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WORD OR MEANING-EMPHASIS IN ORAL READING:
AN INVESTIGATION OF POSSIBLE DIFFERENTIAL
EFFECTS ON COMPREHENSION IN SECOND-GRADE
AVERAGE READERS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Laraine Kee Nyun Hong, B.A., M.A.

* * * *
The Ohio State University
1977

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Mother and Father...

for their faith.
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CHAPTER ONE
INTRODUCTION

From about 1915 to 1925 there was a large movement to replace oral reading with silent reading in the classroom, to the extent that American education permanently moved away from its earlier reliance on recitative kinds of reading (Buswell, 1945). Despite this early shift, observation of early primary classrooms today will generally demonstrate that reading practices still include a good deal of oral reading. Tovey (1976) supports this further in his systematic survey of a random sample of classrooms in one school district. He found that oral reading activities occurred almost three times as often as silent reading.

Children are asked to read aloud probably most frequently in round-robin groups, but there are many other situations, such as student-teacher conferences, informal reading inventories, and "buddy reading," where oral reading is the primary activity. This continued reliance on oral reading in the curriculum implies certain assumptions about reading that require some re-assessment. In each of these oral reading situations the reader's vocalizations are usually assessed for word-accuracy, determining whether the reader is accurately "saying" each word.

Comprehension is not ignored as an important component of successful reading. This is evidenced by the common practice of asking children questions following their oral reading either orally or in
workbook exercises. The assumption appears to be that comprehension is positively correlated with conscious and accurate identification of all the words in a given text.

This study proposes to investigate whether reading for meaning and reading for accurate word identification are mutually facilitative goals. In practical terms, if comprehension is the goal, should a teacher be stressing word perception during oral reading? This question will be set within a psycholinguistic theory of the reading process.

A theory is a set of propositions consisting of defined and interrelated constructs (Kerlinger, 1973). It may thus explain and predict a narrow or broad range of phenomena, depending on the comprehensiveness of those constructs. A telescopic view of human behavior, for example, would probably yield a theory of limited and doubtful application. B.F. Skinner's attempt to interpret human language as a consequence of primarily S-R associations has proven to be inadequate for explaining the complexities of linguistic behavior. Instead, the most productive and satisfactory theories are those which attempt to simultaneously consider social, cognitive, and linguistic factors (Bloom, 1970; Clark, in press; Lewis & Cherry, 1975).

This progression has also characterized theories of reading. Initially it was undoubtedly easier to conduct clear-cut, objective research on eye-movements and sub-vocalizations during reading, but the effect was to classify reading as another S-R form of behavior. In order to read, the individual was said to need only to learn to associate the appropriate behavioral responses with the given stimuli.
This would be the underlying assumption of code-emphasis reading programs (Chall, 1967; Flesch, 1955).

Although Huey (1908) recognized 70 years ago that reading is the result of "very many of the most intricate workings of the human mind (p. 6)," it has been only in the last decade that theories of reading have significantly shifted from a focus on overt behavior to the processes underlying that behavior (Williams, 1970). This reflects greater knowledge of human processing and a concomitant appreciation of the total complexity of those processes.

The most promising and productive development has been the appearance of a psycholinguistic theory of reading. Goodman (1968) has suggested that the fluent reader applies conceptual and linguistic information - semantic, syntactic, and phonological - to the visual input in order to generate and confirm predictions as he processes the text. In this interpretation, reading is removed from simple S-R associations to an active interaction between the reader and the text. Smith (1971, 1975) elaborated this interpretation of the reading process by connecting it to the cognitive constraints suggested by psychologists such as Neisser (1967) and Gibson & Levin (1976).

While oral language and reading are not synonymous constructs, they both are the outcomes of children's unique learning processes. The traditional definition of reading as a word-by-word, grapheme-to-sound, sound-to-meaning process implies that children learn primarily through passive accumulation of information. Research in oral language development, however, indicates that the child operates upon events to actively construct his own learnings. There is ample
evidence that children sample from their linguistic environment to
deduce the underlying rules and structures of their language
(Brown, 1974; Ervin-Tripp, 1973). The hypothesizing, rule-making
role of children can be seen in the unique utterances they make on
their way to full acquisition of adult forms. "I goed," "two foots,"
or "she comed" are common examples of over-generalizing newly acquired
rules.

Recent research has demonstrated that children construct and
acquire the regularities of their oral language in meaningful con­
texts. Development of mature linguistics structures and lexical
representations is a process of increasing differentiation which
follows acquisition of various semantic understandings. As Bloom
(1970) demonstrated, children initially attempt to apply general
language structures to several situations, e.g., "mommy sock" may be
used to indicate possessor + object or agent + object. Gradually the
language forms are differentiated to describe specific situations.
The "intent to mean" is a powerful impetus for children's language
development.

As King (1976) points out, the way children acquire oral language
provides important insights for understanding how children learn to
read. Their search for meaning, combined with an active processing
of information in order to discover regularities are principles of
learning theory which have direct application to reading. Investiga­
tions of oral reading miscues demonstrate that young children apply
their linguistic and conceptual knowledge to the reading task.
Children expect the written material to make sense and conform to their speech patterns (Biemiller, 1970; Clay, 1968; Goodman, 1967). Smith (1971, 1975) asserts that written and spoken English are not isomorphic although oral language knowledge facilitates reading. His approach is psycholinguistic but with a rationale which acknowledges the cognitive constraints on human processing, specifically as concerns the limitations of memory and attention.

Smith suggests that the fluent reader begins from a semantic set with linguistic cueing systems as the interface to predicting responses to the incoming text. In essence, for Smith, fluent reading does not rely on translation of graphic input into an aural counterpart to derive meaning (mediated meaning identification). The process is one of using meaning to selectively sample a minimal set of "distinctive features" to arrive at comprehension (immediate meaning identification). The Smith view of reading thus predicates a meaning base as antecedent to full comprehension, and says further that over-reliance on conscious identification of visual input to aural input can be a hindrance to this process.

Background and Need for Study

Instructional procedures in the classroom have been frequently criticized for relying on intuitive rationale rather than sound theory (Williams, 1970). In order to be "sound," theory needs to acquire a strong body of experimental evidence. Moreover, to demonstrate applicability, the experiments should eventually be conducted in contexts readily comparable to actual classroom practice. There
appears to be a certain lack of this kind of testing in research related to the psycholinguistic theory of reading.

This theory is currently one of the most influential in education. It has been studied fairly extensively but indirectly in molecular form. These studies have been conducted not so much by educational researchers as by psychologists investigating topics such as the effects of semantic and phonological properties of selected lists and groups of words (or non-words) on subjects' recall and recognition (Hyde & Jenkins, 1969; Kolers, 1966; Rohwer, 1966). Most of this research has been done under laboratory conditions, usually with adult subjects.

Educational research on the psycholinguistic theory of reading has mainly consisted of descriptive analyses of children's oral reading miscues (Goodman, 1965; Weber, 1970). Even first-graders have demonstrated an ability to apply linguistic knowledge to their reading, as evidenced by the manner in which their miscues maintain the syntactic and semantic integrity of the text. The assumption is that reading is a psycholinguistic process, consisting primarily of the application of linguistic constraints to construct and predict meaning.

At the least, "effective reading" should mean the reader comprehends the text under the most basic, literal criteria. Comparison of theories of the reading process should be in terms of their respective effects on comprehension. If experimental study produces differentials in this area, then there would be important implications for the classroom, especially if the investigations are conducted within fairly familiar contexts. A primary purpose of this study is to test
one aspect of the psycholinguistic theory of reading using experimental procedures applied in conditions which are analogous to classroom practice.

By conceptualizing the study in this way, a second purpose arises: to re-assess teaching strategies during children's oral reading. There appear to be at least two teacher-purposes connected with this practice. Stressing accurate enunciation of most words in the text and employing word-attack skills with unfamiliar words imply that oral reading is intended to develop deliberate word identification. At the same time, teachers commonly ask children follow-up questions about their reading, implying that comprehension is a major objective of oral reading. The assumption appears to be that the more successful is word identification, the greater is the comprehension.

Given the prevalence and seeming permanence of oral reading practices in many primary classrooms, oral reading itself needs to be examined to determine the conditions that best facilitate over-all comprehension. In this regard, the specific question here is what effect concentrated word identification during oral reading may have upon comprehension. Considering the evidence on the limited attention and processing capacities of beginning readers, could this "mediated meaning identification" be a negative influence on comprehension?

In a psycholinguistic interpretation of reading, the reader is processing text at a deep semantic level. Attempting to identify every word may force a shift to auditory-visual levels. Attending
to single words may also cause a disruption in processing both the syntactic structures and semantic sense. The reader might then not be able to exploit these cueing systems in responding to the text.

To determine if such an interpretation is accurate, this study will assess comprehension under conditions stressing word identification or meaning. A psycholinguistic rationale would predict the superior effects of instructions to read for meaning without strong emphasis on word identification.

**Overview of Procedures**

Regarding reading as a psychological phenomenon means that it is not something tangible that can be readily dissected and observed. Franks (1974) has described psychological phenomena as presupposing "relational structures in an underlying tacit knowledge system (p. 232)." Quoting from Polanyi, Franks defines tacit knowledge as "knowledge of which we are not normally and probably cannot be directly aware (p. 232)."

Franks asserts that the presence of tacit knowledge underlying our overt responding is characteristic of many of our everyday activities. It may be in common motor responses such as riding a bike, or more complex behaviors like language use. An individual may use language appropriately, for example, but the knowledge structures which determine meaning and construct forms to express that meaning are unavailable to consciousness.

As such, reading cannot be described through introspective reports. Adding a cognitive component to reading means understanding
that investigation of underlying processes will have to be through
indirect means. The researcher can choose to isolate and examine
some small aspect of processing with specially contrived procedures
and materials. For example, included in this category would be the
many studies using tachistoscopic presentations to investigate units
of processing (e.g., Kolers, 1972; Sperling, 1970), or those studies
examining subjects' sensitivity to orthographic patterns which used
nonsense syllables (Gibson, Osser, & Pick, 1963; Miller, Bruner, &
Postman, 1954).

The alternative to the above is to conduct experimental research
under less artificial conditions. For this study, second-graders of
average reading achievement were selected from a school in which oral
reading is a daily activity. The subjects were asked to read aloud
(and silently) excerpts from stories taken from standard basal readers.
This procedure should bear more similarity to the actual classroom
context than specially contrived laboratory conditions.

With familiar reading activities and non-novel materials as the
media of the experiment, the independent variable consisted of a
manipulation of the form in which the input was received. There were
four treatments, three involving oral reading, one silent:

1. Word-emphasis - subject is instructed to "say" each
word in the text, and shown one word at a time to
read. Experimenter corrects miscues of insertion,
substitution, omission.

2. Word-emphasis - subject is instructed to "say" each
word in the text, and shown one word at a time to
read. No correction of miscues.
3. Subject is instructed to read aloud for meaning. No correction of miscues.

4. Silent reading with instructions to read for meaning.

The first two conditions emphasize word identification, while the third and fourth focus on meaning. To assess comprehension, an oral cloze test followed each of the readings. Patterns of miscues made during the cloze tests were also compared.

**Definition of Terms**

**Miscue** - during oral reading the reader's responses may deviate from the text in the form of either substitutions, omissions, or insertions of words. In this study "miscue" will refer to these three categories of deviations from the actual text.

**Cloze test** - instrument to assess comprehension, formed by deleting every fifth word from the given text until there are 50 total deletions. Score is the number of exact-word completions. The cloze tests in this study will be given orally.

**Mediated meaning identification** - deliberate aural identification of letters, sounds, spelling patterns, and/or words to derive meaning.

**Immediate meaning identification** - using meaning as a basis for selective sampling of distinctive features of letters and words to generate and confirm hypotheses about the content of the text.

**Hypotheses**

On the theory that mediated meaning identification can interfere with comprehension, the following hypotheses are made:
$H_1$ Subjects will score significantly higher on cloze tests following meaning-emphasis reading than under word-emphasis conditions.

$H_2$ Outside correction of miscues during oral reading will produce significantly lower cloze scores than no-correction conditions.

According to Smith's theory, immediate meaning identification involves making guesses about the incoming text based on a prior meaning set. Instead of facilitating this process, deliberate and constant word identification would focus attention on audio-visual aspects of reading and hence not allow construction of the necessary meaning base. Thus, the following hypotheses are made:

$H_3$ Oral reading under word-emphasis will cause significantly more miscues (substitutions, omissions, insertions) to occur during subsequent cloze tests than when subjects are instructed to read for meaning.

$H_4$ Correction of miscues during oral reading will cause significantly more miscues to occur during the subsequent cloze tests than no-correction conditions.

$H_5$ Miscues made during cloze tests following word-emphasis conditions will include significantly greater percentage of "meaning-change" miscues than under meaning-emphasis conditions.

$H_6$ Correction of miscues during oral reading will produce significantly greater percentage of meaning-change miscues during subsequent cloze tests than no-correction conditions.

On the basis that mediated meaning identification does not facilitate fluent apprehension of the language of the text during oral reading, the following hypotheses are made:

$H_7$ Miscues made during cloze tests following meaning-emphasis conditions will include a significantly greater percentage of grammatically acceptable miscues than under word-emphasis conditions.
$H_8$ Miscues made during cloze tests following meaning-emphasis conditions will include a significantly greater percentage of semantically acceptable miscues than under word-emphasis conditions.

$H_9$ Miscues made during cloze tests following oral reading with outside correction will include a significantly lower percentage of grammatically acceptable miscues than following no-correction conditions.

$H_{10}$ Miscues made during cloze tests following oral reading with outside correction will include a significantly lower percentage of semantically acceptable miscues than following no-correction conditions.

On the theory that silent reading is more facilitative of immediate meaning identification than is oral reading, the following hypotheses are made:

$H_{11}$ Cloze scores following silent reading will be significantly higher than those following each oral reading condition.

$H_{12}$ Silent reading will produce significantly fewer miscues during subsequent cloze tests than oral reading.

$H_{13}$ Miscues made during cloze tests following silent reading will include a significantly smaller percentage of meaning-change miscues than under oral reading conditions.

$H_{14}$ Miscues made during cloze tests following silent reading will include a significantly greater percentage of grammatically acceptable miscues than under oral reading conditions.

$H_{15}$ Miscues made during cloze tests following silent reading will include a significantly greater percentage of semantically acceptable miscues than under oral reading conditions.

**Limitations**

The subjects in this experiment are second-grade average readers from a predominantly white, middle-class suburb of Columbus. As such, the results represent the reading performance only of this population performing under the stated conditions.
An objective of this study is to investigate theory. The question is confined to whether or not psycholinguistic theory is in fact descriptive of the oral reading process of average second-grade readers from a white, middle-class background.

Psycholinguistic theory is one interpretation of the reading process. In the next chapter selected propositions and constructs are offered and built into a certain conceptual framework. Even if the results of this study are in the direction predicted by the theory, this would not be sufficient justification for claiming absolute validity; it would only be one piece of supportive research. However, unlike much of the previous work related to psycholinguistic theory, this study attempts to apply experimental procedures within a fairly practical context.

This study is conducted within a familiar context - oral reading of basal stories - to permit more credible extrapolation of results to the classroom than have specially contrived laboratory experiments. This does not mean that an objective is to evaluate the universe of teaching methods that use oral reading. For one thing, results here are not generalizable beyond a population of traditional classrooms in a middle-class school district.

Also, this study is based on a view of oral reading as primarily communication, and hence comprehension, a goal compatible with psycholinguistic interpretations of reading. Given this premise, the objective is to determine if strong emphasis on word identification during oral reading is facilitative of comprehension for the average second-
grade reader. For those who ascribe different purposes to oral reading, this study will not be entirely relevant.

Assumptions

In an attempt to test theory under pragmatic conditions, this study assumes that subjects reading aloud in a one-to-one situation with the experimenter parallels the oral reading practices in an actual classroom.

Random selection of basal stories with each subject reading a different story assumes that these materials represent the general population of stories from basal textbooks.

This study also assumes that showing subjects one word at a time in a passage or instructing them to "read for meaning" represents mediated and immediate meaning identification respectively.

Summary

One purpose of this study is to experimentally test the mediated and immediate meaning identification theory of Smith (1971). Investigation of this particular concept should serve as an indirect test of one aspect of the psycholinguistic view of the reading process. Such a test is important since the major supportive evidence in educational research has been primarily descriptive and not experimental.

Oral reading is a common practice in the elementary classroom. To parallel this situation, oral reading of basal stories is the medium for this study. Reading aloud often stresses careful word identification, and the question is whether this facilitates or hinders comprehension. The second major purpose of this study is to explore this
question of instructional strategy in terms of the premises of psycholinguistic theory.
CHAPTER 2

THE THEORY

One of the problems in trying to describe the cognitive-perceptual and psycholinguistic processes underlying reading behavior is that there is no clear agreement on the behaviors that constitute reading. The standard descriptors have been identification of the visual configurations (matching letters, letter patterns, and words to their aural counterparts) and comprehension (Cromer & Weiner, 1967). Initial descriptions equated reading with identification. A child could read when he learned to decode an unfamiliar orthographic code to an already mastered speech code. It has only been in the last few years that attention has shifted to comprehension; it is a realization that reading must involve meaning as part of the process and not just as an incidental outcome of decoding.

Identification and comprehension will be used in this discussion as rubrics for organizing and comparing the different interpretations of the reading process and eventually leading to the theoretical matrix specific to this study. Trying to define identification and comprehension, and explaining how they relate are still major topics for researchers and theorists. Furthermore, there is the question of emphasis, for focus on one or the other has had differential consequences for reading instruction. Primary emphasis on identification has produced programs stressing phonics and word-attack skills; a
meaning emphasis, however, produces programs based on the look-say approach, for example, with a good deal of reference to context. Is one most representative of actual reading processes; or, do both take a central role? There have been several answers to this question.

**Assembling and Associating**

Those who have emphasized identification in reading, or see it as reading itself, represent what Guthrie (1973) calls an "assembly model" approach. In this view, emphasis, at least at the initial stages, is on successful discrimination of letters, sounds, and words, and association of letters and sounds, words and meaning. The components necessary for success in these areas are such skills as accurate auditory-visual discrimination and blending of phonemes. In an assembly-type model these kinds of components are independent. The major requirement is that all components occur in close succession during the reading act; they don't necessarily interact. This model would subsume programs emphasizing traditional phonics or some kind of taxonomy of decoding skills.

In psychological terms, the assembly model corresponds to a serial-processing view of reading such as that offered by Gough (1972). The reader is said to perceive single letters from left-to-right; the visual symbols are matched with the appropriate phonemes; and the phonemic representations are matched with the appropriate lexical items. Such a description reflects an associationist theory of learning. The reader is being required primarily to develop successive habitual associations between visual input and its aural counterpart.
The evidence against the preceding view has been extant since 1885 when Cattell showed that an average-length word can be read with as short an exposure time as a single letter. More recently, Kolers (1972) demonstrated that skilled readers require between one-third and one-fourth of a second to identify one letter. Serial-processing of single letters at this rate would make it impossible for anyone to read at the current average rate of 300 words per minute.

Departing from the traditional phonics method of isolating single letters and sounds, and recognizing that the reader processes larger units, linguists such as Bloomfield (1942) and Fries (1963) stressed the spelling patterns of English orthography. More recently, Weir and Venezky (1968) made suggestions for reading instructions not unlike that of Fries and Bloomfield but based on a systematic computer analysis of spelling patterns. Still looking at grapheme-phoneme correspondences, these researchers tried to systematically set out such correspondences on the premise that writing is a representation of speech.

The objective was to have children learn to associate visual responses with the already acquired aural responses of oral language. These responses to visual patterns were to be practiced to the extent that they became fully automatic, and graphic symbols descended below the level of attention (Wardhaugh, 1969). Once visual patterns became speech patterns, meaning would be evident to the reader.

The so-called linguistic method of teaching reading as represented by Bloomfield and Fries, systematized grapheme-phoneme correspondences (sound patterns) and gave necessary recognition to children's oral
language competence. Yet, as Wardhaugh says, it was only "... a kind of new phonics with a good, undoubtedly much needed, dose of linguistic common sense (p. 25)." In terms of learning processes, reading was again defined as associating stimuli with appropriate responses.

When identification is thought to occur through the accumulation of certain primarily perceptual components (i.e., spelling patterns), comprehension is assumed to be the end-product. However, Cromer and Weiner (1967) point out that many primary school children often identify, say each word in a passage, but then are unable to explain or relate what they've just "read."

The assembly concept thus applies in two ways. First, components of identification are regarded as independent but successively occurring. Second, identification and comprehension themselves are independent. Successful identification of the text is the goal with comprehension an assumed outcome, an outcome not always achieved, and therefore not necessarily related to successful identification.

**Limited Interaction**

Emphasis on the identification aspect of reading is not necessarily confined to the S-R psychologists and educational taxonomists. Even when reading is recognized as more complex cognitive behavior, there have been those who have centered their investigations on identification elements. Reading is defined primarily as identification but given a more complex etiology. For example, discrimination of letters is still considered important as in the assembly model, but now this ability is ascribed to complex cognitive processes rather than just a matter of perceptual discrimination.
Borrowing the concept of an interactional model from Lewis and Cherry (1975), this framework appears to accommodate this higher level explanation of the reading process. Within this model elements can be described independently of each other, but they are said to have unidimensional interactions; one element will have causal effects on another. In other words, in the assembly description discrimination of graphemes has no effect on ability to discriminate or blend phonemes. An interactional model, however, would posit that a general cognitive ability like classification is necessary for grapheme discrimination.

Subsequent to the introduction of the linguistic approach of Fries and Bloomfield were several studies on reading conducted by Gibson and her students at Cornell. Most of their studies focused on the identification component of reading, specifically discrimination of graphic symbols and perception of spelling patterns (Gibson, Gibson, Pick & Osser, 1962).

In one of her earliest papers on reading, Gibson (1965) set out three phases of learning to read, which, she said, are overlapping but sequential: 1) differentiation of graphic symbols, 2) decoding letters to sounds, and 3) using progressively higher-order units of structure. Gibson's rationale for such a set of stages and their sequence was similar to the assertion of the linguists that the writing system corresponds to the spoken system. The implication for both sides was that once the visual symbols can be decoded to their oral counterparts meaning would be apprehended.
Gibson differed from the earlier approaches to reading in her attempt to ascribe identification to processes more complex than associative mechanisms. In discussing discrimination of graphic symbols, for example, Gibson said children must learn the "distinctive features" of individual letters, those features by which letters differ from one another so that a unique pattern characterizes each one (Gibson, 1970). While she postulated several higher-level processes which might influence acquisition of this facility — e.g., abstraction of relations, ignoring irrelevant information (Gibson & Levin, 1975) — it does not appear to be an area requiring further study. Several studies have shown that discriminating letters is not a major problem even for slow readers (Calfee, Chapman & Venezky, 1972; Liberman, 1972).

Attention is instead focused on what are delineated as the subsequent stages of learning to read. The assumption was that once the reader can discriminate graphemes, decoding can be effected. Gibson (1970) pointed out that reading is not a product of serial-processing of letters. She instead said that "rulelike" information in orthography (spelling patterns) structures the units for reading. Knowledge of these patterns is necessary for translation of words to a speech code and for recognition of new words. These rules, she said, are learned when the child develops a "set to look for structure which can be transferred to new problems and an ability to detect structure in letter patterns (1970, p. 142)."

Calfee et al. (1972) and Vernon (1960) made similar conclusions, saying that poor or beginning readers don't lack the sensori-perceptual
faculties for acoustic-phonetic analysis; instead, they lack a
cognitive system. These readers are unable to effectively abstract,
analyze, and generalize. Elkind, Larson, and Van Doorninck (1965)
and Cohen and Schwartz (1975) went a step further by relating these
problems to Piagetian concepts of perceptual decentration.

The preceding explanation of the reading process has been
strengthened by the recognition of the role of cognitive processes.
Coincident with the interactionist model certain cognitive elements
such as decentration and generalization are hypothesized as making
possible the discrimination of graphic symbols and learning of spell-
ing patterns. This interaction of elements refers mainly to the
identification aspect of reading. The interactionist model cannot
be extended to the relationship between comprehension and identifica-
tion, because none is actually postulated. In essence, the interpre-
tation of these two aspects of reading behavior as made by the assembly
model continued to hold.

In the earlier phase of Gibson's work, attention was directed
primarily at identification as determined by perceptual-cognitive
processes. Psycholinguistic factors were acknowledged but not fully
incorporated as integral components except perhaps in fluent, mature
reading. She wrote: "... within the immediate span of visual per-
ception, meaning is less effective in structuring written material
than good spelling-to-sound correspondences," and also, "...(it's)
almost axiomatic that perception of skilled readers will be found in
suitable experiments to be a function of these (syntactic and semantic)
factors (1965, p. 1072)."
Gibson's latest writings, however, reflect some influence of psycholinguistic theories of reading. Speaking of the beginning reader she says, "Insofar as he can understand spoken English he can utilize information gained from syntactic and semantic contrasts. He has only to apply these to reading (Gibson & Levin, 1975, p. 323)." She characterizes learning to read as a "multilevel" process, where the beginning reader needs to develop use of phonological, syntactic, and semantic information. Her description still focuses on identification. While she suggests that reading instruction should involve a good deal of context (e.g., story charts, discussions) she emphasizes systematic instruction in sound-spelling correspondences.

In this later version of her theories, Gibson continues to view comprehension as an end-product of successful identification. It appears that Gibson has not yet found a satisfactory answer to one of her earliest questions: "How is meaning picked up from the written word (1972, p. 17)?"

Towards a Unified, Psycholinguistic Definition

About the time that Gibson's initial work on reading was published, K. Goodman was beginning his own investigations on a different track. While Gibson focused on perceptual factors in identification, Goodman emphasized the role of alinguistic and linguistic factors; he defined reading as the "active reconstruction of a message from written language (1965, p. 639)," In terms of research and theories on the reading process this description signaled a significant shift. Goodman was emphasizing the importance of context over graphophonemic elements in reading. That "context" referred both to meaning and grammatical
structure. These additional cueing systems derive from language knowledge, past experiences, and conceptual abilities.

Chomsky's theories on transformational-generative grammar in the 1960's generated new and prolific research on children's language acquisition. It was discovered that young children actively construct and apply the rules of their language; and by about age five they have acquired most of the major linguistic structures (Bloom 1970; Brown, 1973; Clark, in press). The question then is how this oral language knowledge applies to the acquisition of reading.

Goodman (1968) implied a direct correspondence. Although he broadened the base by which to interpret reading, he postulated that in the early stages of reading the graphic stimuli are "recoded" into aural input which is then decoded for meaning. He stated that in fluent reading recoding and decoding become simultaneous, but even in the fluent phases, the process begins with identification of graphic input to final decoding of meaning.

Goodman's theories represent an attempt to equate reading with oral language competence (Mosenthal, 1975). He suggested that while the fluent reader is making predictions about and sampling from the visual input he is still constructing aural input from which to derive meaning.

While Mosenthal and Wardhaugh (1971) have presented arguments against a common competence for reading and oral language, the two
forms are not unrelated. Just as children's early utterances demonstrate an awareness of linguistic rules so can their oral reading performance. By measuring eye-voice span (EVS) during oral reading, Levin and Turner (1968) demonstrated that the size of the unit processed in reading is at least partly determined by various intra-sentence constraints. Testing adults and children (grades two, four, six, eight, ten), the authors found that EVS tended to extend to the phrase boundary, and this was not related to age (except with second-graders) nor to the length of the phrases. Successful readers tended to read to the end of phrase boundaries more often than did the poor readers.

Rode (1974) followed up this study by looking at younger subjects reading more simple grammatical structures. She found that for each grade level studied - third, fourth, fifth - EVS terminated at the end of verb phrases more frequently than at noun phrases, suggesting that the reader is attempting to apprehend a complete meaning unit.

Specifically applying Goodman's (1967) idea of a "psycholinguistic guessing game," Levin and Kaplan (1970) said that intra-sentence grammatical constraints allow the reader to anticipate, predict, or formulate hypotheses about subsequent text. Some of the major evidence for this has come from the analyses of children's oral reading miscues. Clay (1966) made weekly observations of five and six year-olds from urban and suburban areas. She found that their miscues were dominated by syntactic constraints. Weber (1970) had similar findings with first-graders. She concluded that beginning and poor readers as well
as skilled ones apply their knowledge of grammar to narrow their choices of words for a given sentence slot.

Besides grammar constraints, semantic factors are another influence in verbal processing. Several studies have shown that recall and recognition of words (as lists, paired-associates, or triads) are significantly facilitated when the probe words have some meaningful relation to the target words or the word groups themselves are semantically organized (Hyde & Jenkins, 1969; Kolers, 1966; Rohwer, 1966; Samuels, 1970).

The facilitating effect of semantic information is also extended to word identification in larger contexts. Goodman (1965) demonstrated that second and third-graders can read many words embedded in context that they do not recognize in lists. First-graders have also been shown to rely heavily on context in the initial stages of learning to read (Biemiller, 1970).

Klein, Klein, and Bertino (1974) had fourth- and sixth-grade children mark word boundaries in random (paintowlistub) and coherent (thepaintisdry) clusters. They found a significant effect of context on word identification: coherent passages produced large increments in performance and speed with a decrease in errors.

Pearson and Studt (1975) found a significant interaction of context and word frequency in word identification. With first- and third-grade subjects, when a word was clearly within their oral language repertoire, context was utilized with minimal visual information; when the word was less familiar, nearly the entire word was required for identification. Twenty-seven per cent of incorrect guesses in the
rich context condition involved subjects guessing a high-frequency synonym when the low-frequency word was the target.

These results support a hypothesis/test model for word-recognition offered by Samuels, Dahl, and Archamety (1974), which is not unrelated to Goodman's earlier psycholinguistic guessing game. Information from the material already read is combined with knowledge of the structure and constraints of the language to formulate hypotheses or to make predictions about the forthcoming visual input. Perceptual information from that next word is used to test the hypothesis. Matching means recognition; mismatching means rejection of the hypothesis and the reader engages in time-consuming visual analysis to recognize the word.

The implication of these kinds of models and research is that some prior meaning base is a prerequisite for successful reading. Indeed, some theorists claim that the reader begins from and uses deep structure to select surface structures (Page, 1974), or samples whatever data is needed from surface structure to verify hypotheses generated by the deep structure of the sentence (Pearson & Studt, 1975).

One who has taken this approach furthest is Frank Smith (Smith, 1971; Smith & Holmes, 1971). He has attempted to bolster the psycholinguistic view by incorporating some specific perceptual-cognitive factors of human learning. Smith reiterates the point that because of limited memory and processing capacity, the individual is unable to efficiently process text letter-by-letter, gradually building words to derive meaning. He adds, however, that it is also erroneous to assume
that recoding of visual symbols to aural language necessarily leads to comprehension.

Reading, Smith says, is not essentially a visual process. Certain non-visual information allows the reader to optimally sample the visual material. Using semantic, grammatical, and phonological information, the reader picks up certain distinctive features of words and makes the identification. There is an inverse relationship between the non-visual and visual information: the more meaningful the context is to the reader the less featural information is needed to identify given words.

It is possible, says Smith (1971), that the fluent reader who comprehends a given page of text has read through without identifying most of the individual words. He calls this immediate meaning identification. It is the process people engage in who read articles or books at thousands of words a minute. Smith dismisses the idea that they are sampling (i.e., reading one word in four), saying that such a selection of disconnected words is actually unintelligible. Instead, with sufficient semantic information these readers are able to gather meaning with a minimal amount of visual information (visual features). Smith adds that it's not possible to specify exactly how comprehension is accomplished, especially if the premise is that the individual words are not being identified.

Smith says that when the reader lacks the necessary alinguistic information he has to resort to mediated meaning identification, identifying individual words or letters in an attempt to derive meaning. While even a fluent reader may use mediated identification with
a difficult passage, it is a much less effective route to comprehension. Smith says that short-term memory prevents a reader from retaining these singly identified words long enough to derive the effect of their combined meanings. In effect, emphasis on word identification is not optimally facilitative, and can actually hinder comprehension.

Thus, in Smith's model, the relationship between comprehension and identification of letters and words is effective when there is a meaning base sufficient enough to minimize the need for identification (see Figure 2). The relationship is much less effective when deliberate identification must be used as an intervening step to comprehension (see Figure 3). Other factors such as phonology and syntax serve mainly as an interface in translating deep structure to surface structure.

Smith's theory that conscious and frequent word-identification can have a depressing effect on comprehension is contrary to earlier descriptions (assembly or linguistic) which set identification as the bridge to comprehension. Part of this difference is due to Smith's incorporation of certain cognitive factors, specifically memory and attention constraints, in the rationale for his theories.

Following is a discussion of the memory and attention factors basic to Smith's theory of mediated and immediate meaning identification with a suggestion for a modification of his conceptual framework.
FIGURE 2
IMMEDIATE MEANING IDENTIFICATION

Lack of Sufficient Deep Structure

Syntax

Phonology

Identification

Comprehension

FIGURE 3
MEDIATED MEANING IDENTIFICATION
Memory and Reading Processes

There are multiple definitions of comprehension (Simons, 1971) with as many suggestions for measuring it (Davis, 1968). This paper takes a rather general view of comprehension, acknowledging the definition problem but not trying to resolve it. At the least it can probably be agreed that comprehension is more than knowledge of the discrete vocabulary items which comprise a given passage. A minimal expectancy is that the reader be able to derive some meaning from words in combinations - phrases, sentences, and paragraphs, that is, sets of words rather than a string of discrete lexical items (Manelis, 1972).

To illustrate, one of the most stolid pieces of text is a story from a standard basal textbook for early primary grades. Instructional requirements are such that the reader usually needs to follow the sequence of events and the outline of a basic plot. Discussing the "processing components" of initial reading, Manelis says that to understand the overall meaning of a story, the child must formulate a cognitive structure that persists at least during the reading period. Later events in the story can only be understood if the reader has the earlier events mentally stored somewhere. This seems simplistic, but the point is that comprehension, no matter how it is defined, is related to memory, the process or state of retaining given information for a particular length of time.

Until recently, models of memory have been dominated by information-processing theories of independent stores and the transfer of information among them. The concepts are analogous to the operations
of computers which encode, store, operate upon, and retrieve information (Miller, 1956; Murdock, 1971). With regard to human information-processing, it has been widely accepted that memory can be divided into three storage areas: sensory stores, short-term memory (STM), and long-term memory (LTM) (Broadbent, 1958; Sperling, 1967).

Craik and Lockhart (1972) summarized components of storage theory. Sensory store refers to the most immediately received and briefest held information in a given modality. The subject receives a fairly large input of sensory information whether or not he is paying attention, but it can be held only for one to two seconds at the most before decaying. To avoid immediate loss, the raw input can be transferred to STM. Now the data can be coded - for example, raw sounds into phonemic information. The fact that incidental items acoustically similar to primary items in STM are a major source of interference (e.g., in recall) has led to the conclusion by some that STM is primarily acoustic in nature (Baddeley, 1966; Neisser, 1967).

STM is distinguished by its limited capacity of about nine items (Miller, 1956) and a slower rate of forgetting, about 5-20 seconds. It also cannot be overloaded; if there is an attempt to add information beyond capacity something has to come out. This displaced information can be retained in two ways: 1) it can be "rehearsed," that is re-cycled through sensory stores back to STM (e.g., repeating a phone number), or 2) transferred to LTM. The latter is a limited alternative since an item from STM can get to LTM only once every five seconds (Smith, 1975). Long-term memory has no capacity
limit, and forgetting is either very slow or does not occur at all. A major distinction between STM and LTM is that coding in the former is primarily acoustic but primarily semantic in the latter.

Smith's theories on reading, specifically mediated and immediate meaning identification, are to a great extent a theory of the way the reader "overcomes limitations of memory" in order to process text. His explanations attempt to employ the basic concepts of the information-processing model of human memory. Given the limitations of STM he says, "... it is impossible to read for meaning if we stop to read every individual word; STM will soon overflow with a meaningless clutter of disconnected words and bits of words and it would be most impractical to try to cram such 'information' into LTM (1975, p. 70)."

A reader processing individual letters can only retain about seven letters, one of which can be put into LTM every five seconds.

Smith adds that the reader can also encode items. By processing words instead of letters into STM, whole words can be transferred to LTM. In effect, the reader groups several items into fewer ones, chunking the information (Miller, 1956). This process is analogous to the way a person breaks down a phone number into two parts to help remember it: 2635841 becomes 263-5841. Finally, the reader can transcend visual items and simply store meaning in an abstract form.

In making this last observation about chunking in reading behavior, Smith seems to have encountered a problem reconciling it fully with the storage models of memory. Although he recognizes and uses the terminology of memory stores to explain his theory of reading, Smith qualifies his discussion, saying that, in fact, memory should
not be regarded as a separate place within the brain, but that memories are actually products of processes and not simply retrieved items. Furthermore, he is reluctant to delineate STM and LTM as independent and discrete:

The content of STM seems more often to come from LTM than from the outside world, and LTM certainly determines what we extract from sensory store (Smith, 1975, p. 66).

Smith's difficulties in trying to set a theory of the reading process within a storage model of human memory serve to illustrate other recent reservations concerning this model itself. The hypothesis that short- and long-term memory operate on different rules - dualism - seems intuitively logical. Given that communication theory has applied these concepts to computers, why could they not also be extended to human information-processing? In the last few years, however, it has been suggested that similar laws may apply to phenomena supposedly consigned to these different systems, a situation which mitigates against a dualistic conception (Crowder, 1976; Neisser, 1967; Norman, 1969).

Craik and Lockhart (1972) have reviewed the evidence against independent memory stores with reference to concepts of capacity, coding, and forgetting. One of the central characteristics of short-term memory is its limited capacity of about nine items. Craik and Lockhart point out that this item-capacity is actually quite tenuous, that the number of items held in STM will vary from 5-9 items, depending on whether the items are words, letters, or digits.
The alternative view of conceptualizing STM items as chunks (original items recoded) only adds to the argument, since these chunks may be formed on the basis of physical features or more complex semantic ones. This issue of form of coding is perhaps a prime point in the argument against separate memory systems. The initial premise that coding in STM is predominantly acoustic has not held up (Crowder, 1976). Studies have shown that events can be stored in visual form as well as acoustic (Paivio, 1971; Pellegrino, Siegel, & Dhawan, 1975).

Of more relevance to this particular discussion is the evidence that STM encoding can also be semantically based (Shulman, 1970). Levy and Craik (1975) presented adult subjects with lists of eight words for ordered recall. The words were shown visually, two words at a time, with an adjective-noun sequence. Semantic compatibility means appropriate adjectives were coupled with nouns; acoustic similarity was achieved by having the nouns in a sequence sound similar to each other. The experimental conditions were: compatible-similar (brown floor large store ...); compatible-dissimilar (selfish men renowned champ ...); incompatible-similar (trivial dog stable hog ...); and incompatible-dissimilar (selfish due friendly skin ...). In both an immediate or delayed (15 second interval) recall situation compatible sequences were recalled better than the others, indicating that encoding was semantic.

Having established the equivocal status of the separate stores model of memory, especially with respect to semantic encoding, an
alternative conceptual framework may be appropriate. Craik and Lockhart (1972) have proposed that memory be viewed as a by-product of perceptual processing. It seems clear that stimuli can be encoded in different ways within the memory system. A word, for example, may be encoded under various conditions in terms of its visual, phonemic, or semantic features. Perceptual processing thus occurs at several levels of complexity. The particular kinds of processing are described as "shallow" or "deep," in reference to semantic content. For example, processing in preliminary stages using physical or sensory features would be shallow, but recognizing synonyms would be deep. The later stages of processing involve matching input with stored abstractions from past learning.

Although the levels of processing may be seen as stages, Craik and Lockhart suggest that processing levels may be more usefully viewed as a continuum of analysis. Memory is thus seen as a "continuum from the transient products of sensory analysis to the highly durable products of semantic-associative operations (p. 676)." Stimuli may be processed quickly through shallow levels to receive focal attention at deep levels.

Craik and Lockhart propose further that the deeper the processing, the more persistent is the memory trace. Hyde and Jenkins (1969), for example, tested students' recall of words under different task conditions. Instructions to search for the letter e in the words or to estimate the number of letters in words greatly reduced subjects' mean recall of the stimuli. In contrast, instructions to rate the words as pleasant or unpleasant did not reduce mean recall scores.
The suggestion is that semantic analysis is superior to physical/sensory analysis in processing material for later recall. Elias and Perfetti (1973) had similar results comparing recall of rhymes, synonyms, and free word-associations.

Craik and Lockhart assert that retention of stimuli can be achieved either by recirculating the information within one level of processing (maintenance) or by advancing toward deeper levels (elaboration). Maintenance processing can occur at any level; it is the same concept as "keeping the items in consciousness" or "continued attention to certain aspects of the stimulus." Primary memory (PM) is used to refer to this maintenance operation. This type of rehearsal affects the accessibility of the stimulus without necessarily leading to a more permanent memory trace.

Elaboration occurs when a given stimulus generates or triggers associations and meanings derived from the subject's previous experiences. This advance in depth of processing serves to strengthen the memory trace.

Smith and Levels of Processing

It should be noted that Craik and Lockhart deny that they are offering a theory of memory. Instead, they say they are providing a "conceptual framework - a set of orienting attitudes - within which memory research might proceed (1972, p. 681)." At this point, it seems appropriate to attempt a reconceptualization of Smith's theories on reading in relationship to the Craik and Lockhart description of memory. The present discussion is not directed toward memory research per se but toward Smith's reading theories; however, since
Smith's theories are based on characteristics of human memory, this area is included in the present discussion.

Craik and Lockhart's ideas appear to be a more compatible conceptual framework for Smith's theories than the storage model components that he initially tried to adopt. Basically, Smith's contention that memories are "products of processes" and not retrieved items is the same concept as described in Craik and Lockhart's statement that "memory is a by-product of perceptual processing." From there it is not difficult to translate Smith's theories into "levels of processing."

The essential aspect of Smith's views is the role of meaning in reading. When a reader has enough of a meaning base he can engage in immediate meaning identification. A meaning base reduces the number of possible responses and the reader can make predictions about subsequent text. If this is accurate enough, there is little conscious identification of single words, only minimal pick-up of critical distinctive features. In other words, the reader is processing primarily on a semantic rather than physical/sensory level. This description is analogous to Craik and Lockhart's concept of deep and shallow processing. To follow through on the analogy, such deep processing facilitates memory. In terms of reading, this would mean better retention of information, that "information" being chunks of meaning rather than purely perceptual information such as letters, spelling patterns, or single words. Furthermore, material processed at this level is not only at the primary (maintenance) stage.
While a certain amount of maintenance processing occurs to hold semantic information at access levels, there is the opportunity for deeper operations. Smith says, "The better we can integrate new information with what we already know, the easier it will be to recover." In essence, he is describing an elaboration process, and not advocating only the accumulation and recirculation of static information at one level of processing. Similarly, Craik and Lockhart write: "At deeper levels the subject can make greater use of learned rules and past knowledge; thus material can be more efficiently handled and more can be retained (1972, p. 676)."

It is conceivable that given sufficient and appropriate elaboration, semantic processing itself can occur at several levels - from obvious denotative meaning to deeper connotative meanings (Crowder, 1976). Ideally, as the reader moved through the text, input would be elaborated upon, and processing would gradually move to deeper semantic levels. The effect would be a spiral of comprehension, alternating between maintenance and elaboration, going from the most superficial levels of understanding to the deepest levels of interpretation, involving nuances of meaning and associations with personal experiences and previously acquired information.

While Goodman (1968) was a precipitator of the psycholinguistic view of reading, his original description included a stage of acquisition that began with identification or recoding. Because he drew a parallel between reading and oral language competence, Goodman hypothesized that beginning reading could involve recoding graphic input
into aural input, "assigning phonemic values to letters, assigning patterns of phonemes to patterns of letters, or putting oral names on written word shapes (p. 17)." Additional aural input is required to translate the initial aural production (e.g., puh-i-guh, for pig) to "create a reasonable approximation of oral language." This oral language is then decoded to meaning, in the same way as listening input would be.

In fairness to Goodman, he says that later stages of reading will circumvent an extended recoding operation such that recoding and decoding are simultaneous. At that stage the reader is taking in large segments of text in an instant, without having to completely perceive the visual symbols.

The first stage in Goodman's theory is representative of assembly models of reading and is parallel to Smith's description of mediated meaning identification. In this interpretation, recoding or identification is a prerequisite to meaning. Within the Craik and Lockhart framework such primarily visual-auditory operations constitute shallow processing. Because comprehension or meaning is assumed as a product of this shallow processing and not part of the process itself, the reader is essentially stuck at this level. There is not enough new and old semantic information feeding in to allow the reader to advance to deeper levels of processing. Instead of a deepening spiral of comprehension, there is just single-track processing; the reader secures only the most superficial information, such as letters and disconnected words or vague hints of text meaning.
Goodman, even in postulating an extended recoding phase of beginning reading, cautioned against an over-emphasis on this operation. "Preoccupation with teaching children to recode," he wrote, "may actually short-circuit the reading process and divert children from comprehension (1968, p. 20)." Goodman was referring to the situation where an individual may be recoding text into oral form perfectly but without any real understanding.

Smith details this condition further. He says that while every reader probably has to engage in mediated meaning identification sometimes, and beginning readers especially, it is not the best route to comprehension. Again, his explanation is that deliberate identification of single words overtaxes memory capacity. In terms of levels of processing, so long as text is being taken primarily through shallow sensory analysis there is little opportunity or time for the subject to employ "learned rules and past knowledge." If the reader continues at this shallow level, text is conceived as disconnected visual units and not meaningful wholes.

Miller and Arnold (1974), for example, investigated the effect of unknown words on the oral reading of second-grade children. The experimental group (EG) read text in which 5% of the words were substituted either with words considered beyond second-grade level or with nonsense words. The control group (CG) read an unmodified text. A significantly greater proportion of miscues was made by the EG than CG in positions surrounding the unknown words. This error effect was most frequent in words immediately preceding and following the
unknown words. While no specific breakdown on kinds of miscues was given, even if they were mainly repetitions, the effect is a disruption of fluent reading. Words have become individual units for analysis which mitigates against utilization of higher-order rules and semantic knowledge for fluent scanning of chunks of meaning.

Apparently there is a limit to our processing capacity, both in terms of amount of information held and number of levels to which we can attend at one time. The latter property implies that the reader processes primarily at either grapho-phonological or semantic levels, not at the same strength for both. Given the superior efficiency of deep levels of processing, especially in reading, do young readers operate at this deeper level or do shallow sensory levels predominate? This area has been dealt with in psychology as issues of attention and will be explored further in the following section.

**Attention and Reading Processes**

Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seems several simultaneously possible objects or trains of thought. Focalization, concentration of consciousness are its essence. It implies withdrawal from some things in order to deal effectively with others (Wm. James, 1890, pp. 403-404).

Research indicates that the brain acts as a single channel processor; at any given moment attention can be at only one place at a time (Deutsch & Deutsch, 1963; Norman, 1969; Samuels, 1976). If two or more sources of information are presented simultaneously, each of which demands attention for processing, the individual finds that
both cannot be processed simultaneously with equal effectiveness. This situation has been commonly described as the "cocktail party problem." When a person is standing in the midst of a large gathering with several conversations occurring at once, the conversation he is trying to listen to is not necessarily the one in which he is supposedly taking part. Parallels to this phenomenon can be found in other cognitive-perceptual processing.

Attention has been recognized as an important factor in reading (Gibson & Levin, 1975; Mackworth, 1972). The reader has multiple cueing systems available for dealing with the text. The problem is to determine when, how, and to what degree these cueing systems are utilized in various stages of reading. With early primary children the research suggests that poor and skilled readers differ in the levels at which they process visual input.

In examining oral reading miscues of first-graders, Beimiller (1970) found that the better readers began with a reliance on contextual constraints, shifted to graphic cues, and eventually acquired an ability to use both systems simultaneously. Children who remained in the initial contextual phase all through the school year were the poorest readers. Cohen (1974) obtained comparable results when she examined miscues of first-graders in a strong phonics program.

Weber (1970) found a similar situation when investigating first-graders' use of syntactic cues. Both poor and strong readers used these constraints except when attending to graphic analysis of words. This would correspond to the period described by Biemiller which was
antecedent to simultaneous use of more than one cueing system.

Goodman (1965) found that while context facilitated second-graders' word recognition, errors were not noticed and corrected when the reader was concentrating on cues within words. In other words, over-attendance to graphic analysis could inhibit awareness of context.

Gibson and Levin (1975) conclude that research on early reading errors demonstrates that young children find it difficult to attend to syntactic-semantic and graphic information at the same time; and as Biemiller found, this may be a critical factor in successful reading. In terms of attention, the problem for the reader is twofold: to select and sustain attention of a central dimension (semantic) but be flexible and exploratory enough to process information along more peripheral dimensions (e.g., syntactic and phonological). Gibson and Levin write:

> Optimally adaptive perception must consist of some balance between heightened attention to information required by task demands and some incidental exploration of other potential input (p. 28).

These attentive abilities have been shown to be developmental (Gibson, 1969; Hagen, 1967; Hagen & Kail, 1975).

In this regard, there is evidence that lags in development of these attentional abilities may be correlated with poor reading. Santostefano, Rutledge and Randall (1965) were interested in comparing the cognitive styles of remedial readers aged 8-13 years with that of average readers. Two of the test procedures showed no differences. The third cognitive style measured was ability to deploy attention in
the face of intruding and distracting stimuli. Subjects were given cards with fruits in appropriate colors but surrounded by line-drawings of common objects. Although asked only to read fruit colors, the poor readers later recalled significantly more background figures than did the average readers. Poor readers also were significantly slower in naming colors of fruit when the colors were depicted inappropriately (e.g., a blue banana). The authors concluded that the poor readers could not withhold attention selectively from irrelevant peripheral information.

Denney (1974) replicated the fruit-naming task with grades two to five. Again there were substantial differences in attentional styles, with poor readers failing to focus on relevant stimuli.

The above were concerned with ability to focus on a central task. The other aspect of development of attentional skills is ability to selectively explore and utilize peripheral information. Willows (1974) compared the selective attention of slow and average sixth-grade readers, all boys. Control groups read passages which were double-spaced and printed in black. The experimental group read the same passages but red words were typed between the black lines of text. Willows found that the better the reader the more intrusion errors were made; however, these were not random intrusions. Intrusion errors occurred when elements from the red words were used in coherent answers to follow-up questions.

In tachistoscopic presentation of word pairs with the second word only partially indicated (e.g., deep s...), fourth-grade children
used semantic knowledge to correctly generate the missing word (Samuels, Begy, & Chen, 1975). Although all subjects had been able to recognize all experimental words in a prior tachistoscopic presentation, the better readers in the test situation had significantly faster recognition speeds under each cueing condition. The inference is that better readers not only use context more efficiently, but they also are more attuned to grapho-phonemic cues.

Kolers (1975) performed a similar study involving semantic and graphemic variables. Good and poor readers, aged 10.5-14.6 years, read two decks of sentences taken from a third-grade reader. Deck 1 consisted of cards with one set of the sentences. Deck 2 contained new sentences plus sentences from Deck 1, half of which were in normal typography and half in altered typography. Subjects had to divide the second deck into the appropriate categories (new sentences; old sentence-different form; old sentence-same form). Good readers were found to be far more sensitive to typographical characteristics than the poor readers. Both groups were able to separate old from new sentences, but when recognition was contingent upon typographical analysis the poor readers did worse. They also required substantially more time to read the sentences and made more miscues.

It appears that for better readers in the preceding studies the central task was to extract meaning from the passages or sentences at the same time being sensitive to graphemic features. Because visual analysis cannot be the central task without a meaning loss, it appears that as Willow says, the good readers have taken the visual processing
in reading to a pre-conscious level. Samuels (1976) explains that automatic processes are behaviors which formerly required attention to now occur without conscious attention, such as walking and driving. Fluent readers access relevant visual features without full attention so that their limited attention and memory capacity are left free to process meaning.

Kolers (1975) suggests that poor readers are not impaired at a linguistic or semantic level but at the graphemic-analysis level. This is more than a visual problem. Vandever and Neville (1974) divided 72 second-graders into groups according to modality strengths (visual, auditory, kinesthetic). The children were then taught words in a contrived alphabet in a specific modality. Children taught to their strength modality did no better than those taught to their weaker ones. Vandever and Neville also point out that a study by Robinson (1972) showed no significant differences among beginning reading methods adapted to children's modality strengths. Thus, the question of sensitivity to and use of graphemic features has to be interpreted in terms more complex than audio-visual discrimination.

**A Unified Psycholinguistic Approach**

This paper began with a description of the more simple models of the reading process - reductionist and interactional. While models are only heuristics for constructing and illustrating theory, they can serve to provide a certain orientation within which to conduct research. There needs to be some framework for organizing and interpreting data which is potentially representative of larger processes. The preceding
discussion has been an attempt to justify an alternative to the earlier approaches, that is, to offer a more integrated conceptualization.

Evidence has been given for the superior efficiency and persistence of deep level semantic processing. In successful reading this is the central task. Research has shown that young readers do, in fact, bring to the reading task their linguistic and experiential knowledge; even poor readers can readily use contextual and grammatical constraints.

Reading, however, is not speech; there is the additional factor of visual symbols. To derive meaning from the printed input requires that basic linguistic knowledge be supplemented with an ability to process graphemes in the most efficacious way, not as an addendum to or substitute for the central task of deep level processing but as a component within the whole cognitive process that is reading.

The research indicates that good readers process text primarily at deep levels, focusing on semantic continuity while at the same time utilizing graphemic information. Poor readers tend to fixate at one level of processing, either contextual or visual, without trying to integrate the two systems for maximal information yield. Instead of a collection of subskills, reading has to be regarded as an "active perceptual-cognitive activity (Santostefano et.al., 1965)."

Previously mentioned models, reductionist or interactional, essentially set out separate, independent elements, which at the most, may have unidimensional effects on each other. Given the interdependent
nature of the components of the reading process an alternative model seems appropriate.

This paper proposes a unified (Lewis & Cherry, 1975) or transactional model (Meacham, 1976). The initial referents of these models were not reading specifically, but the general concepts of the models can still apply. The goal of this type of model is to shift attention from the components themselves towards their transactions. In an interactional model elements are viewed as "primarily static elements which act upon each other; in the transactional model these are viewed as continually changing derivatives of an ongoing activity or transaction (Meacham, p. 6)." "No element exists entirely by itself nor does each or all entirely explain (the larger process) (Lewis & Cherry, p. 10)."

This kind of orientation may be applied to identification and comprehension in reading, as basically described by Smith, but with the revised memory and attentional factors described earlier. Smith writes that

Reading for meaning entails making use of information simultaneously at both the surface and deep structures of language - using elements of both visual and semantic information (1971, p. 207).

In more specific terms, this would mean that comprehension simultaneously contributes to the reading process, and is also the central focus for directing the reading process.

Bransford and McCarrell (1974) assert that there are many levels at which comprehension can occur, but there appears to be some minimal level below which subjects will fail to call sentences "comprehensible."
Subjects cannot use the cues in linguistic input without sufficient
linguistic information, a view not unlike that of Smith. Bransford
and Johnson (1972) sought to establish experimental evidence for this
t theory. Subjects were asked to read a passage, part of which is
excerpted below:

The procedure is actually quite simple. First
you arrange things into different groups. Of
course, one pile may be sufficient depending
on how much there is to do ... (p. 722).

The subjects who had not been given the topic "washing clothes"
showed poor comprehension and recall scores, as did subjects who
received the topic after hearing the passage but just before recall.
Subjects who received the topic before reading the passage showed
substantially higher comprehension and recall scores. Bransford and
Johnson added that it isn't sufficient to have the prior knowledge;
but knowledge must be "activated" if one is to understand.

This view says the reader must enter the reading task with an
appropriate semantic matrix in order to frame possible responses to
the text. Yet, context in itself is insufficient, as indicated by
Biemiller (1970). Obviously reading involves securing the particular
communication of the writer. As such, the reader may begin with a
general semantic set, but has to progressively refine that set to fit
the writer's particular message. Otherwise, each reader would be
creating his own idiosyncratic message. Some fair literal representa-
tion of the text is necessary even for broader interpretative levels
of comprehension.
Reading is then a process of anticipating the text. Syntax and semantics help establish the plausibilities for incoming text. The fluent reader also samples the necessary graphemic features to further narrow response alternatives. The Samuels et al. (1975) study of children's recognition of the second member of a word-pair showed that better readers effectively used letter cues and semantic constraints to produce faster and more accurate responses. Syntactic constraints were also a likely aid.

Steiner, Weiner, and Cromer (1971) were interested in comparing how poor and good readers utilize contextual information. Fifth-graders in each of the two reading levels read aloud stories from supplementary textbooks. Stories were presented in either paragraph form or put on a machine to reveal one word at a time. "Comprehension training" meant that prior to a reading the subject heard a summary of the particular story. The four experimental conditions were: single word presentation—no comprehension training; single word presentation with comprehension training; paragraph presentation—no comprehension training; paragraph presentation with comprehension training. Data was identification errors: initial errors, corrected errors, uncorrected errors.

Poor readers had significantly more errors, with significantly more errors in the paragraph mode than single-word mode. Error rates for good readers increased with comprehension training but not for the poor readers. The authors concluded that poor readers not only fail to extract essential contextual information but more importantly
fail to use such cues in identification. They are treating words as
discrete items unaffected by syntactic or semantic constraints. The
more familiar is the material the less conscious attention the reader
needs to pay to deliberate recoding. At the same time, there is
sufficient identification to sustain and guide the construction of
meaning.

As the reader moves through the text, the original semantic
"impression" is revised. New information is gradually accumulated,
initial impressions are modified or dropped. Optimally, the reader
spirals to deeper levels of comprehension, but that progress is not
the result of context alone producing more context. The reader has
to take in enough textual information so that he is reading and not
making up his own version.

The fluent transaction between comprehension and identification
may be producing deeper levels of comprehension and more efficient
identification. Each element is actually changed by its activity with
the other elements. Neither comprehension nor identification with
its perceptual-cognitive components exists by itself in static form,
and neither by itself can totally describe the reading process.

This unified model of comprehension and identification which
stresses the leading function of comprehension or meaning, is contrary
to the earlier descriptions which set identification as prerequisite
to comprehension. Also, these earlier approaches emphasized conscious
and complete identification of the visual stimuli. In a unified psycho-
linguistic interpretation, identification consists of optimal sampling
of relevant features at a pre-attentive level. This description needs to be tested since a substantial number of reading programs are based upon the former, more traditional view.

While the unified model stresses the transactions between elements of comprehension and identification, meaning is posited as the initial catalyst for successful reading processes; and successful reading occurs when meaning is apprehended fully and deeply.

The Practice

Few occasions in the average person's daily life require oral reading. If silent reading is most representative of actual practice, what is the purpose of relying upon oral reading in the classroom? Ammon (1974) summarizes three of the most common reasons offered for having children read aloud: a) to practice reading, leading to efficient silent reading, b) for diagnosis, and c) to entertain or to inform others.

Contending that oral reading provides foundational training for later silent reading assumes that the two forms are essentially the same processes and mutually supportive. The evidence, however, appears to contradict this idea (Mosenthal, 1975).

Oral reading is vocalized reading, which means the reader is expected to correctly pronounce and enunciate each word on the page. Durkin (1975) asserts that this kind of attention has a repressive effect on eye movements - more and longer fixations. In contrast, in fluent silent reading the eye is able to move more rapidly, take in more information than the reader is able to enunciate in a given
time span (Ammon, 1974). The reader does not identify every word but selectively samples the visual information. The vocalization requirements of oral reading may impede this process.

It is often argued that oral reading is a means of diagnosing pupils' reading skills, specifically word-attack skills. This assumes that the teacher hears and records children's errors for later analysis, and further, that she judges the total reading situation to determine the nature of the child's thinking processes which produces such errors. Observation over an extended period would show that this kind of diagnosis is not a regular component of most oral reading activities (Spache & Spache, 1969).

Spache and Spache point out that unless the teacher is well-practiced in recording errors and has a duplicate copy of the selection to mark errors, no adequate record is possible. At the most, they say, teachers appear to depend on their own overall impressions of children's reading, adjusting instruction accordingly.

This is not to say that oral reading cannot be used for diagnosis. Methods such as miscue analysis (Goodman, 1969) or informal reading inventories can be quite productive when used appropriately. Yet, even these tools are not meant for daily use. They are periodic means of diagnosis and are time-consuming enough to be usually reserved for a few students who may need extra help.

The third purpose for oral reading is perhaps the most familiar: communicating with an audience (Dechant, 1964; Durkin, 1975; Durrell, 1940; Gates, 1947; Robertson, 1974). This social-communicative function generates a special set of criterion behaviors. The good oral
reader interprets what the writer says or feels to a specific audience. As Artley (1972) says,

... the oral interpreter serves as a stand-in for the author, and through appropriate inflection, emphasis, pauses and expression, conveys to others the feeling, action, or information that he has already secured for himself (p. 48).

Dawson (1972) adds other criteria of rate of reading, volume of voice, phrasing, intonations and stress, and change of pitch.

All of the overt behaviors mentioned, such as pauses and stress, are characteristics specific to oral reading, but are not necessarily required for the reading process itself. Reading aloud as audience communication is a special kind of performance, often with certain kinds of text such as poems and plays. A child can be a successful silent reader without acquiring many of the qualities attached to oral reading as audience communication.

While practice in oral reading does not apply directly to fluent silent reading, and although the purposes of oral reading tend to be somewhat special, this does not mean all classroom activity should consist of silent reading. Young children need to understand and become familiar with the way written language symbolizes spoken words. The children can develop this concept by dictating and reading back their own words, phrases, or sentences (Artley, 1972). Also, oral reading in various activities can provide effective motivating experiences for children. Sharing something they have read and receiving audience feedback provide positive reinforcement and lend purpose to reading (Fox, 1972).
Much of the oral reading by elementary school children is not performed for these purposes. Artley describes the results of a survey of 800 teachers (Artley & Hardin, 1971) in which 37% indicated that the major justification for oral reading was to stress precision in word perception. This belief is borne out in observations of the average reading group. "Communicating with an audience" is generally not the primary purpose. The child reads with careful attention to each word, often resulting in unnatural phrasing and voice quality. When he hesitates at an unfamiliar word a common practice is to help him "sound it out," using word-attack skills, and further emphasizing word perception.

There is a familiar companion to this emphasis on developing word-analysis skills and accuracy of word perception during oral reading. The teacher's editions of basal readers usually contain follow-up questions for each selection, which teachers appear to use frequently. At some point during round-robin reading or a student-teacher conference, the teacher asks the child/group several questions about what was read. Although these questions are often only at literal recall levels (Guszak, 1967), the outward purpose is to assess comprehension.

In conducting any instructional activity, the teacher must be clear as to her specific goals, and then decide if the methods she is using are coincident with those goals. Oral reading activities require just this kind of evaluation.

For example, in a round-robin reading session on an average day in a traditional classroom, it is unlikely that the teacher is going
to be attempting careful reading diagnosis of five or six children in the approximately twenty minutes usually allotted to each group. Is the objective then to teach word-analysis skills, or is it to have children read for comprehension with the potential benefit of communicating with an audience and sharing a reading experience? To answer this requires having a sound understanding of the reading process with the concomitant goals for instruction.

The earlier part of this paper compared some of these "understandings." Those who view the reading process as an assemblage of mainly audio-visual components interpret reading as a matter of recoding symbols to their aural counterparts then decoding for meaning. For this group, it would follow that word-analysis be a major objective in early reading programs.

In contrast there is the psycholinguistic view that meaning has the primary role in the reading process, that although identification has to contribute, it is still peripheral. The reader must come to the reading task with sufficient semantic supports, and deep level processing must be maintained throughout the particular reading. It is on this basis that the reader generates hypotheses to make optimal use of all available cueing systems with minimal but selective attention to graphic features.

Pehrsson (1974) sought to test the effects of different conditions of directions and interruptions on the comprehension of average fifth-grade readers. Each child read aloud three 200-word passages. The conditions for each reading were: 1) to read for meaning, 2) to pay
close attention to words, and 3) to pay close attention to the words without outside correction.

Comprehension was measured using the Re-telling score on the Reading Miscue Inventory. Pehrsson found a significant difference between condition (1) and the other two conditions; and there was significantly less comprehension under condition (3) than (2). Condition (1) also produced significantly faster reading rates than did the other two. Pehrsson concluded that subjects read better when requested to read for meaning and are not interrupted during the reading process. His results support a psycholinguistic interpretation of the reading process. That is, comprehension is better facilitated when children attend to meaning rather than concentrating on accurate word identification.

Extending Pehrsson's investigation, this study will look at the performance of children in earlier stages of reading acquisition. Using cloze tests and miscue analysis, their comprehension will be assessed and compared under conditions similar to those used by Pehrsson but using basal stories as the reading material and with the additional comparison of comprehension in silent reading.

This experiment is designed to assess comprehension in word-emphasis versus meaning-emphasis conditions within a pragmatic context and with a unified psycholinguistic rationale.
CHAPTER III
METHODS AND PROCEDURES

Subjects

Twenty second-grade children of average reading achievement were selected. To minimize extraneous variance, these children came from one public school in a predominantly white, middle to upper-middle class suburb of Columbus.

Two teachers were asked to select students from their classrooms who were reading at about 2:5 and reading similar text materials. Ten children were selected from each class, four boys and six girls from one class, and six boys and four girls from the other class. All were reading in the second book of grade two materials in their particular basal series. Both classrooms were self-contained and fairly traditional.

Instrument

Pre-test materials: A base-rate of miscues (omissions, substitutions, insertions) was followed to equate difficulty level of materials. For every condition each subject read a brief passage from the opening segment of a basal story. When a subject made between six and four miscues within the first 100 words of this passage, the story immediately following this selection in that particular reader was taken as the experimental story.

Because this study was comparing comprehension and miscue patterns under various conditions, the reading materials had to be of similar
level to those used in a diagnostic situation. As Goodman and Burke (1972) state, the selections "must be difficult enough for the student so that reading miscues will be made, but not so difficult that he will be unable to continue independently." Following Goodman and Burke's guidelines all selections were drawn from third-grade materials, one grade level above that which the subjects were assigned in class.

Goodman and Burke say that the selections should be such that they can be read in entirety in about 20-25 minutes. A pilot study showed that the entire procedure involved in a given treatment in this experiment could be optimally administered to a child in 15-20 minutes. A longer session risked noticeable subject fatigue. On this basis, the pre-test had to be limited to allow time for the rest of the procedures.

The pilot study showed that second-grade average readers made about five miscues per 100 words, when reading third-grade level materials. To allow some range, the base-rate was set at 4-6 miscues per 100 words.

**Experimental stories:** Subjects read passages excerpted from standard basal textbooks. Each passage consisted of the first 300-350 words of a given story. An effort was made to have these excerpts end at a logical point within the given story. Only realistic fiction was used.

Coleman and Miller (1974) point out that many experiments in reading have erroneously generalized their results simultaneously to readers and language. The subjects are randomly selected to serve as a generalization variable; but because these experiments typically use
the same reading material for all subjects, this language variable must be considered a fixed rather than generalization variable as is most often assumed.

The intent of this study was to develop implications for the standard classroom situation, which meant being able to generalize results to the population of basal textbooks and not be confined to one or two selections. Following the Coleman and Miller description of partial confounding of generalization variables, each subject in each condition read a different basal story. The stories were randomly selected from a pool of 50 stories (see Appendix A). Some stories were repeated over conditions but rotated such that no one subject ever read the same story more than once.

All text materials were typed (pica) double-space on 8 1/2" x 11" white bond paper, which was folded in half and given manila covers to create manageable booklets. Each booklet contained the pre-test passage, experimental story, and a cloze test.

Procedure

The author was the sole administrator of the procedures, which were conducted in a private room in the children's school. Subjects read in a one-to-one situation with the experimenter. Each subject read under four conditions, three requiring oral reading, the fourth silent:

1. Word-emphasis with correction: Instructed to "say" each word in the text and shown one word at a time. Experimenter corrects miscues of omission, insertion, and substitution.

2. Word-emphasis, no correction.

4. Meaning-emphasis, silent reading.

Directions to subjects:

Condition 1: "I want you to read this story out loud. Be sure not to skip any word. Try to say each word as clearly and correctly as you can. I'm going to cover each line of the story with this piece of paper. I want you to read the story as I show you one word at a time."

Condition 2: (Directions as above) Add: "I can't give you any help, so if you're not sure of a word just do the best you can."

Condition 3: "As you read aloud, just try to think of what is happening in the story. When you're finished I'll ask you some questions about what you read. I can't help you, so if you're not sure of a word just do the best you can."

Condition 4: "This time you're going to read this story silently, to yourself. As you read, try to think of what is happening in the story. When you're finished I'll ask you some questions about what you read. Don't rush. Take as much time as you need."

On the first day with each subject prior to beginning any of the treatments, the experimenter explained that the procedures were part of her project for the University. Children were told that this was not a test nor a part of their own classwork. They were then given a brief practice to acquaint them with the general procedures. Each subject was asked to read a paragraph from a basal story. This reading was followed by a cloze test (see Appendix B).

Sample session:

1. Subject reads a 100-word passage to determine if material at that level generates the criterion base-rate of miscues. Different 100-word passages are tried until criterion is achieved.

2. Subject reads the 300-word passage under the given experimental condition.
3. Subject takes the oral cloze test on the experimental story.

Each child read under one condition a day for four consecutive days, although one girl went through the procedures on a Thursday and Friday, finishing up on the following Monday and Tuesday. The order of presentation of treatments was randomly determined for each subject. Subjects were also randomly ordered within each day.

**Dependent Variables**

**Cloze scores:** In surveying the various approaches to assessing comprehension, Farr (1969) has demonstrated the difficulty of achieving a fully reliable and valid measure. The most recent technique is the cloze procedure first introduced by Taylor (1953). While being easy to make and administer, it also appears to be highly reliable. Bormuth (1975) reports that cloze tests of 50 items produce scores that are about 92% reliable. Bormuth (1967) also found that a score of 38% correct completions on the cloze was equal to a comprehension score of 67% and a cloze score of 50% was equal to an 87% comprehension score.

While Bormuth's studies were conducted with fourth, fifth, and sixth graders, Gallant (1965) tested the cloze procedure on grades one through three. She found that cloze scores correlated with standardized reading test scores for all three grades from +.65 to +.81, the correlations being significant at the .01 level.

Following the procedures outlines by Bormuth (1975) every fifth word was deleted from the experimental stories to produce the cloze versions. The counting for the deletions was begun after the first
complete sentence of the story to allow the child some contextual base and to ease him/her into the testing.

The final score was the number of correction completions. Consonant with Bormuth (1975) synonyms were not accepted. McKenna (1975) has shown that accepting synonyms as correct makes no significant difference in the final cloze scores. On this basis, and to support consistency, only the exact words were scored.

Miscues: Patterns of miscues were examined to reveal the kind of strategies the reader is using during reading. A balance of reliance on all systems - grapho-phonic, syntactic, semantic - indicates a fluent reader. It also indicates the reader is able to process the text, that non-visual information is being effectively applied to the text to obtain the communication.

On this basis, as a further indication of the possible effects of the treatments upon readers' comprehension and fluency, miscues were scored. The number of miscues (substitutions, omissions, insertions) made during the cloze tests were compared across treatments. Because the readings during the word-emphasis conditions were so controlled by the experimenter (one word revealed at a time), miscues were not compared for the initial readings of the experimental stories.

Miscues were also compared for meaning-change and semantic and syntactic acceptability, as defined by Goodman and Burke (1972). Evaluation followed their criteria:
Grammatical Acceptability: Does the miscue occur in a structure which is grammatically acceptable?

Y - The miscue occurs in a sentence which is grammatically acceptable in relation to prior and subsequent sentences in the text.

P - The miscue occurs in a sentence which is grammatically acceptable but is not acceptable in relation to prior and subsequent sentences in the text. Or the miscue is grammatically acceptable only with the sentence portion that comes before or after it.

N - The miscue occurs in a sentence that is not grammatically acceptable.

Semantic Acceptability: Does the miscue occur in a structure which is semantically acceptable?

Y - The miscue occurs in a sentence which is semantically acceptable in relation to prior and subsequent sentences in the text.

P - The miscue occurs in a sentence which is semantically acceptable but is not acceptable in relation to prior and subsequent sentences in the text. Or the miscue is semantically acceptable only with the sentence portion that comes before or after it.

N - The miscue occurs in a sentence that is not semantically acceptable.

Meaning Change: Does the miscue result in a change of meaning?

Y - An extensive change in meaning is involved.

P - A minimal change in meaning is involved.

N - No change in meaning is involved.

(Goodman & Burke, 1972, p. 63)

Design

This experiment sought to simultaneously generalize results both to subjects and reading materials. Coleman and Miller (1974) suggest certain significance tests which allow generalization to two or more populations, including a quasi F procedure. The simplest approach they
describe is to set up experimental designs which confound the generalization (random) variables into a single variable. This may be accomplished through 1) complete designs, which cross each subject with every language unit under each experimental condition, 2) completely confounded designs which have each subject measured under only one experimental condition with only one language unit, and no two subjects are measured with the same language unit, and 3) partial confounding of the generalization variables. Familiar significance tests may then be applied.

This experiment follows the third design of partial confounding. Each subject was measured under all four experimental conditions, each time with a different story, thus confounding the subject and story variables. Some stories were repeated over treatments but never with the same subject. Type of instructional strategies was the fixed variable with four levels. The design is then a one-factor, treatment x subjects, repeated measures analysis of variance, conducted for each dependent measure.
CHAPTER IV

RESULTS

This study examined the possibility of differential effects of instructional strategies on reading comprehension of second-grade average readers. Based on one aspect of psycholinguistic theory, treatments were designed to represent either mediated or immediate meaning identification. Mediated meaning identification was manifested through word-emphasis with and without outside correction of miscues, while immediate meaning identification was manifested in meaning-emphasis conditions with no outside correction of miscues. The treatments were thus:

Oral reading:

1. Word-emphasis, with outside correction (WEC)
2. Word-emphasis, no outside correction (WENC)
3. Meaning-emphasis, no outside correction (MEO)

Silent reading:

4. Meaning-emphasis (MES)

A computer program, SOUPAC, was used to analyze the data for all of the dependent variables. Raw scores appear in Appendix F. A one-factor, repeated measures analysis of variance was conducted for each dependent variable with an a priori alpha level of .05. The analysis of variance for each dependent variable was run at 3/57 degrees of freedom, making the F-Table value to be equalled or surpassed 2.82.

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Statistical findings are reported separately for each of the five dependent variables. This is followed by a discussion of the findings in reference to potential influences of procedural and story variables.

**Dependent Variable 1 - Cloze Scores**

A subject's comprehension of each reading was assessed through a cloze test. Number of exact word completions out of 50 possible was scored for each subject under each condition. Means and standard deviations are presented in Table 1.

**TABLE 1**
MEANS AND STANDARD DEVIATIONS
FOR CLOZE SCORES BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>28.800</td>
<td>6.195</td>
</tr>
<tr>
<td>2) WENC</td>
<td>26.400</td>
<td>6.840</td>
</tr>
<tr>
<td>3) MEO</td>
<td>26.650</td>
<td>7.659</td>
</tr>
<tr>
<td>4) MES</td>
<td>24.500</td>
<td>7.373</td>
</tr>
<tr>
<td>Total</td>
<td>26.587</td>
<td>7.0723</td>
</tr>
</tbody>
</table>

The means indicate only slight differences among treatments in the cloze tests following each reading. Word-emphasis with no outside correction (WENC) and meaning-emphasis in oral reading (MEO) are almost equal. Word-emphasis with outside correction (WEC) has a slight advantage with meaning-emphasis in silent reading (MES) ranked last. Still, treatment means and the over-all mean are fairly equal.
Hypothesis 1 was directed at differences in comprehension under the categories of word or meaning-emphasis. Hypothesis 2 was focused on outside correction which, according to psycholinguistic theory, should compound the effects of word-emphasis. Hypothesis 11 predicts differences in comprehension between oral and silent reading on the assumption that silent reading should be most facilitative of immediate meaning identification. A one-way repeated measures analysis of variance was run on the group's cloze scores for all treatments. Results appear in Table 2.

**TABLE 2**

ANOVA FOR CLOZE SCORES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>1965.637</td>
<td>103.454</td>
<td></td>
</tr>
<tr>
<td>A (Treatments)</td>
<td>3</td>
<td>185.837</td>
<td>61.945</td>
<td>1.9617</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>1799.912</td>
<td>31.577</td>
<td></td>
</tr>
</tbody>
</table>

Over-all differences among treatments proved not to be significant, $F = 1.9617$, df 3/57, $p > .05$, thus rejecting Hypotheses 1, 2, and 11. Comprehension as measured by the cloze test appears not to have been significantly affected either by word/meaning emphasis, correction/no correction, or oral/silent reading conditions.

**Dependent Variable 2 - Number of Miscues**

To obtain a further index of the possible effects of instructional strategies on readers' interaction with the text, frequency of miscues
(omissions, insertions, substitutions) made within the 250-word cloze test was also examined. These miscues were qualitatively assessed, but initial evaluation was on frequency of occurrence. Means and standard deviations for frequency of miscues are presented in Table 3.

**TABLE 3**

**MEANS AND STANDARD DEVIATIONS**

**FOR FREQUENCY OF MISCUES BY TREATMENT**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>8.700</td>
<td>5.420</td>
</tr>
<tr>
<td>2) WENC</td>
<td>9.950</td>
<td>7.619</td>
</tr>
<tr>
<td>3) MEO</td>
<td>8.450</td>
<td>4.466</td>
</tr>
<tr>
<td>4) MES</td>
<td>8.500</td>
<td>4.894</td>
</tr>
<tr>
<td>Total</td>
<td>8.900</td>
<td>5.653</td>
</tr>
</tbody>
</table>

Again, differences among treatments are slight. Treatment (2) has a mean of only a +1 advantage while the other three treatments are almost equal. The possibility of differential effects on frequency of miscues was explored under word/meaning emphasis (Hypothesis 3), correction/no correction (Hypothesis 4), and silent/oral reading (Hypothesis 12) conditions. Table 4 gives the results of the one-way repeated measures analysis of variance on miscue frequency.
TABLE 4
ANOVA FOR FREQUENCY OF MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>1590.200</td>
<td>83.694</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>30.100</td>
<td>10.033</td>
<td>.632</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>904.900</td>
<td>15.875</td>
<td></td>
</tr>
</tbody>
</table>

Over-all differences among the treatments were not significant, $F = .632$, df 3/57, $p > .05$, thus rejecting Hypotheses 3, 4, and 12.

The four treatments appear to have had no significant effect upon frequency of miscue occurrence during the cloze tests.

**Evaluation of Miscues**

The miscues comprising Dependent Variable 3 were evaluated qualitatively using three categories and criteria set out by Goodman and Burke (1972). The better the reader follows the message of the text, the more effectively he should be applying the cueing systems - syntactic, semantic, phonological. This should then be reflected in the quality of the miscues. These miscues can be evaluated for semantic and syntactic acceptability and the degree of meaning-change they effect. There should be increasing semantic and syntactic acceptability and less meaning-change as the miscues better retain the integrity of the text.
Dependent Variable 3 - Meaning-Change

Each miscue was evaluated on how much it altered the message of the text as intended by the author. The possibility of differential effects of instructional strategies on quality of miscues was examined. Hypothesis 5 focused on meaning-change as affected by word or meaning emphasis; Hypothesis 6 was directed at the effects of outside correction; and Hypothesis 13 dealt with the effects of silent reading on this category.

Table 5 gives the means and standard deviations for percentages of miscues that were judged as producing no meaning-change (N) in the text.

TABLE 5
MEANS AND STANDARD DEVIATIONS FOR PERCENTAGES OF NO-MEANING CHANGE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>44.521</td>
<td>26.957</td>
</tr>
<tr>
<td>2) WENC</td>
<td>41.951</td>
<td>19.473</td>
</tr>
<tr>
<td>3) MEO</td>
<td>52.084</td>
<td>25.121</td>
</tr>
<tr>
<td>4) MES</td>
<td>43.333</td>
<td>23.457</td>
</tr>
<tr>
<td>Total</td>
<td>45.473</td>
<td>23.784</td>
</tr>
</tbody>
</table>

For this dependent variable, Treatment (3), meaning-emphasis in oral reading, appears to have a greater comparative effect than
previously. The other treatments are within one or two percentage points of each other. Table 6 presents the results of a one-way repeated measures analysis of variance on this data.

TABLE 6
ANOVA FOR PERCENTAGE OF NO-MEANING CHANGE (N)
MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>18829.637</td>
<td>991.033</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>1231.198</td>
<td>410.661</td>
<td>.9505</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>24626.524</td>
<td>432.044</td>
<td></td>
</tr>
</tbody>
</table>

Although the means show a 7-10% difference between Treatment (3) and the other treatments, the analysis of variance indicates that differences within this comparison were not significant, F = .9505, df 3/57, p > .05. Word/meaning emphasis, correction/no-correction, oral/silent reading conditions had no significant effect upon the extent of meaning-change in the miscues made during the cloze tests. Therefore, hypotheses 5, 6, and 13 are rejected.

Within each category - meaning-change, semantic acceptability, syntactic acceptability - miscues were evaluated along three dimensions. For meaning-change this meant no meaning-change (N), partial meaning-change (P), and complete change in the meaning of the text (Y). The preceding analysis compared no meaning-change (N) miscues with the combined percentages for partial (P) and complete (Y) meaning-change
miscues. When developing a reader's profile in the actual Reading Miscue Inventory, the partial category is considered an indication of some positive reader interaction with the text. On this basis, revised scores were obtained by collapsing together no meaning-change (N) and partial meaning-change (P) miscues. The means and standard deviations for these percentages appear in Table 7.

TABLE 7
MEANS AND STANDARD DEVIATIONS FOR PERCENTAGES OF P + N MEANING-CHANGE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Means</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>67.762</td>
<td>23.313</td>
</tr>
<tr>
<td>2) WENC</td>
<td>60.565</td>
<td>23.547</td>
</tr>
<tr>
<td>3) MEO</td>
<td>70.115</td>
<td>25.535</td>
</tr>
<tr>
<td>4) MES</td>
<td>68.346</td>
<td>21.561</td>
</tr>
<tr>
<td>Total</td>
<td>66.697</td>
<td>23.370</td>
</tr>
</tbody>
</table>

The results of a one-way repeated measures analysis of variance on this revised data follow in Table 8.
### TABLE 8

ANOVA FOR PERCENTAGE OF P + N MEANING-CHANGE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>15595.021</td>
<td>820.790</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>1062.852</td>
<td>354.284</td>
<td>.7624</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>26487.825</td>
<td>464.698</td>
<td></td>
</tr>
</tbody>
</table>

The analysis indicates no significant differences among treatments, with the F value slightly lower when categories (P) and (N) are combined.

**Dependent Variable 4 - Grammatical Acceptability**

A second category of qualitative evaluation of the miscues made during the cloze tests is grammatical acceptability. The effects of instructional strategies upon grammatical acceptability of miscues was examined in Hypothesis 7 (word/meaning emphasis), Hypothesis 9 (correction/no correction), and Hypothesis 14 (oral/silent reading).

Following the criteria set by Goodman and Burke, miscues were evaluated for full grammatical acceptability (Y). Percentages were obtained for those which maintained the syntactic integrity of the sentences in which they occurred and kept the sentences totally acceptable within the whole text. The means and standard deviations for this data appear in Table 9.
TABLE 9
MEANS AND STANDARD DEVIATIONS FOR PERCENTAGES OF
FULLY GRAMMATICALLY ACCEPTABLE (Y) MISCUES
BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>42.041</td>
<td>22.815</td>
</tr>
<tr>
<td>2) WENC</td>
<td>38.214</td>
<td>19.452</td>
</tr>
<tr>
<td>3) MEO</td>
<td>48.982</td>
<td>23.123</td>
</tr>
<tr>
<td>4) MES</td>
<td>41.566</td>
<td>27.454</td>
</tr>
<tr>
<td>Total</td>
<td>42.701</td>
<td>23.272</td>
</tr>
</tbody>
</table>

As it did with Dependent Variable 3, Treatment (3), meaning-emphasis in oral reading, demonstrates a 7-10% advantage over the other treatments. The subsequent order of the other treatments continues to be WEC, MES, WENC. A one-way repeated measures analysis of variance was conducted on this data and the results are given in Table 10.

TABLE 10
ANOVA FOR PERCENTAGE OF FULLY GRAMMATICALLY ACCEPTABLE (Y) MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>15638.652</td>
<td>823.086</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>1226.284</td>
<td>408.761</td>
<td>.8989</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>25919.550</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
While treatment means indicated certain differences, the analysis of variance reports none were significant, $F = .8989$, df $3/57$, $p > .05$. None of the treatments had a significant effect on the percentage of fully grammatically acceptable miscues produced during the cloze tests, thus rejecting Hypotheses 7, 9, and 14.

The analysis of grammatically acceptable miscues was then repeated by collapsing data for fully (Y) and partially (P) grammatically acceptable miscues. The means and standard deviations for these revised percentages appear in Table 11.

**TABLE 11**

MEANS AND STANDARD DEVIATIONS FOR Y + P GRAMMATICALLY ACCEPTABLE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>84.433</td>
<td>13.174</td>
</tr>
<tr>
<td>2) WENC</td>
<td>85.134</td>
<td>16.289</td>
</tr>
<tr>
<td>3) MEO</td>
<td>90.629</td>
<td>11.128</td>
</tr>
<tr>
<td>4) MES</td>
<td>86.953</td>
<td>13.133</td>
</tr>
<tr>
<td>Total</td>
<td>86.788</td>
<td>13.515</td>
</tr>
</tbody>
</table>

The results of the one-way repeated measures analysis of variance are given in Table 12.
TABLE 12

ANOVA FOR PERCENTAGE OF Y + P GRAMMATICALLY ACCEPTABLE
MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>5363.520</td>
<td>282.290</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>461.291</td>
<td>153.764</td>
<td>1.0185</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>8605.029</td>
<td>150.965</td>
<td></td>
</tr>
</tbody>
</table>

While analysis of this revised data yielded a larger F value than in the immediately preceding analysis, it also fell short of significance, F = 1.0185, df 3/57, p > .05.

Dependent Variable 5 – Semantic Acceptability

The third category of qualitative evaluation of miscues was semantic acceptability. Miscues occurring during the cloze tests were judged for the degree to which the reader was producing "understandable structures." A percentage of miscues was obtained for those judged as fully semantically acceptable (Y), where the miscue occurred in a sentence which was semantically acceptable and acceptable in relation to prior and subsequent sentences in the text. Their means and standard deviations are given in Table 13.
TABLE 13
MEANS AND STANDARD DEVIATIONS FOR FULLY SEMANTICALLY
ACCEPTABLE (Y) MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>41.207</td>
<td>22.813</td>
</tr>
<tr>
<td>2) WENC</td>
<td>43.214</td>
<td>21.821</td>
</tr>
<tr>
<td>3) MEO</td>
<td>48.949</td>
<td>23.096</td>
</tr>
<tr>
<td>4) MES</td>
<td>42.938</td>
<td>23.672</td>
</tr>
<tr>
<td>Total</td>
<td>44.078</td>
<td>22.613</td>
</tr>
</tbody>
</table>

As with the meaning-change and grammatical acceptability categories, Treatment (3) appears to have a slightly more positive effect on the quality of the miscues than the other treatments which themselves are clustered together. This difference, however, proves not to be significant under statistical analysis, the results of which appear in Table 14.

TABLE 14
ANOVA FOR PERCENTAGE OF FULLY SEMANTICALLY
ACCEPTABLE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>18195.989</td>
<td>957.683</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>680.347</td>
<td>226.782</td>
<td>.6006</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>21521.324</td>
<td>377.567</td>
<td></td>
</tr>
</tbody>
</table>
The resultant F value indicates no significant differences among treatments, $F = .6006$, df 3/57, $p > .05$, thus rejecting Hypotheses 8, 10, and 15. Word/meaning-emphasis, correction/no-correction, oral/silent reading conditions had no significant effect upon the percentage of fully semantically acceptable miscues made during the cloze tests.

The analysis of semantically acceptable miscues was repeated with the data collapsed over partial (P) and fully (Y) semantically acceptable miscues. The means and standard deviations for these revised percentages appear in Table 15.

**TABLE 15**

MEANS AND STANDARD DEVIATIONS FOR PERCENTAGES OF Y + P SEMANTICALLY ACCEPTABLE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) WEC</td>
<td>81.874</td>
<td>14.728</td>
</tr>
<tr>
<td>2) WENC</td>
<td>82.765</td>
<td>17.147</td>
</tr>
<tr>
<td>3) MEO</td>
<td>89.713</td>
<td>11.612</td>
</tr>
<tr>
<td>4) MES</td>
<td>83.343</td>
<td>14.400</td>
</tr>
<tr>
<td>Total</td>
<td>84.423</td>
<td>14.660</td>
</tr>
</tbody>
</table>

The results of the one-way repeated measures analysis of variance on this combined data follow in Table 16.
TABLE 16
ANOVA FOR PERCENTAGES OF Y + P SEMANTICALLY ACCEPTABLE MISCUES BY TREATMENT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Subjects)</td>
<td>19</td>
<td>6226.502</td>
<td>327.710</td>
<td></td>
</tr>
<tr>
<td>A (Treatment)</td>
<td>3</td>
<td>767.915</td>
<td>255.971</td>
<td>1.4614</td>
</tr>
<tr>
<td>SA</td>
<td>57</td>
<td>9983.732</td>
<td>175.153</td>
<td></td>
</tr>
</tbody>
</table>

Again, the means indicate that Treatment (3) may have a greater effect on this measure than the other treatments which are clustered together. The analysis of variance, however, indicates that while the F value is higher for the collapsed data, the differences among the treatments are not significant, $F = 1.4614$, df 3/57, p $>0.05$.

Summary of Findings

The major comparison investigated in this study was the effect of word versus meaning emphasis on reading comprehension. It was hypothesized that the word-accuracy factor would be even further pronounced when there was outside correction of miscues during oral reading. In turn, the meaning-emphasis factor would be optimally effective under silent rather than oral reading. Thus, the comparisons for investigation were:

- MEO + MES / WEC + WENC
- WEC / WENC, MEO, or MES
- MES / WEC, WENC, or MEO
Each comparison was examined in terms of five dependent variables:

1. Cloze scores
2. Frequency of miscues during the cloze tests.
3. Percentage of no (+ partial) meaning-change miscues.
4. Percentage of fully (+ partially) grammatically acceptable miscues.
5. Percentage of fully (+ partially) semantically acceptable miscues.

One-factor repeated measures analysis of variance on each of the dependent variables resulted in the following:

1. No significant differences among all treatments on cloze measures of comprehension. Hypotheses 1, 2, and 11 were rejected.

2. No significant differences among all treatments on frequency of miscues made during the cloze tests. Hypotheses 3, 4, and 12 were rejected.

3. No significant differences among all treatments on percentage of no meaning-change miscues. Hypotheses 5, 6, and 13 were rejected. This held true when the analysis was repeated on scores combining partial and no meaning-change miscues.

4. No significant differences among all treatments on percentage of grammatically acceptable miscues. Hypotheses 7, 9, and 14 were rejected. This held true when the analysis was repeated on scores combining Y and P miscues.

5. No significant differences among all treatments on percentage of semantically acceptable miscues. Hypotheses 8, 10, and 15 were rejected. This held true when the analysis was repeated on scores combining Y + P miscues for this category.
Discussion of Findings

Procedure Variables

There appear to have been several procedural problems in this study which may have accounted for the lack of significant findings.

One comparison involved the effect of outside correction on reading strategies and comprehension. When this procedure was initially set up, the word-accuracy factor in Treatments (1) and (2) was to be effected by simply instructing the subjects beforehand to concentrate on "saying" each word in the text. The pilot study, however, indicated that such oral directions in themselves were not sufficient to actually induce word-by-word focusing.

The word-emphasis treatments were revised such that in addition to the specific oral instructions, the experimenter used a strip of opaque paper to cover each line of text and show the subject one word at a time to read. While subjects still made miscues during these word-emphasis treatments, the procedure was highly controlled, possibly to the extent that miscues did not occur frequently enough for the correction factor to create any significant effect. In retrospect, the outside correction factor could have been investigated by combining it with meaning-emphasis in oral reading rather than the word-emphasis treatment. The meaning-emphasis treatment involved oral reading without the experimenter forcing careful word-identification. Thus a normal number of miscues would have been allowed to occur, making outside correction a stronger influence.

Another comparison was silent versus oral reading. Experimenter observations indicate that enough of the subjects may not yet have
acquired sufficient silent reading skill to make the treatment a true representation of this kind of reading. For several of the subjects, "read silently" meant "read very quietly." Subjects could be observed mouthing or whispering the words to themselves. It might then be assumed that other children were sub-vocalizing the words if not noticeably mouthing them.

When instructed to read silently, a few subjects seemed to feel that the object was to demonstrate speed. Although told not to rush and to take as much time as they needed, these children indicated they had read the text after just a few minutes, which could barely have been possible even for a fluent adult reader.

On Dependent Variables 3, 4 and 5, the MEO treatment showed some advantage over the others. While this difference proved not to be significant in a subsequent analysis, this may have been a function of the length of the stories. In order to avoid subject fatigue, the experimental materials were limited to 300 to 350-word excerpts from basal stories. Although the passages were complete in meaning, these versions provided about one-third of a whole story.

The consequence may have been that the treatment did not have full opportunity to take effect. Because the cloze tests were administered immediately after the experimental readings some subjects may have performed well just by virtue of remembering the appropriate words. The advantage for MEO indicated for Dependent Variables 3, 4 and 5 may have become more pronounced if the subjects had read the complete stories. With longer readings subjects could not rely on memory to make the cloze completions. Performances would then depend
more heavily on actual comprehension which would then be reflected in the cloze scores and miscue patterns.

**Story Variables**

To establish stories as a random or generalization variable, each subject read a different story for each of the four treatments. Only realistic fiction was selected for use as the experimental stories and a common criterion of readability was followed. Because the stories were randomly ordered for presentation there was no control over which stories the subjects would read for each treatment.

Despite the above procedures for equating difficulty level of stories, experimenter observations indicated that there may have been certain elements in the stories which differentially affected comprehension. If this is true, another possible explanation for non-significance of treatment effects is that some subjects responded to particular stories more strongly than to the different treatments.

**Topic**: One of the most obvious and familiar variables in the stories was topic matter. Within realistic fiction there are still a variety of topics that can occur. The base-rate of miscues was established by using a story preceding the experimental story in its basal textbook. There was thus no pre-test of possible interactions between the reader and the subject matter of the particular experimental story the subject read.

Subject R, for example, read a story titled "A Very Special Teapot" for the MEO treatment. The story concerned a boy's preparation for Chinese New Year, including buying his mother a teapot. The reader apparently had had no experience with this topic, which should
not be surprising since he comes from a mid-western, white, middle-class suburban background. He consistently read "Chinese New Year" as "children's new year." He did much better on the cloze test for WEC, reading the story "Ann Goes Home," which is about a more typical middle-class family moving to another town.

Subject P read "Stranger in the City" for Treatment (3), MEO. The story involves a description of a stable in the city with people taking riding lessons. The subject reading the story produced several non-responses and incorrect cloze responses when reading about the riders and the stable. She did much better on Treatments (1) and (2) reading stories about a class buying a gift and a Halloween night respectively.

Language patterns: Another possible source of influence inherent in the stories is the language patterns. Some stories consisted almost totally of running dialogue among characters, while others were completely narrative. The former tended to use more conversational language patterns while the latter often involved a good deal of literary, formal language. Also, among narratives there are variations in the degree of literary language used. Following are excerpts from two of Subject M's cloze tests. The first example was under the WENC treatment and the second was under MEO.

Subject M | WENC | Subject P | heard
Jerry's mother laughed. "I've never seen
hurry
anyone in such a rush. Just don't get so
✓ paper
excited that you forget our lunch. It's
✓ in the brown paper bag on the kitchen shelf.
Subject M  Her Adam's grandmother was about the tallest lady you ever saw, and most of the time when she was the pleasantest lady you could wish Her to know. She had a kind word for everybody NR and a cookie for any boy or girl who
stopped by her bakery.

Words underlined indicate cloze deletions. A check (✓) means the reader made a correct completion. Words written above the text indicate substitutions. NR means non-responses.

The first reading, "The Beach Party," uses a good deal of dialogue with language patterns that are not too far from everyday speech. The second story, "Mrs. Waters and the Rule Against Picking Flowers," contains more formal or literary language. The miscues or cloze responses in "The Beach Party" are quite close to the text, while the deviations in "Mrs. Waters" are often anomolous.

Cognitive requirements: A third potentially important element in the stories is the cognitive level some of them require in order to be understood. Experimenter observations indicate that there were certain stories in the pool of 50 which none of the children who read them appeared to totally understand. Most of the stories were running narratives describing an on-going sequence of events; however, problems appeared to arise when a plot depended upon an event or object which did not actually occur within the events of the immediate narrative. With the story "Snowstorm on the Turnpike" subjects did not seem able to grasp the fact that the mother receives a phone call about her
husband's accident which had occurred at an earlier time in another location. Likewise, subjects could not understand that in "The Race," the girl had left her pigeon at another location earlier and was now waiting for it to return home. And in "A Night to Remember" subjects E and F did not seem to grasp the fact of the story character thinking back to a conversation with someone earlier in the day:

Subject E of
MEO He thought about Mr. Bell, the camp fire storekeeper. That afternoon Mr. Bell will said, "I hope people won't be careless with their fires."

Subject F that
WENC He thought about Mr. Bell, the camp butcher storekeeper. That afternoon Mr. Bell are had said, "I hope people won't be careless with their fires."

Obviously there may have been other elements in these stories to make them difficult. Yet, the possibility of some of the subjects understanding only the immediate and concrete is further evidenced in the readings of "Mr. Peabody's Ducks." In this story there's reference to the Lakeside Hotel which is next to Mr. Peabody's farm and not a lake at all. Neither of the children who read this story seemed to understand the attempt at ironical humor.

Subject R lake
WENC In spite of its name, the Lakeside Hotel so side wasn't as close to the lake as it was to Shine's Mr. Peabody's pond.
In spite of its name, the Lakeside Hotel wasn't as close to the lake as it was to Mr. Peabody's pond.

While it cannot be positively determined here whether the story elements described above had significant effects, it does suggest potential factors for accounting for the results of this experiment.

Discussion of the Meaning-Emphasis Treatments

McKenzie (1977) asserts that young children will be most motivated when reading is somehow related to their own needs and purposes. They will be enthusiastic readers when they are personally involved with selected literature.

Studies such as the one reported here, follow experimental procedures. This means standardizing procedures, instructions, and materials for all subjects. Thus, although the intent of this study was to operate within a familiar, natural context, the standardization of procedures perhaps still created a situation artificial enough to negatively affect the children's performances. At one point, as the experimenter was about to give the standardized directions to one subject, she said, "I know, I have to try to find the one word that goes in each blank ...." continuing on to repeat the instructions almost perfectly.

The meaning-emphasis factor (MEO and MES) was represented by instructions "to read the story for meaning in order to answer some follow-up questions." If McKenzie is right, this would hardly be sufficient motivation for getting children to concentrate on meaning.
Stories were randomly selected for each subject and there was no introduction to help interest a subject in a specific story. Thus, the possibility of any individual involvement in the stories was greatly reduced. Another important consideration in creating a meaning-emphasis situation is the quality of the stories. Only realistic fiction was selected from the basals. As the titles listed in the Appendix may indicate, these stories tended to be rather bland compared to other genre such as folk tales. Even if a story was especially interesting, reading only an excerpt may not have provided the subject with enough of the plot and action to develop any strong involvement.
CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Restatement of Problem

A psycholinguistic approach to reading is currently one of the most influential in education. Based on what is known about how children learn, this theory provides an alternative to traditional views which define reading as the result of simple S-R kinds of learning. Instead of seeing the reading task as an accumulation of associations, grapheme-to-sound and sound-to-meaning, psycholinguistic theory suggests that the reader actively constructs the message of the text through use of semantic, syntactic, and phonological cueing systems.

Goodman (1967) has described the process as a "psycholinguistic guessing game," in which the reader applies conceptual and linguistic information to the visual input in order to generate and confirm predictions as he processes the text. Smith (1971, 1975) elaborated on this interpretation by connecting it to the cognitive and perceptual constraints described by psychologist such as Neisser (1967) and Miller (1956). In essence, he says, because there are limits on human perceptual capacities, the reader must use his conceptual and linguistic knowledge to develop strategies for efficiently processing text. Consequently, psycholinguistic theory would predict that reading is most effective when the reader is applying meaning and his linguistic cueing
systems rather than focusing on translation of graphic input into its aural counterpart to finally derive meaning.

For education, the translation of theory into practice is especially critical. It is not uncommon, however, that what goes on in the classroom does not match prevailing theory. In the average primary classrooms today, a substantial amount of time is spent in oral reading. While round-robin reading groups are perhaps the most common, other situations focus on oral reading. Just by virtue of being oral, this kind of reading requires a special attention to each word. The listener understands a complete not fragmented text. Teachers also will commonly evaluate oral reading on the basis of how accurately the child "says," or enunciates each word and/or is able to apply word-attack skills to identify unfamiliar words.

While focusing on word-identification during the child's oral reading, the teacher also appears to have comprehension as a goal, as evidenced by the asking of follow-up questions. The assumption thus seems to be that the more accurate is word-identification, the better will be comprehension.

This study proposed testing one aspect of the psycholinguistic theory of reading by determining whether reading for accurate word-identification and reading for meaning are mutually facilitative goals. In the past, most of the research on psycholinguistic theory has consisted of psychology studies investigating highly specific factors such as recall of word lists under special laboratory conditions and with adult subjects. The supportive educational research has been
conducted under more natural conditions but have been descriptive rather than experimental (e.g., Goodman, 1965; Weber, 1970).

One purpose of this study was to try to combine both situations: a test of one aspect of psycholinguistic theory using experimental procedures within a familiar context. The use of experimental procedures serves as the more credible means of validating theory. By conducting the study in a practical context, results could be more readily generalized to the classroom than have been allowed by more laboratory-based experiments.

The practical context of this experiment could thus implement a second major purpose: to re-assess teaching strategies during oral reading. If comprehension is the goal of reading curricula, teachers need to know if, in fact, concentration on word-identification is the most effective facilitator of that goal. If this study indicated otherwise, there would then be reason for re-evaluation of instructional strategies used with children's oral reading.

Summary of Procedures

The four treatments in the study were designed to compare the effects of instructional strategies emphasizing either words or meaning. Additional factors investigated were the effects of outside correction and silent reading. The treatments were:

Oral reading:
1) Word-emphasis, with outside correction (WEC)
2) Word-emphasis, no outside correction (WENC)
3) Meaning-emphasis, no outside correction (MEO)

Silent reading:
4) Meaning-emphasis, no outside correction (MES)
Subjects were 20 second-grade average readers from one public school in a predominantly white, middle to upper-middle class suburb of Columbus. The sample included four boys and six girls from one class with four girls and six boys from another class. Average reading level was determined by teacher observations and by selecting children who were reading similar basal materials in their daily reading assignments.

This study used a repeated measures design which meant that each subject experienced all four treatments, one treatment a day for four consecutive days. Treatments were randomly ordered for each subject.

To establish conditions directly related to the classroom, the reading materials used in the study were stories taken from several standard basal textbooks. In order to generalize results to the population of basal stories, the story factor had to be set as a random variable. Following the Coleman and Miller (1974) suggestions, each subject read a different story for each treatment. Some stories were repeated across treatments, but no story appeared more than once within a treatment. In effect, this now random story variable was confounded with the random subjects variable. Standard statistical analysis could then be applied instead of complicated quasi F procedures.

To equate difficulty level of stories, subjects were given pretest basal passages of 100 words. When a subject made 4-6 miscues within a passage, the story immediately following the story from which the passage was excerpted in a given text was used as the experimental reading.
There were five dependent variables. Cloze scores were used as a measure of comprehension. Every reading was followed by an oral cloze test. As a further assessment of how well the reader was interacting with the text, comparisons were made of frequency of miscues (substitutions, insertions, omissions) within the cloze tests. Following the evaluative categories and criteria of Goodman and Burke (1972), these miscues were in turn compared for meaning-change, grammatical and semantic acceptability. On the basis of psycholinguistic theory, the hypotheses predicted certain effects of treatments upon the dependent variables.

$H_1$ Subjects will score significantly higher on cloze tests following meaning-emphasis reading than under word-emphasis conditions.

$H_2$ Outside correction of miscues during oral reading will produce significantly lower cloze scores than no-correction conditions.

$H_3$ Oral reading under word-emphasis will cause significantly more miscues (substitutions, omissions, insertions) to occur during subsequent cloze tests than when subjects are instructed to read for meaning.

$H_4$ Correction of miscues during oral reading will cause significantly more miscues to occur during the subsequent cloze tests than no-correction conditions.

$H_5$ Miscues made during cloze tests following word-emphasis conditions will include significantly greater percentage of "meaning-change" miscues than under meaning-emphasis conditions.

$H_6$ Correction of miscues during oral reading will produce significantly greater percentage of meaning-change miscues during subsequent cloze tests than no-correction conditions.

$H_7$ Miscues made during cloze tests following meaning-emphasis conditions will include a significantly greater percentage of grammatically acceptable miscues than under word-emphasis conditions.
Miscues made during cloze tests following meaning-emphasis conditions will include a significantly greater percentage of semantically acceptable miscues than under word-emphasis conditions.

Miscues made during cloze tests following oral reading with outside correction will include a significantly lower percentage of grammatically acceptable miscues than following no-correction conditions.

Miscues made during cloze tests following oral reading with outside correction will include a significantly lower percentage of semantically acceptable miscues than following no-correction conditions.

Cloze scores following silent reading will be significantly higher than those following each oral reading condition.

Silent reading will produce significantly fewer miscues during subsequent cloze tests than oral reading.

Miscues made during cloze tests following silent reading will include a significantly smaller percentage of meaning-change miscues than under oral reading conditions.

Miscues made during cloze tests following silent reading will include a significantly greater percentage of grammatically acceptable miscues than under oral reading conditions.

Miscues made during cloze tests following silent reading will include a significantly greater percentage of semantically acceptable miscues than under oral reading conditions.

A one-factor repeated measurements analysis of variance was conducted on each of the dependent measures, with an a priori alpha level of .05.

**Findings**

The series of analyses of variance showed no significant differences among treatments for any of the five dependent variables. All fifteen hypotheses were rejected. Treatment means, however, for meaning-change, grammatical and semantic acceptability indicated some
advantage for the meaning-emphasis in oral reading treatment, although this was not large enough to be a significant effect.

**Discussion of Findings**

The lack of significant differences among treatment effects may have been due to certain procedural problems. Mediated meaning-identification was manifested in this study by forcing the reader to word-by-word perception. A procedure more representative of the actual classroom and a more stringent application of mediated meaning-identification would be to have children apply word-attack on unfamiliar words. This would constitute a more obvious shift to audio-visual processing than the whole-word procedure.

It is also possible that the word-emphasis conditions were so controlled by the experimenter that the number of miscues occurring during the oral reading was too small to allow the outside-correction variable to take effect.

The silent reading comparison appears to have been negatively affected by several of the subjects' inability to actually read silently. They often mouthed or whispered the words rather than engaged in actual silent reading. Also, a few of them indicated they had completed the reading in so brief a period as to make it highly unlikely that they had actually read the story.

On Dependent Variables 3, 4, and 5, the treatment means indicated a comparative advantage for meaning-emphasis in oral reading (MEO), although not to the extent of significance. It was suggested that because the subjects read segments of stories the treatments may not
have had time to take effect. Perhaps if subjects had read complete stories the advantage for MEO on Dependent Variables 3, 4, and 5 may have continued and eventually have affected full comprehension, which would then be reflected in cloze scores and miscue frequencies.

The lack of significant treatment effects may also have been the result of subjects interacting more strongly with particular stories than with the treatments. Topic matter or concepts, language patterns, and cognitive demands of particular stories may have influenced subjects' performances to a degree that treatment effects were ameliorated.

The major comparison in this study was word versus meaning-emphasis. Because the procedures of the experiment were so standardized it is possible that simply instructing the subjects "to read for meaning" was not sufficient to optimally induce such behavior. Also, the random assignment of stories to children and the lack of any introduction to particular stories may have further limited the possibility of any interaction between reader and text for some genuine purpose. In other words, meaning may not have been actually emphasized.

Conclusions and Implications

Because there were no significant findings in this study, a major research question is whether it should be tried again with the appropriate revisions in procedure. The purpose as stated earlier still appears to be valid: an experimental test of one aspect of psycholinguistic theory of reading within a familiar context, with the related goal of comparing instructional strategies during oral reading.
Some of the procedural problems suggested in the preceding discussion could be fairly easily dealt with. The outside-correction factor could be applied in a meaning-emphasis oral reading situation where there was less experimenter control of the display of text. Some prior evaluation and observation of children in silent reading would serve to help select only children who were capable of actual silent reading rather than, for example, "very quiet reading."

Finally, the problem of having children read whole stories instead of excerpts might be handled by having a subject read in two sessions during a day, allowing a short break in-between to avoid fatigue.

If it is accurate that some subjects' performances were influenced more strongly by particular stories than by treatments, then the problem of equating stories becomes more complex. This study proceeded on the premise that the population of realistic fiction from basal stories was basically homogeneous. "Equating difficulty level" was to be achieved by following a base-rate of miscues in a 100-word passage that did not come from the experimental story itself. It is possible that there were elements in the experimental stories that were not present in the pre-test materials, and that there were variables affecting performance which could not be reflected in a base-rate of miscues.

More research is needed to systematically identify story elements of different genre and how each singly and in combination affect the reading process of children. These elements would include the variables of topics and concepts, language patterns, and cognitively-related constructs such as organization of events and subtle literary
devices. This research would also need to consider the varying purposes, experiential background, language, and cognitive set of individual children. With more complete knowledge of whether and how these factors interact and shape comprehension, the language units in an experiment can be more accurately selected and equated for a particular group of readers.

Trying to account for these kinds of considerations in a given experiment will obviously be complex and time-consuming. Perhaps this is cause for having reading studies with limited numbers of subjects but then allowing for more comprehensive analysis of subject and story variables in relation to the given treatments. For example, the comparisons in this study should be repeated but with some detailed pre-evaluation of individual subjects' backgrounds, interests, and cognitive level. The pool of experimental stories would also be pre-analyzed to identify concepts, kinds of language patterns, as well as the standard readability level. The match between subject and story will not be perfect, but probably more accurate than using a single criterion such as number of miscues.

The implication here is that "readability" involves much more than just syllable and word counts. There appears to have been a good deal of variation among basal textbooks that were marked as third grade level, as evidenced by the different ways individual children appeared to respond to various stories. Perhaps the standard readability measures are adequate for initial text selections; however, if other story elements do in fact influence readers' responses, then
efforts to equate materials and make selections for individual children will eventually have to take these other factors into account.

Teachers selecting books for students would have to be more acutely aware that they could not depend upon the standard grade levels that publishers assign to whole series of reading materials. A teacher would need to know the needs and capacities of her individual students, understand the various elements within different reading materials, and then make decisions about what books to select for her students.

The problem in this study seems to have been that the reading process and comprehension were conceptualized as fairly uniform, ideal constructs. Definitions of the reading process and comprehension are susceptible to the same failing in Chomsky's initial descriptions of oral language. He was in effect referring to an ideal speaker in an ideal, homogeneous speech community, not considering the pragmatics of oral language, that is, the rich variations in language produced by individual and cultural differences, and the way various functions can influence the form of language used.

Discussions of reading comprehension have to use the same broad, flexible approach. Each individual brings a unique set of constructs - experiential, linguistic, cognitive - and purposes to the reading task. His comprehension will then be a product of the interaction between the text and those constructs and purposes. Thus, in any research on reading, while standard measures such as the cloze test may be applied, it will be essential to remember that the scores are standardized measures of a series of unique individual responses to the text.
Although none of the experimental hypotheses in this study were accepted, the lack of significance suggests that more research and consideration need to be applied to the components of comprehension, specifically story elements and their interaction with individual attributes and purposes.

The question of whether focusing on word-identification or meaning has differential effects on comprehension during oral reading in the early grades is still important, both as an aspect of psycholinguistic theory that remains to be experimentally tested in a familiar context and as an instructional strategy in the classroom. Future attempts to investigate this question would require a revision of procedure from whole-word processing to application of word-attack strategies. They would also need to better account for the variables within stories and readers which contribute to comprehension.

Perhaps one of the most important results of this study is that despite the experimenter's strong interference in the reading process during the word-emphasis treatments, the children were able to produce cloze scores comparable to those made in the meaning-emphasis treatments. The implication is that for these second-graders, the search for meaning is a stronger determinant in the reading process than the particular audio-visually based perception of the text induced by this study for the word-emphasis treatments.

These results reinforce the belief that early primary classrooms should use and extend the children's focus on meaning as the basis for helping them learn to read. Instead of the traditional notion that
meaning is the final product of accurate word-identification, it would appear that meaning can precede and transcend conscious whole-word identification.
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APPENDIX A

POOL OF BASAL STORIES FROM

WHICH EACH SUBJECT'S READINGS

WERE RANDOMLY SELECTED

**Round the Corner**, Book 3₂

The Long Wait
Mrs. Waters and the Rule Against Picking Flowers
Hurricane Kate
The Beach Party

**City Sidewalks**, Book 3₁

The Boys Around the Corner
The Old Man
The Monster

**Green Light**, Go, Book 2₂

Walter's Machine
Harry the Hero
Benjamin, Benjamin
Except Rachel


**New Faces, New Places**, Book 3₁

A Very Special Teapot
Hurray for Bobo
Billy York, King of Baseball
The Halloween Tiger
Footsteps on the Roof

**Exciting Adventures**, Book 3₂

Ducks to the Rescue
Homer and the Big Game
Ann Goes Home
George has a Lot to Learn
Treasure Trap
A Night to Remember


**From Faraway Places**, Basic Third Reader, Strand One.

Grandfather and Marco


The Race
The Mystery


Mysterious Wisteria, Book 3

William Did It
Little Alligator
Andy and the Turtle
All but Tad
Seal of Frog Island
Kathy B


Better Than Gold, Book 3

Stranger in the City
Danger on the Docks
A Monday to Remember
The Boat in the Bottle
Five Thousand Cannon Balls
Rikki Goes Fishing
The Icehouse Mystery

More than Words, Book 3

The Stolen Picture
Mr. Peabody's Ducks
The Mystery at the Campground


Stand Tall/A Second Look, Levels 13, 14

Tall Tina
The Fastest Quitter in Town
The Magic Mirror

*Magic Windows*, Readiness Third Reader

- Joey's Job
- A New Girl
- A Shoe for Herbie
- Fireman Pat
- Snowstorm on the Turnpike
- The Tattletale Cure
APPENDIX B

PRACTICE READING AND
PRACTICE CLOZE TEST
On Saturdays, Andy liked to go to the park. It was hot and noisy in his house, but the park was always quiet and green. Sometimes Andy would find a boy in the park to play with.

One Saturday, Andy fixed himself a big long sandwich of lunch meat, cheese, tomatoes, and bread.

Then Andy went to the park.

* * * * *

On Saturdays, Andy liked to go to the park. It was hot and _____ in his house, but _____ park was always quiet _____ green. Sometimes Andy would _____ a boy in the _____ to play with.

One _____, Andy fixed himself a _____ long sandwich of lunch _____, cheese, tomatoes, and bread.

_____ Andy went to the _____.

---

APPENDIX C

SAMPLE OF CLOZE TEST

FOLLOWING EACH TREATMENT
A MONDAY TO REMEMBER

Every Monday morning Juliana received twenty-five cents from her father. The money was supposed last all week, but didn't. Every Monday afternoon twenty-five cents bought cream and candy for and her friend Isabel.

Monday was a holiday. and Isabel had a dinner under a tree. off they hustled to the candy shop for their treat.

After that Isabel home, and Juliana went village store. In hand she carried a bag with a sandwich in it. In other she held a licking away at it she looked around.

Suddenly important thought struck Juliana. day after tomorrow was father's birthday! She had money left to buy present. She should have saving for two weeks buy a certain necktie fifty cents. She had it in the store long ago.

Juliana hurried to the necktie counter. necktie was still there. had green flowers on red background. It was beautiful necktie, Juliana thought, she had no money buy it.

In another of the store was large square board. There
usually many notes on ____ board. 
Juliana went over ____ read them. 
   One note said ____ the Green Hotel 
____ someone to wash dishes. ____ 
said that Mrs. Meecham ____ a girl to 
come ____ afternoons and take care 
____ the baby. A number ____ people 
wanted somebody to ____ clean their houses 
and ____ windows. 

#
APPENDIX D

SAMPLE OF MARKED CLOZE TEST, INCLUDING MISCEUES
A MONDAY TO REMEMBER

Every Monday morning Juliana received twenty-five cents from her father. The money was supposed to last all week, but it didn't. Every Monday afternoon the twenty-five cents bought ice cream and candy for Juliana and her friend Isabel. This Monday was a holiday. Juliana and Isabel had a picnic dinner under a tree. Then off they hustled to the candy shop for their usual treat.

After that Isabel went home, and Juliana went into the village store. In one hand she carried a paper bag with a left-over sandwich in it. In the other she held a lollipop, licking away at it as she looked around.

Suddenly an important thought struck Juliana. The day after tomorrow was her father's birthday! She had no money left to buy a present. She should have been saving for two weeks to buy a certain necktie marked fifty cents. She had seen it in the store not long ago.

Juliana hurried over to the necktie counter. The necktie was still there. It had green flowers on a red background. It was a beautiful necktie, Juliana thought, but she had no money to buy it.

In another corner of the store was a large square board. There were usually many notes on the board. Juliana went over to read them.

One note said that the Green Hotel...
needed somebody to wash dishes. Another
Mitchell wants
said that Mrs. Meecham wanted a girl
this afternoon
to come in afternoons and take care
of the baby. A number of people
gave
wanted someone to help clean their
houses and wash windows.
APPENDIX E

SAMPLE OF SCORING SHEET
<table>
<thead>
<tr>
<th>Ch2O2</th>
<th>MC</th>
<th>GA</th>
<th>SA</th>
<th>Ch2O2</th>
<th>MC</th>
<th>GA</th>
<th>SA</th>
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<td>28)</td>
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<tr>
<td>11)</td>
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<td></td>
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APPENDIX F

RAW SCORES FOR EACH
DEPENDENT VARIABLE
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