		Group I (High)	Group II (Mid)	Group III (Low)
Experimental Reading Test	N	8	9	4
	M	26.00	22.22	14.00
	S.D.	2.56	3.96	2.16
Proficiency Test	N	8	9	4
	M	92.62	81.88	66.75
	S.D.	2.72	3.98	3.20

TABLE 2

Correlation matrix of subtests

	2	3	4	5
1. Reading test	.845***	.792***	.692***	.793***
2. Proficiency test		.864***	.778***	.782***
3. Grammar subtest			.612**	.510*
4. Vocabulary subtest				.456*
5. Reading comprehension subtest				

* $p < .05$ ** $p < .01$ *** $p < .001$

the grammatical subtest, the vocabulary subtest and the reading comprehension subtest. The results showed a significant difference among the three groups on the experimental reading test, the proficiency test and the three subtests. The results are found in table 3.

In order to find where each group differed with respect to the errors, a chi-square analysis for each item was computed. The chi-square revealed that the groups differed significantly in terms of only 9 errors out of the 34 tabulated errors. The results are found in table 4.

A chi-square analysis pooling two groups against the other group indicated which of the groups was the source of the differences. The errors termed significant by the chi-square indicate that the principal differences are between the high and the other two groups (mid and low groups). The mid and low groups do not differ significantly. The tests distinguish between two actual levels with respect to the errors.

4.2 DISCUSSION

The intercorrelations among the subtests are so high that the subtests measure much more than the nomenclature suggests. In fact, in terms of these subjects anyone of the subtests would have acted as a reliable predictor of success. The subtests could be substituted for one another. The subtests are titled in such a way as to possibly aid teachers and serve a practical purpose.

TABLE 3

ANOVA: Sub-Tests - All Groups

	df	f - ratios
Reading test	2/18	18.63*
Proficiency test	2/18	77.67*
Grammar subtest	2/18	27.18*
Vocabulary subtest	2/18	7.43*
Reading comprehension subtest	2/18	13.40*

* p < .01

TABLE 4

Chi-square of significant items

Item	X^2
1	14.874***
2	11.248**
3	5.892*
10	15.204***
25	9.394*
27	7.142**
31	7.048**
33	8.396**
34	9.680**

* p < .05 ** p < .01 *** p < .001

4.3 ANALYSIS OF ERRORS

A discussion of the significant errors enable one to make statements about cues, interlanguage and reading strategies. The errors are classified as follows: those errors which are significant in terms of the statistical analysis and those errors which in terms of the language seem to be relevant.

Subsequently, those items found to be significant elicited a total of 56 errors of which 38 can be classified as semantic and 18 as grammatical according to our definitions. There were nearly twice as many semantic errors as grammatical errors. The high group made a total of 2 errors out of a possible 72. Both errors were semantic. The mid group made 25 errors, there were four times (20 errors) more semantic errors than grammatical errors (5 errors). The low group made 29 errors out of a possible 36. This total is nearly evenly divided between semantic (16 errors) and grammatical (13 errors).

4.3.1 ERROR ANALYSIS OF CUES USED IN READING

The contexts of each item provides insights into cues, interlanguage and reading strategies which in turn suggest feasible explanations for why the errors had been committed. The contexts of the significant errors made are given below in table 5.

TABLE 5

Contexts of significant items

	Item	Context
1.	that	During the forty-one years that followed,
2.	help	Louis Braille learned to help himself,
3.	helping	then he began helping others.
10.	trying	he kept trying to simplify it.
25.	it	It has been adapted to Greek,
27.	many	It has been adapted to Greek, Chinese, all European and many African languages.
31.	renown	This sightless young man earned world renown by his simple achievement.
33.	sense	he had tuned in the sense of touch
34.	sense	when the sense of sight had failed.

Items 1, 2 and 3 are all in the same sentence. The low group was the only group to make errors on all three items. Item 1 (that) elicited 3 grammatical errors on the part of the low group. The subjects inserted a pronoun and gave identical explanations for their choice, "subject before a verb". This appears to be a case of over-generalization.* This type of overgeneralization could indicate the nature of the kinds of reading strategies used by the lower group. The low group subjects seem to segment the larger unit i.e. a complex sentence into smaller, simpler statements and then applying their knowledge of the language to these smaller units. Consequently, their choices are based solely on local cues (immediate) e.g. "____ followed". Either the subjects did not know the grammatical relationships present in a complex sentence or they were unable to apply any knowledge to answer the test item correctly.

Item 10 (trying) produced 5 errors of which 4 were made by the low group. The errors appear to reflect the same type of over-generalization. The four subjects inserted a noun. The immediate context, ", he kept trying to simplify it;" is once again part of a larger context. The subjects' choice of a noun reflects their limited knowledge of the language. The noun represents a direct object, and the verb can only take a direct object in this sentence if it is isolated from the general context. The meaning of the entire sentence is changed once a direct object is attributed to the verb "kept". However, when one is using strictly local information and

* The following analysis is based on the work of Richards (1971) and Selinker (1972).

applying it to parts of sentences as opposed to the whole sentence, the choice of a noun is acceptable to the subjects.

Item 27 (many) produced errors which tend to confirm our explanations about the use of local cues by the lower group as opposed to the higher groups which use global cues. Two of the three errors were "other" which is incorrect in terms of the whole sentence but correct in the immediate context.

Other errors in terms of the language appear to be relevant and reveal other kinds of information. The items and their contexts are given below:

Item		Context
12.	with	make it something he could feel with his fingertips
20.	Greek	It has been adapted to Greek, Chinese, all European, and many African languages.

Item 12 (with) produced the same types of errors among all groups. Of the 7 errors made by 2 subjects in the high group, 2 in the mid group, 3 in the low group, the four errors of the high and mid groups were identical "under". Interference (sous) is suggested as a plausible explanation for this error with the high and mid groups. Two of the three errors of the low group are the result of inserting the wrong preposition, thus changing the meaning. The third error (better) once again illustrates the use of local cues since the word is acceptable in the immediate context, but in general

terms it changes the meaning of the entire sentence.

Item 26 (Greek) elicited a number of identical errors from all groups. Five of the eight errors were similar. The subjects inserted a verb after to. This is possibly a case of overgeneralization of the to plus infinitive rule. The remaining errors (3) are not due to overgeneralization but since 2 of the 3 errors were made by the low group it seems probable that these errors indicate the absence of this rule from their grammar.

4.3.2 INTERLANGUAGE

The analysis of the errors indicates that each group has its own list of errors and thus its own grammar. The analysis also suggests that this grammar is only temporary. Such a grammar provides information about each group's interlanguage. In terms of the psycholinguistic processes present during the learner's career it appears that these processes are identical at all levels in the experimental group. Three processes are readily identifiable: overgeneralization, language transfer and transfer-of-training. There is, however, one distinction which appears difficult to maintain in terms of this study, the distinction between overgeneralization and transfer-of-training. The subject's explanation of his choice of the deleted item in the experimental test strongly suggests overgeneralization but the overgeneralization of a rule possibly acquired in the classroom.

The processes may be identical at all levels but in terms of the rules and items involved there are some significant differences among

the groups. The lack of grammatical knowledge in the low group has a dual effect: first, it produces basic errors in terms of overgeneralization and second, it prevents the overgeneralization of certain rules. The lower group overgeneralizes rules of the following type: the verb requires a subject, the verb requires a direct object. However, the lower group will not overgeneralize a rule such as the to plus infinitive rule. Their errors are primarily grammatical.

The high group made only one type of grammatical error: overgeneralization of the to plus infinitive rule. The few semantic errors do not reveal any trends or tendancies but rather they appear to be idiosyncratic; the exception is a case of language transfer: with being replaced with under. The semantic errors do not seem to be due to the use of local cues as were the errors for the other groups.

CHAPTER V

CONCLUSIONS

5.1 READING AND LINGUISTIC PROFICIENCY IN L2

5.1.1 The acquisition of reading fluency in L2 appears to increase as the scores increase on the test used.

In terms of our subjects, those who performed well on the Michigan Test also performed well on the experimental reading test. A similar relationship exists among the subjects of the low group: those who scored poorly on the Michigan Test scored poorly on the experimental reading test.

5.2 CUE SYSTEMS AND THEIR USE IN L2

5.2.1 The better reader uses the cue systems more effectively.

In terms of this experiment two kinds of cue systems seem to provide the information: local (immediate) and global. Local cues appear to be used consistently by the low group. The high group on the other hand appears to base its guesses on global meaning.

5.3 INTERLANGUAGE

5.3.1 The learner's interlanguage indicates the kinds of cues that he will use.

The learner's interlanguage appears to be accessible and describable through the investigation of reading. In terms of this study, it is possible to isolate and describe the interlanguage of

the high and the low groups. The mid group seemed to be absorbed by the high and low groups. Interference does not appear to play the major role it has heretofore been assigned.

5.4 READING STRATEGIES

5.4.1 The reading strategies used by the learner seem to be determined by his knowledge of grammar and vocabulary in L2.

In terms of selective scanning the high group appears to glean much more information than the low group. The high group seems to apply L1 reading strategies effectively to the L2 reading task.

5.5 CONTRIBUTIONS TO THE THEORY

5.5.1 The general conclusions substantiate certain principles of Goodman's and Smith's reading theory:

1) Goodman's model is applicable to second language reading.

2) There is a positive relationship between reading ability and the knowledge of grammar and vocabulary (Goodman's prior linguistic knowledge).

3) A good reader extracts the maximum amount of information from a minimum number of cues.

4) Grammatical knowledge seems to supersede lexical knowledge since fluent reading depends on the recognition of grammatical patterning.

5) Smith's distinction between immediate versus mediated iden-

tification is especially recognizable in L2 reading.

6) The notion of selective scanning as it is applied by the better readers shows how Neisser's secondary processes are governed by wishes and expectations.

5.6 APPLICATION OF STUDY TO TEACHING L2 READING

5.6.1. Since reading strategies seem to be cue-based, the learner must first learn to recognize the cues.

The cues inherent in the written language can be taught through the use of reading exercises combined with general language exercises as was demonstrated by Silberstein and Clarke (1975).

5.7 AREAS OF FURTHER RESEARCH

5.7.1 Interlanguage.

It is essential that more research be done in the area of the psycholinguistic processes involved in interlanguage. These processes must be clearly defined. Specific distinctions are difficult to maintain; in particular, overgeneralization versus transfer - of - training versus language transfer have not shown to be discrete entities.

5.7.2 Reading Ability.

The variables and components of reading must be clearly defined. The area of reading strategies remains obscure. An accurate definition is a prerequisite to any discussion of reading pedagogy.

5.7.3 Testing.

There should be some attempts to construct reading tests that measure reading comprehension instead of grammatical and lexical knowledge.

APPENDIX A

EXPERIMENTAL READING TEST

INSTRUCTIONS

You are going to read 1 text.

Read the first text as normally and as quickly as you would any other text. Do not worry about finding the missing words. For the moment, simply read; you will probably identify some of the more obvious words easily.

SIX LITTLE DOTS

S 1 A little boy of three wandered into his father's harness
S 2 shop. Picking up a leather punch, he pressed it against his
S 3 eyes, and was blinded. During the forty-one years _____(1)
S 4 followed, Louis Braille learned to _____(2) himself; then
S 5 he began _____(3) others.
S 6 At the Paris _____(4) for the Young Blind, _____(5)
S 7 came across a dot _____(6) developed for the French
S 8 _____(7) . It had twelve dots, _____(8) too many,
S 9 but its _____(9) excited him; he kept _____(10)
S 10 to simplify it, make _____(11) something he could feel
S 11 _____(12) his fingertips. Finally he _____(13) six
S 12 raised dots in _____(14) positions. His six little
S 13 _____(15) encoded the entire alphabet, _____(16) punc-
S 14 tuation. With this code _____(17) taught himself to play
S 15 _____(18) organ; then he learned _____(19) alphabet,
S 16 language, and math.

S 17 _____(20) he knew how to _____(21) his dot code
S 18 with _____(22) Braille taught others. Now _____(23)
S 19 code is used by _____(24) people in many nations. _____(25)
S 20 has been adapted to _____(26), Chinese, all European,
S 21 and _____(27) African languages. Chess, cards, _____(28)
S 22 other board games have _____(29) translated into Braille.

S 23 This _____ young man earned world _____
30 31
S 24 by his simple achievement; _____ had tuned in the
32
S 25 _____ of touch when the _____ of
33 34
S 26 sight had failed.

FURTHER INSTRUCTIONS

1) Reread the text and try to find the missing words. The blanks are numbered. Using any information in the text, write what you think is the correct missing word in column I, beside its number on the answer sheet.

EXAMPLE S 1 - The _____ bit the boy.
1

	Word	Part of speech	Information
1.	dog		

2) If you are unable to make a reasonable guess, indicate in column 2, what type of word could fit in the blank. Word-types are called "part of speech". The following is a list of the parts of speech with some examples.

Noun:	dog, cat etc.	Pronoun:	you, he, mine, etc.
Verb:	eat, walk, etc.	Determiner:	the, an, that, etc.
Adjective:	pretty, big, etc.	Conjunction:	and, or, but, etc.
Preposition:	in, by, etc.	Adverb:	nicely, now, etc.

EXAMPLE S 1 - The _____ bit the boy.
1

	Word	Part of speech	Information
1.		noun	

3) In column 3 write the information that you used to find the missing word. This information can be supplied by words, phrases or sentences. For this purpose the lines have been numbered. If a whole line gave you the information, simply write the line number.

When only a part of the line gave you the information write the line number plus the specific part of the line which supplied the information:

EXAMPLE S 1 - The _____ bit the boy.
1

	Word	Part of speech	Information
1.	dog	noun	The _____ bit; verb recquired a subject; and/or, subject is a noun; and/or dogs bite; and/or, nouns usually follow "The".

4) If you have difficulty writing the information, a tape recorder has been provided so that you can explain in your own words why you chose a particular word. When possible try to speak in English, but if this is too difficult, you are permitted to give your explanations in French.

ANSWER SHEET

	(1) WORD	(2) PART OF SPEECH	(3) INFORMATION USED TO MAKE CHOICE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

ANSWER SHEET

	(1) WORD	(2) PART OF SPEECH	(3) INFORMATION USED TO MAKE CHOICE
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			

RESTORED TEXT

SIX LITTLE DOTS

S 1 A little boy of three wandered into his father's harness
S 2 shop. Picking up a leather punch, he pressed it against his
S 3 eyes, and was blinded. During the forty-one years THAT (1)
S 4 followed, Louis Braille learned to HELP (2) himself; then
S 5 he began HELPING (3) others.
S 6 At the Paris INSTITUTE (4) for the Young Blind, BRAILLE (5)
S 7 came across a dot CODE (6) developed for the French
S 8 ARMY (7). It had twelve dots, FAR (8) too many,
S 9 but its POSSIBILITIES (9) excited him; he kept TRYING (10)
S 10 to simplify it, make IT (11) something he could feel
S 11 WITH (12) his fingertips. Finally he HAD (13) six
S 12 raised dots in SIXTY-THREE (14) positions. His six little
S 13 DOTS (15) encoded the entire alphabet, EVEN (16) punc-
S 14 tuation. With this code BRAILLE (17) taught himself to play
S 15 THE (18) organ; then he learned THE (19) alphabet,
S 16 language, and math.
S 17 ONCE (20) he knew how to USE (21) his dot code
S 18 with SKILL (22) Braille taught others. Now HIS (23)
S 19 code is used by BLIND (24) people in many nations. IT (25)
S 20 has been adapted to GREEK (26), Chinese, all European,
S 21 and MANY (27) African languages. Chess, cards, AND (28)
S 22 other board games have BEEN (29) translated into Braille.

S 23 This SIGHTLESS (30) young man earned world RENOWN (31)
S 24 by his simple achievement; HE (32) had tuned in the
S 25 SENSE (33) of touch when the SENSE (34) of
S 26 sight had failed.

APPENDIX B

RESULTS OF ALL TESTS AND LISTS OF ALL ERRORS FOR EACH ITEM

The table below lists the results of the five tests used in the experiment:

I	Experimental reading test
II	Proficiency test
III	Grammar subtest
IV	Vocabulary subtest
V	Reading comprehension subtest.

The errors for every item (1 - 34) are tabulated and classified as either syntactic (syn) or semantic (sem) for each subject (1 - 21).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
I	28	28	28	27	22	22	26	27	28	22	28	18	24	17	19	22	22	11	14	15	16
II	96	95	95	94	92	90	90	89	87	86	86	83	83	79	79	77	77	70	69	64	64
III	40	37	37	38	38	35	37	38	37	32	30	32	33	30	33	24	30	21	24	26	29
IV	40	39	38	40	37	35	34	32	36	34	38	32	32	32	29	31	28	31	27	35	24
V	15	18	17	12	15	18	17	17	13	16	14	15	14	9	12	16	13	11	12	6	5
1																		syn	syn	syn	
2										sem		sem	sem	sem	sem	sem		sem	sem	sem	sem
3										syn		sem	syn	sem				sem	syn	sem	
4			sem												sem						
5																					
6	sem	syn				syn	sem		sem	sem			syn	syn		sem	syn	syn	syn	syn	syn
7	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem	sem
8	sem	sem		sem	sem	sem	syn		sem	sem			syn	sem	sem		sem	syn	sem	syn	sem
9	sem	sem	sem	sem	sem	syn	syn	sem	sem	sem	sem	sem	sem	sem	syn	sem	syn	sem	sem	syn	syn
10					sem													syn	syn	syn	syn
11	syn		syn	syn	syn				syn		sem	sem	sem	syn	syn	syn		sem	syn	syn	
12		sem					sem					sem					syn	syn		sem	syn
13					sem	sem		sem		sem				sem	sem	sem		sem	sem	sem	sem
14					sem	sem						sem			sem	syn				sem	syn
15																				sem	
16									sem					syn							
17																		syn			
18												syn		syn			syn				syn
19			syn		syn	syn	syn	syn		syn		syn		syn		syn	syn		syn	syn	syn
20				sem			sem	sem							sem				sem		sem
21		sem	sem	sem		sem	sem			sem	sem	sem	sem	sem	sem	sem	sem		sem	sem	
22				syn	syn	sem		syn				sem	sem	syn	sem			sem	syn	syn	
23																					
24					sem	sem						sem				sem	sem			sem	syn
25																		syn		syn	
26	syn				syn			syn			syn				sem			syn	syn		syn
27						sem									syn			syn	sem		sem
28						syn						syn					syn	syn			
29																		sem			
30					sem						sem		sem	sem				sem	sem		
31										syn				syn		sem		sem	syn	syn	sem
32												sem						sem			
33										sem		sem		sem	sem		sem	sem	sem		sem
34										sem		sem		sem	sem	sem	sem	sem	sem		sem

BIBLIOGRAPHY

Allen, P. David. 1972. Cue systems available during the reading process: a psycholinguistic viewpoint. The elementary school journal, Feb., 258-264.

Bell, Roger T. 1974. Error analysis: a recent pseudoprocedure in applied linguistics. ITL - Review of applied linguistics, 25-26, 35-50.

_____. 1973. The English of an Indian immigrant: an essay in error analysis. ITL - Review of applied linguistics, 22, 11-61.

Bloomfield, Leonard and Clarence L. Barnhart. 1961. Let's read. Detroit, Wayne State University Press.

Burt, Marina K. 1975. Error analysis in the adult EFC classroom. TESOL quarterly, March, vol. 9, no. 1, 53-63.

Carton, S. Aaron. 1967. Inferencing: a process in using and learning language. The psychology of second language learning papers, The second international congress of applied linguistics, Sept., 8-12, 45-58.

Clarke, Mark A. and Sandra Silberstein. 1975. Toward a realization of psycholinguistic principles in the ESL reading class. Paper presented at the ninth annual TESOL convention in Los Angeles, March.

Cohen, Alice Sheff and Elaine Schwartz. 1975. Interpreting errors in word recognition. The reading teacher, Mar. 28, 6, 534-537.

Corder, S. Pit. 1974. The elicitation of interlanguage. IRAL, special edition in honour of Bertil Malmberg, 45-58.

_____. 1973. Introducing applied linguistics. Harmondsworth, Penguin.

_____. 1967. The significance of learner's errors. IRAL, 5, 161-170.

Da Rocha, José. 1975. On the reliability of error analysis. ITL - Review of applied linguistics, 29, 53-61.

Dickerson, Donna J. 1975. The learner's interlanguage as a system of variable rules. TESOL quarterly, Dec., vol. 9, no. 4, 401-40.

Dulay, Heidi C. and Marina K. Bart. 1974. Errors and strategies in child second language acquisition. TESOL quarterly, June, vol. 8, no. 2, 129-136.

Duskova, L. 1974. On sources of errors in foreign language learning. IRAL, 12, 185-192.

Flesch, Rudolf. 1974. The art of readable writing. 25th anniversary edition, revised, New York, Harper and Row.

Fries, Charles C. 1963. Linguistics and reading. New York, Holt, Rinehart and Winston, Inc.

Geyer, John J. 1970. Models of perceptual processes in reading in Singer, Harry and Robert B. Ruddell. Theoretical models and processes of reading, 47-94, Newark, Delaware, International reading association.

Gibson, Eleanor J. 1969. Principles of perceptual learning and development. New York, Appleton-Century-Crofts.

Goodman, Kenneth S. 1971. Psycholinguistic universals in the reading process. In Pimsleur, P. and T. Quinn, The psychology of second language learning, 135-142, Cambridge University Press.

_____. 1970. Reading, a psycholinguistic guessing game. In Singer, H. and R.B. Ruddell, Theoretical models and processes of reading, Newark, Delaware, International reading association.

_____. and James T. Fleming. 1969. Psycholinguistics and the teaching of reading: selected papers from the IRA preconvention held in Boston, 1968. Newark, Delaware, International reading association.

_____. 1969. Analysis of oral reading miscues. Applied psycholinguistics reading research quarterly, 5.

_____. 1968. The psycholinguistic nature of the reading process. The psycholinguistic nature of the reading process, K.S. Goodman, Detroit, Wayne State University Press.

Halliday, M. A. R. 1961. Categories of the theory of grammar. Word, 17, 241-292.

Hammarborg, B. 1974. The insufficiency of error analysis. IRAL, 12, 185-192.

Hauptman, Philip C. 1976. The use of cues in reading English as a second language. Paper presented at the 1976 TESOL convention, March, New York.

Huey, E.B. 1968. The psychology and pedagogy of reading. Cambridge, Mass., MIT Press, first published in 1908 by the Macmillan Company.

Irvine, Patricia, Parvin Atai and John W. Oller. 1974. Cloze, dictation and the test of English as a foreign language. Language learning, a journal of applied linguistics, vol. 24, no. 2, 245-252.

Kavanagh, James F. and Ignatius Mattingly. 1972. Language by ear and by eye: The relationships between speech and reading. Cambridge, Mass., The MIT Press.

Kolers, Paul A. 1969. Reading is only incidentally visual. Psycholinguistics and the teaching of reading, K.S. Goodman and J.T. Fleming, Newark, Delaware, International reading association.

Lado, Robert. 1964. Language teaching: a scientific approach. New York, McGraw-Hill Inc.

Llewellyn-Thomas, E. 1962. Eye mouvements in speed reading. Speed reading: practices and procedures, 10, Newark, Delaware, University of Delaware Reading Study Center.

Mackay, Ronald and Beverly Klassen. 1976. An operational framework for the classification of reading comprehension exercises. Paper presented to symposium on research in reading in a second language, TESOL pre-convention workshop, March, 2-3, New York.

Mathews, Mitford M. 1966. Teaching to read: historically considered. Chicago, University of Chicago Press.

McLeod, John. 1973. Uncertainty reduction in different languages through reading comprehension. Journal of psycholinguistic research,

vol. 4, no. 4, 343-355.

Myint, Su. 1971. Analysis of lexical errors. Unpublished M. Litt. thesis, Dept. of linguistics, University of Edinburgh.

Neisser, Ulric. 1967. Cognitive psychology. New York, Appleton-Century-Crofts.

Oller, John, W. Jr. 1972. Induction, mind and contextualization of materials to be learned. ITL, 18, 9-29.

_____. 1973. Cloze tests of second language proficiency and what they measure. Language learning; a journal of applied linguistics, vol. 23, no. 1, 105-118.

_____. and Christine A. Conrad. 1971. The cloze technique and ESL proficiency. Language learning: a journal of applied linguistics, vol. 21, no. 2, 183-196.

_____. and Donald Bowen, Ton That Dien and Victor W. Mason. 1972. Cloze tests in English, Thai and Vietnamese: native and non-native performance.Language learning: a journal of applied linguistics, vol. 22, no. 1, 1-16

_____. and Jack C. Richards. 1973. Focus on the learner: pragmatic perspectives for the language teacher. Newbury House Publishers Inc.

Pierce, Mary Eleanor. 1975. Teaching the use of formal redundancy in reading for ideas. TESOL quarterly, Sept., vol. 9, no. 3, 253-270.

Pimsleur, P. and T. Quinn. 1971. The psychology of second language

learning. Cambridge University Press.

Reibel, D.A. 1971. Language learning strategies for the adult. Pimsleur and Quinn, 87-96.

Richards, J.C. 1971. Error analysis and second language strategies. Language sciences, 17, 12-22.

Ruddell, Robert B. 1970. Language acquisition and the reading process. Theoretical models and processes of reading, Singer, Harry and Robert B. Ruddell, 1-19, Newark, Delaware, International reading association.

Schachter, Jacquelyn. 1974. An error in error analysis. Language learning: a journal of applied linguistics, vol. 24, no. 2, 205-214.

Schurman, John H. 1974. The implications of interlanguage, Pidginization and Creolization for the study of adult second language acquisition. TESOL quarterly, vol. 8, no. 2, 145-152.

Science Research Associates. 1969. College reading program one, college reading program two. Chicago, S.R.A., Inc.

Selinker, Larry. 1972. Interlanguage. IRAL, 10, 209-231.

Singer, Harry and Robert B. Ruddell. 1970. Theoretical models and processes of reading. Newark, Delaware, International reading association.

Smith, Frank. 1973. Psycholinguistics and reading. New York, Holt, Rinehart and Winston.

_____. 1971. Understanding reading: a psycholinguistic

analysis of reading and learning to read. New York, Holt, Rinehart and Winston.

Smith, Henry Lee. 1963. A review of let's read. Language, XXXIX, Jan-March, 67-78.

Wardhaugh, Ronald. 1969. Reading: a linguistic perspective. New York, Harcourt, Brace and World, Inc.

_____. 1969. The teaching of phonics and comprehension: a linguistic evaluation. Psycholinguistics and the teaching of reading, Kenneth, S. Goodman and James T. Fleming, selected papers from the IRA pre-convention held in Boston, 1968, Newark, Delaware, International reading association.

Yorio, Carlos Alfredo. 1971. Some sources of reading problems for foreign-language learners. Language learning, 21, 1, 107-115.

Zydatiss, W. 1974. A kiss of life for the notion of error. IRAL, 12, 231-238.