

DOCUMENT RESUME

ED 094 324

CS 001 203

AUTHOR Hutson, Barbara A.; Niles, Jerome A.
TITLE Parallel Analysis of Oral Language and Reading Miscues.
PUB DATE 73
NOTE 11p.; Paper presented at the National Reading Conference (Houston, Texas, 1973)
EDRS PRICE MF-\$0.75 HC-\$1.50 PLUS POSTAGE
DESCRIPTORS Cloze Procedure; *Decoding (Reading); Elementary School Students; *Miscue Analysis; Oral Communication; *Oral Reading; *Reading Research

ABSTRACT

A child faced with an unknown word in oral reading or oral language has available a number of potential cues, including syntactic and semantic features. His errors may reveal strategies based on the use of some but not all cues. In order to assess the similarity of responses to oral reading and oral language, 75 children in grades 1-3 were presented reading and auditory cloze tasks at three levels of difficulty. Separate analyses were conducted for syntactically appropriate miscues and for semantically-and-syntactically appropriate miscues. For syntactically appropriate responses, significant effects were found for task, with a higher mean for cloze, and for grade by task. Although main effects for grade and complexity were not significant, the interaction of grade by complexity was significant. For responses which were both semantically and syntactically appropriate, there was a significant effect for task, with a higher mean for the cloze task. Complexity was significant, with a decrease from the easiest to most difficult passage. No other effects were significant. (Author/TO)

THIS DOCUMENT HAS BEEN REPRO-
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN-
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRESENT
OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY.

PERMISSION TO REPRODUCE THIS COPY-
RIGHTED MATERIAL HAS BEEN GRANTED BY

Barbara A. Hutson

Jerome A. Niles

TO ERIC AND ORGANIZATIONS OPERATING
UNDER AGREEMENTS WITH THE NATIONAL IN-
STITUTE OF EDUCATION. FURTHER REPRO-
DUCTION OUTSIDE THE ERIC SYSTEM RE-
QUIRES PERMISSION OF THE COPYRIGHT
OWNER.

Barbara A. Hutson, Assistant Professor
Department of Educational Psychology
State University of New York at Albany
1400 Washington Avenue
Albany, New York 12222

Jerome A. Niles, Reading Consultant
Albany Child Research and Study Center
State University of New York at Albany
1400 Washington Avenue
Albany, New York 12222

BEST COPY AVAILABLE

Parallel Analysis of Oral Language and Reading Miscues

Barbara A. Hutson
State University of New York
at Albany

Jerome A. Niles
Albany Child Research and Study Center

It is generally assumed that language skills provide a foundation for reading skills. Language, however, is many-faceted, and it seems quite possible that skill in various aspects of language may relate in different ways to corresponding facets of reading. Parallel analyses of syntactic and semantic errors in an oral language task and an oral reading task may clarify the relationship of specific skills in language to use of those skills in reading.

During early development of a skill or concept, analysis of errors is often more revealing than a simple count of correct responses. An error may be simply a random response, or it may be the result of a systematic use of some but not all of the available cues. By analyzing errors, it is possible to isolate the rules which govern a child's

response, rules which underlie both correct and incorrect responses.

For the analysis of responses given in oral language, the cloze task (Taylor, 1954) is useful. Words are deleted in some systematic manner, such as every 10th word. The subject hears the text and is asked to supply the missing words. The most relevant cues in this situation appear to be a (not necessarily explicit) sense of grammatical function and the meaning derivable from the passage.

In an oral reading task, the child has both the language cues and the graphic form of the word. This additional information provides cues for phonics analysis, used alone or in combination with other cues, such as context. Some children may operate primarily on a visual basis, resulting in confusion of graphically similar words.

When a child reads a sentence correctly, it is hard to know how he succeeds. He may be able to read the words by sight, or because of phonics analysis skills, or by application of knowledge of language patterns. The successful product masks the process by which the child succeeds.

One means of assessing the cues used in reading is the miscue analysis proposed by Goodman (1969). This analysis is based on the assumption that a child, facing an unknown word, may respond on the basis of certain cues more readily than others. Errors in oral reading may be categorized in various ways, such as syntactically, semantically or morphemically appropriate.

Although the oral reading and auditory cloze tasks share many features, there are necessarily some differences in the stimuli available and in the task requirements. By keeping the stimulus materials and the response criteria as nearly as possible the same, it is possible

to make meaningful comparisons between a child's response to oral reading and auditory cloze tasks.

The central purpose of the present study was to examine the relationship between use of syntactically and semantically appropriate responses in oral reading and in an auditory cloze task. In addition, comparison of tasks and grade levels was desired.

Procedures

Hypotheses: Hypotheses to be tested included:

- I. a. Correlation of Syntax in Reading and Syntax in Auditory Cloze will not be significantly different from zero.
- b. Correlation of Semantic-Syntactic responses in Reading with Semantic-Syntactic responses in Auditory Cloze will not be significantly different from zero.
- II. In the analysis of variance, the effects for Grade, Task, and Grade by Task interaction will be non-significant.

Design: The number of responses in each category was computed as a percentage of the total number of errors in a given passage for reading or auditory cloze. The percentages were then transformed into arcsine equivalents, which approximate a normal distribution.

Data were analyzed in a 3 x 2 x 3 mixed design with Grade (3) a between-subjects factor and Task (2) and Complexity (3) as within subjects effects. Separate analyses were performed for syntactically and semantically appropriate errors.

Subjects: From two parochial schools serving predominantly middle- to lower-middle class families, 25 children were randomly selected at each

grade level (first through third). Testing was conducted in the last month of school. Reading level was assessed by means of the Gilmore Oral Reading Test (Gilmore, 1952), and any subject scoring below grade 1.5 or above 6.0 was replaced.

Method: Each child was first administered the Gilmore Oral Reading Test to estimate his reading level. He was then given passages on three reading levels of the Diagnostic Reading Survey (Spache, 1963), one on his level (as determined by the Gilmore), one just below, and one just above. At each level there are two selections; for each child one of these was randomly assigned to be presented as an auditory cloze task, one as an oral reading task.

For the Reading task, the child read each selection aloud, while the examiner noted word substitutions (including reversals) and omissions. For the Cloze task, the examiner first read the entire selection, deleting every tenth word, and then read each sentence, noting the word the child selected for the deleted word.

In both tasks, each word substitution was classified in one of the following categories: wrong; syntactically correct (having the same grammatical function in the phrase); semantically-and-syntactically correct (having the same grammatical function and also roughly the same meaning); semantically correct (same meaning but not the same syntactic function); morphemically correct (the same word stem, with a difference only in inflection, such as tense, number, etc.); or a hit (the exact word deleted, used only for the cloze task).

The miscues in both tasks were rated jointly by the two authors, and then independently by another rater. Inter-rater reliability was assessed by means of Scott's (1955) procedure. This is a relatively conservative procedure which involved the differences between observed

agreement and the agreement expected by chance, based on the actual frequency of use of various categories. Across all categories, reliability coefficients of .86 for reading and .84 for cloze were found.

Results

Correlations: The correlation of syntactically appropriate responses to Reading and Auditory Cloze, based on the proportions of possible errors, was .16, which is not significant at the .05 level. The correlation of semantically appropriate responses in Reading and Auditory Cloze was .29, which is significant, but accounts for a relatively small proportion of the variance.

Analysis of Variance - Syntactically Appropriate Miscues: The effect for Grade was not significant. The effect for Task was significant at $p < .05$, with a higher mean for the Cloze task. The interaction of Grade and Task was significant ($p < .01$). For the Reading task, there was a clear decrease from first to third grade in the proportion of miscues which were syntactically appropriate. For the Cloze task, there was an increase from first to second, with the pattern from second to third parallel to but higher than for Reading. In addition, although the effect for Complexity or difficulty level of the passage was not significant, a significant interaction ($p < .05$) for Grade by Complexity was found. At Level 1 (the easiest passage for each subject) the proportion of miscues which are syntactically appropriate is greatest for first grade, least for third. At Level 2, the order is the same, though the spread is less. At Level 3 the pattern for second and third grade is the same, but first graders have the lowest proportion. For first grade, there is a clear decrease from Level 1 to Level 3 in the proportion of miscues which are syntacti-

cally appropriate.

Analysis of Variance - Semantically-and-Syntactically Appropriate Miscues:

The effect for Grade was not significant. The effect for Task was significant at $p < .001$ with a higher mean for the Cloze task. Complexity was significant at the .05 level under the usual F procedures, with a gradual decrease from the first (easiest) passage to the last in the proportion of miscues which were both semantically and syntactically appropriate. This effect, however, is significant only at the .10 level under the conservative F procedure (Greenhouse and Geisser, 1959).

Discussion

These results indicate the complexity of the system in which the relationships of language and reading are embedded. Syntax and semantics, as reflected in these tasks show both similarities and differences.

Grade was not a significant main effect for either Syntax or Semantic responses. Task was significant in both cases; there were for both semantically and syntactically appropriate miscues a greater proportion in Cloze than in Reading. In the Reading task, more of the errors were apparently distributed as omissions or completely wrong, categories not analyzed here.

Complexity was not a significant main effect for Syntax, but interacted significantly with Grade. For the first grade, the proportion of errors which were syntactically appropriate sharply decreased as passages increased in difficulty. For the third grade there was a slight increase as difficulty level increased.

Complexity was significant as a main effect for Semantic miscues (more semantically appropriate responses on easiest passages) when

evaluated by the usual F procedure, but not significant when evaluated by means of the conservative F with reduced degrees of freedom. The interaction of Grade and Complexity was not significant for Semantic miscues.

Although the interaction of Grade and Task was not significant for Semantic miscues, it was significant at the .01 level for Syntactically appropriate miscues. There was a sharp decrease in proportion of syntactically appropriate miscues from first grade through third on Reading, while this category of miscues first increased and then decreased for Cloze.

In attempting to examine any complex system, there are many possible approaches, and each choice of approach influences the observed results. In this report, the effects of three choice-points seem especially critical to accurate interpretation. First, the present analysis of variance is univariate. Multivariate analysis of all error types simultaneously in order to examine their joint effects and the overall distribution of errors is in progress and will be reported later.

A second consideration is that the unit of analysis may well affect results, although each is legitimate for certain purposes. In the present analysis, the number of possible words misread in a passage and the number of deleted words incorrectly supplied in a cloze passage would inevitably be far different even in passages of equal difficulty. For this reason, the number of actual errors, excluding omissions, was used as the denominator in computing the proportion of errors which fell in each category. This allowed more reasonable comparison across tasks, but compressed dimensionality and increased the dependency of each category on the other.

A third consideration is the varying level of difficulty of passages read by children in the same grade level. Presenting the same materials

to all subjects or to all subjects in a given grade has certain advantages for analysis, but these were judged less important than the possibility of reflecting the child's normal response to reading within his range of ability.

The present study yields intriguing views of similarities and differences in the use of certain language cues, across tasks, grades, and levels of complexity of passages. A clear view of the relationship of specific aspects of reading with corresponding aspects of oral language skills may allow more sensitive analysis of patterns and reading problems in individual children. Children may be guided to more effective application of language skills to reading. Such a comprehensive view is not yet available, but the possibility motivates further effort.

References

- Gilmore, J. V. Gilmore oral reading test. Harcourt, Brace and World, New York, 1952.
- Goodman, K. Analysis of reading miscues: applied psycholinguistics. Reading Research Quarterly, 1969, 5, 9-30.
- Greenhouse, S. W. and Geisser, S. On methods in the analysis of profile data. Psychometrika, 1959, 24, 95-112.
- Scott, W. A. Reliability of content analysis: the case of nominal scale coding. Public Opinion Quarterly, 1955, 19, 321-325.
- Spache, G. D. Diagnostic reading survey. CTB/McGraw-Hill, Monterey, California, 1963.
- Taylor, W. Application of "cloze" and entropy measures to the study of contextual constraints in samples of continuous prose. Doctoral dissertation, University of Illinois, Urbana, 1954.

Abstract of Paper Presented at the 1973 National Reading
Conference, Houston, Texas, 1973

Parallel Analysis of Oral Language and Reading Miscues

Barbara A. Hutson and Jerome A. Niles

State University of New York, Albany

A child faced with an unknown word in oral reading or oral language has available a number of potential cues, including syntactic and semantic features. His errors may reveal strategies based on use of some but not all cues.

In order to assess the similarity of responses to oral reading and oral language, 75 children in grades 1-3 were presented reading and auditory cloze tasks at three levels of difficulty. Separate analyses were conducted for syntactically appropriate miscues and for semantically-and- syntactically appropriate miscues.

For syntactically appropriate responses, significant effects were found for Task ($p < .05$), with a higher mean for Cloze, and for Grade by Task ($p < .01$). Although main effects for Grade and for Complexity were not significant, the interaction of Grade by Complexity was significant ($p < .05$).

For responses which were both semantically and syntactically appropriate, there was a significant effect for Task ($p < .001$), with a higher mean for the Cloze task. Complexity was significant at the .05 level (.10 under conservative F), with a decrease from the easiest to most difficult passage. No other effects were significant.

Although the materials and the response ratings were quite similar for the reading and auditory cloze tasks, the difference in response was strong and the correlations of corresponding categories in the two tasks were low. Reading the entire passage before eliciting responses may maximize the difference in tasks. By varying the degree of similarity in the tasks, it may be possible to map continuities and discontinuities between reading and auditory cloze.

The patterns of errors in the two tasks differ. Although language skills may be generally facilitative of reading skills, point-to-point correspondence of specific factors in reading and language appears to be minimized by task differences.

DOCUMENT RESUME

ED 094 325

CS 001 209

AUTHOR Butler, Lester G.
TITLE A Psycholinguistic Analysis of the Oral Reading Behavior of Selected Impulsive and Reflective Second Grade Boys.
PUB DATE May 74
NOTE 14p.; Paper presented at the Annual Meeting of the International Reading Association (19th, New Orleans, Louisiana, May 1-4, 1974)

EDRS PRICE MF-\$0.75 HC-\$1.50 PLUS POSTAGE
DESCRIPTORS *Cognitive Processes; Decoding (Reading); Grade 2; *Miscue Analysis; *Oral Reading; Psycholinguistics; *Reading Processes; *Reading Research

ABSTRACT

The relationship between the reflection-impulsivity dimension, a dimension of cognitive style, and selected aspects of oral reading behavior was investigated in this study. Fifteen impulsive and fifteen reflective average readers were selected from a population of 109 second graders. Measures of intelligence and reading comprehension were obtained, followed by reading and taping a story from a basal reader, thus providing a sample of oral reading behavior. Comparisons of the two groups were then made with respect to miscue frequency, semantic acceptability of miscues, hesitation and repetition frequency, and self-correction of miscues. Analyses of the data revealed significant relationships between measures of the reflection-impulsivity dimension and repetition frequency and self-correction behavior among the subjects. No significant differences were found with regard to the other variables. The findings suggest additional directions for investigating the role of cognition in the reading process. (Author/TO)

ED 094325

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN-
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRE-
SENT OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY.

BEST COPY AVAILABLE

Lester G. Butler
Assistant Professor
Department of Education
Purdue University
West Lafayette, Indiana 47907

"PERMISSION TO REPRODUCE THIS COPY-
RIGHTED MATERIAL HAS BEEN GRANTED BY

Lester G. Butler

BEST COPY AVAILABLE

TO ERIC AND ORGANIZATIONS OPERATING
UNDER AGREEMENTS WITH THE NATIONAL IN-
STITUTE OF EDUCATION. FURTHER REPRO-
DUCTION OUTSIDE THE ERIC SYSTEM RE-
QUIRES PERMISSION OF THE COPYRIGHT
OWNER."

A PSYCHOLINGUISTIC ANALYSIS OF THE ORAL
READING BEHAVIOR OF SELECTED IMPULSIVE
AND REFLECTIVE SECOND GRADE BOYS

Research Reports Session
10:45 - 11:45 a.m.
Friday, May 3, 1974

BEST COPY AVAILABLE

Nineteenth Annual Convention of the International Reading Association
New Orleans, Louisiana

5 001 209



BEST COPY AVAILABLE

A PSYCHOLINGUISTIC ANALYSIS OF THE ORAL
READING BEHAVIOR OF SELECTED IMPULSIVE
AND REFLECTIVE SECOND GRADE BOYS

Purpose of the Study

The purpose of this study was to explore the relationship of one aspect of cognitive style, the reflection-impulsivity dimension, and various aspects of oral reading behavior, namely miscue frequency, semantic acceptability of the miscues, hesitation and repetition frequency (indicators of reading fluency) and self-correction of miscues. More specifically, answers were sought for four questions:

- 1) Do impulsive children make more oral reading miscues than reflective children when intelligence and comprehension factors are controlled?
- 2) Are the miscues made by impulsive children more semantically acceptable than those made by reflective children?
- 3) Are impulsive children more fluent readers than reflective children, when fewer hesitations and repetitions are taken as evidence of greater fluency?
- 4) Do reflective children correct a greater percentage of their miscues than impulsive children?

Background and Literature

Until recently little attention had been given to the role of cognition in the reading process. But in the last ten years several reading authorities (12, 13, 14) have drawn attention to evidence supporting the view that reading involves cognitive processes.

One aspect of cognition which appears to be related to reading behavior is the tempo dimension of cognitive style, also referred to as the reflection-impulsivity dimension (10). The reflection-impulsivity dimension, according to Kagan (9) refers to a subject's tendency to be reflective (long decision times and low error scores) or impulsive (short decision times and high error scores) in solving problems that contain response uncertainty. However, the research in this area has been sketchy and in some cases the findings appear to be somewhat contradictory.

Kagan (9) and Banks (1), on the one hand report a significant positive relationship between measures of impulsivity and the number of errors made in oral reading. Lesiak (11) on the other hand reports finding no significant relationship between impulsivity and her measures of word recognition, comprehension, critical reading and rate of reading. These findings appear to be incompatible in light of traditional views of the relationship between oral reading errors and general reading ability in which errors have been taken as evidence of weakness (15).

A search of the literature revealed no studies of the relationship of the reflection-impulsivity dimension to semantic acceptability of miscues, hesitations, repetitions or self-correction of miscues, all aspects of reading which might well be influenced by a reader's dis-

position to be reflective or impulsive.

Procedures

The subjects in this study were 30 average second grade boys, drawn from nine classrooms in three predominately middle class suburban schools near a large midwestern city, representing high, middle and low socio-economic classes. The subjects were selected by first identifying 65 average readers from among a population of 109 second grade boys on the basis of their scores on the Reading subtest of the Metropolitan Achievement Test, with grade equivalent scores for the average readers ranging from 2.2 to 3.3. From this pool of average readers 15 boys were identified as reflective (long decision times and low error scores) and 15 were identified as impulsive (short decision times and high error scores) on the Matching Familiar Figures Test (MFF) (8), a test of the reflection-impulsivity dimension.

The California Test of Mental Maturity and the California Achievement Test - Reading were administered to provide a basis for controlling for possible variance due to intelligence and comprehension ability. Then, individually, each subject read orally, while being tape recorded, a story from a basal reader, thus generating a total of 2813 miscues, 626 hesitations and 877 repetitions which were later coded onto a typescript of the story and subsequently analyzed according to the correction and semantic acceptability components of the Goodman Taxonomy of Reading Miscues (7).

A t test was used to test the significance of differences between the reflective and impulsive groups on measures of verbal intelligence, nonverbal intelligence, full scale intelligence, vocabulary, compre-

hension and total reading. When this analysis revealed that the difference between the groups' nonverbal intelligence scores was significant (mean IQ = 106.07 for reflectives and 99.87 for impulsives), while differences on the other variables were not significant, a one-way analysis of covariance was used to control for between-group differences on the nonverbal intelligence variable when testing for significance of differences between the two groups on the major variables of the study. The Chi square procedure was used to test for significance of differences with regard to distributional frequencies of the different types of miscues, hesitations, repetitions and correction attempts.

A partial r correlation procedure (4) was used to determine the degree and significance of correlation between the reflection-impulsivity dimension and various variables while partialling out effects that might be due to nonverbal intelligence.

Findings

Significant differences between the reflective and impulsive groups were found with regard to the following:

1. The reflective subjects made more repetitions (adjusted mean = 36.65) than did the impulsive subjects (adjusted mean = 21.81), even when the differences in nonverbal intelligence were controlled. (See Table 1)
2. The reflective readers corrected a greater percentage of their miscues (adjusted mean = 21.04%) compared to the impulsive reader's self-correction (adjusted mean = 13.76%)

This was true for the total corpus of miscues even when the intelligence factor was controlled. However, when only one-time miscues were considered the differences were significant only when the intelligence factor was not controlled. (See Table 2)

3. Group membership, i. e. whether a child was in the reflective or impulsive group, correlated with percentage of miscues corrected (partial $r = 0.38$, $p < .01$) in the direction of the reflective children correcting a higher percentage of their miscues.
4. Response time on the MFF correlated positively with the percentage of miscues corrected, partial $r = 0.5949$ ($p < .01$).
5. Number of errors on the MFF correlated negatively with the percentage of miscues corrected, partial $r = 0.4078$ ($p < .01$).
6. In a related finding, nonverbal intelligence scores correlated positively with the percentage of miscues that were semantically acceptable but not corrected ($r = 0.3641$, $p < .05$).

No significant differences were found between the two groups with regard to:

1. Number of miscues (one-time or total), even when means were adjusted for differences in nonverbal intelligence (adjusted mean = 88.90 for reflectives (R); 98.64 for impulsives (I) when considering the total corpus of miscues. (See Table 3)
2. Percentage of miscues that were semantically acceptable within the context of the total passage which included miscues made acceptable through self-correction (adjusted mean = 45.23% for R; 45.50% for I).
3. Number of hesitations (adjusted mean = 21.84 for R; 19.90 for I).

4. The relative number of hesitations followed by correct identification of the word (31% for R; 33% for I), omission (41% for R; 46% for I) or other miscue (28% for R; 21% for I).

Wide variation was observed from individual to individual within each group on each of the dependent variables.

Discussion, Conclusions and Implications

Although internal validity was established by use of statistical controls and tests, limitations of the generalizability of the results of this study due to the sample size and the selection procedures should be noted. Hence, the following conclusions can only be made with regard to the population of subjects in this study.

It was anticipated that the impulsive readers would make significantly more miscues than the reflective readers, similar to the findings reported by Kagan (9), but they did not. One cannot conclude however, that impulsive children in general do not make more miscues than reflective children. It should be remembered that the sample of subjects in this study was drawn from average readers. Average readers were chosen deliberately in order to be reasonably sure that each subject could read the same story, yet make some miscues. But this constraint may account for at least part of the variance in findings of this study and that of Kagan (9). Further study of this question with a much larger sample, including good and poor, as well as average readers, is needed in order to be more conclusive regarding the relationship of reflection-impulsivity dimension to miscue frequency.

With regard to semantic acceptability of miscues, there appears to be no significant difference between the two groups. But perhaps more important than this is the descriptive information obtained, namely, that

on the average 45%, nearly one-half, of all miscues made by these average readers--in both groups--were judged to be either meaningful in the context of the story or were self-corrected by the reader.

The findings related to hesitation frequency suggest that there is no difference between the two groups with respect to this aspect of reading fluency.

However, with respect to repetitions, used also as an indicator of fluency, the impulsive readers were the more fluent. But these findings appear to also have implications regarding whether repetitions should be considered errors. The traditional view has been that the more a child repeats, the poorer reader he is (3). While this may be true to a certain extent, reading ability alone appears not to be the only factor involved. Note, that although the reflective subjects in this study made significantly more repetitions than impulsives there was no significant difference between the two groups' comprehension scores. These findings appear to have important implications for diagnosticians and classroom teachers. For example, when interpreting a child's oral reading--in using informal reading inventories or in the reading circle, for example--one should realize that at least some of the repetitions a child makes may be due to variation in cognitive style rather than to weakness in general reading ability alone.

With regard to self-correction of miscues it should be noted that all subjects corrected at least some of their miscues without being prompted to do so. In fact, on the average the impulsive group corrected over 13% while the reflective group corrected over 21% of their miscues.

But while children in both groups self-corrected many of their miscues, the reflective group corrected a significantly greater percentage than the impulsives, a finding which was not surprising in that according

to Kagan (9) reflective children appear to reflect more over their choices and hence, would appear to be more likely to detect and correct more miscues than would impulsive children. This fact may be helpful in thinking about the cause of a higher incidence of repetition among reflective children than among impulsives, noting that many repetitions (5, 6, 7) are made in order to correct or attempt to correct miscues. It may well be, then, that some repetitions are made just to check to see if what was said was right.

But the finding of a significant difference between the two groups in percentage of miscues self-corrected, raises what appears to be a very important question about how important overt self-correction of miscues is as far as comprehension is concerned. As has been noted earlier, there was no significant difference between the groups in comprehension scores, although the reflectives corrected significantly more miscues than the impulsives. In short, it appears that the amount of overt self-correction of miscues needed to adequately comprehend written material may, among other things, be related to the child's cognitive style. More research is needed in this area.

In summary, this study of the oral reading behavior of reflective and impulsive second grade boys has revealed a significant relationship between one aspect of cognitive style and repetition and self-correction behavior which appears to have important implications for teachers, diagnosticians and researchers, as they seek to better understand the role of the child himself in the reading process.

[NOTE: A more detailed report of this study may be found in Butler (2).]

References

- (1) Banks, S. H. The Relationship Between the Reflection-Impulsivity Dimension and Reading Errors. Unpublished Master's Thesis, The Ohio State University, 1967.
- (2) Butler, Lester G. A Psycholinguistic Analysis of the Oral Reading Behavior of Selected Impulsive and Reflective Second Grade Boys. Unpublished doctoral dissertation. The Ohio State University, 1972.
- (3) Ekwall, Eldon E. "Should repetitions be counted as errors?" The Reading Teacher, 27 (January, 1974), 365-367.
- (4) Glass, G. V., & Stanley, J. C. Statistical Methods in Education and Psychology. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970.
- (5) Goodman, K. S. "Analysis of Reading Miscues: Applied Psycholinguistics." Reading Research Quarterly, 1969, 4 (Fall), 9-30.
- (6) Goodman, K. S. "Reading: A Psycholinguistic Guessing Game." In R. Ruddell, & H. Singer (Eds.), Theoretical Models and Processes of Reading. Newark, Delaware: International Reading Association, 1970. Pp. 250-271.
- (7) Goodman, K. S., & Burke, C. L. A Study of oral reading miscues that result in grammatical re-transformations. U.S.O.E. Final Report Project No. 7-E-219, Contract No. OEG-0-8-070219-2806(010), U.S. Department of Health, Education, and Welfare, June, 1969.
- (8) Kagan, Jerome. Matching Familiar Figures Test. Unpublished test devised by Jerome Kagan. Harvard University, 1965.
- (9) Kagan, Jerome. "Reflection-Impulsivity and Reading Ability in Primary Grade Children." Child Development, 1965, 36, 609-628.
- (10) Kagan, J., & Kogan, N. "Individual Variation in Cognitive Processes." In Paul H. Mussen (Ed.), Carmichael's Manual of Child Psychology. (3rd ed.) New York: John Wiley and Sons, Inc., 1946, 1954, 1970. Pp. 1304-1365.
- (11) Lesiak, J. L. The Relationship of the Reflection-Impulsivity Dimension and the Reading Ability of Elementary School Children at Two Grade Levels. Unpublished doctoral dissertation, The Ohio State University, 1970.
- (12) Smith, F. Understanding Reading: A Psycholinguistic Analysis of Reading and Learning to Read. New York: Holt, Rinehart and Winston, Inc., 1971.
- (13) Spache, G. D. "Contributions of Allied Fields to the Teaching of Reading." In H.M. Robinson (Ed.), Innovation and Change in Reading Instruction. Sixty-seventh Yearbook of the National Society for the Study of Education, Part II. Chicago: The University

of Chicago Press, 1968. Pp. 237-290.

(14) Stauffer, R. "Reading as a Cognitive Process." Elementary English, 1967, 44, 342-348.

(15) Weber, R-M. "The Study of Oral Reading Errors: A Survey of the Literature." Reading Research Quarterly, 1968, 4, 96-119.

TABLE 1
ADJUSTED AND UNADJUSTED MEANS AND STANDARD DEVIATIONS
FOR THE NUMBER OF REPETITIONS FOR
REFLECTIVE AND IMPULSIVE SUBJECTS

		Reflective (N=15)	Impulsive (N=15)	DIFF.	F/t
Adjusted	M	36.65	21.81	14.84	F=10.89 *
	SD	14.23	8.26	5.97	
Unadjusted	M	35.47	23.00	12.47	t=-2.93 **
	SD	13.75	7.08	5.77	

*p < .05

**p < .01

TABLE 2
ADJUSTED AND UNADJUSTED MEANS AND STANDARD
DEVIATIONS OF THE PERCENTAGE OF
MISCUES CORRECTED FOR
REFLECTIVE AND IMPULSIVE SUBJECTS

		Reflective (N=15)	Impulsive (N=15)	DIFF.	F/t
Adjusted	M	21.04	13.76	7.28	F= 4.75 *
	SD	10.18	6.30	3.88	
Unadjusted	M	21.60	13.20	8.40	t=-2.72 *
	SD	9.80	6.10	3.70	

*p < .05

TABLE 3
 ADJUSTED AND UNADJUSTED MEANS AND STANDARD
 DEVIATIONS OF THE NUMBER OF ONE-TIME
 AND TOTAL MISCUES FOR
 REFLECTIVE AND IMPULSIVE
 SUBJECTS

		Reflective (N=15)	Impulsive (N=15)	DIFF.	F/ <u>t</u>
<u>One-Time</u>					
Adjusted	M	82.65	86.28	-3.63	F=0.24 n.s.
	SD	37.76	40.79	-3.03	
Unadjusted	M	79.47	89.47	-10.00	<u>t</u> =0.70 n.s.
	SD	36.48	39.41	-2.93	
 <u>Total</u>					
Adjusted	M	88.90	98.64	-9.74	F=0.56 n.s.
	SD	40.81	46.68	-5.87	
Unadjusted	M	86.00	101.53	-15.53	<u>t</u> =0.97 n.s.
	SD	39.42	45.09	-5.67	

n.s. = not significant

APPENDIX A

SAMPLE ITEMS FROM THE MATCHING FAMILIAR FIGURES TEST¹



¹Reduced in size. The two sample items above constitute four pages in the actual test, each page 8 1/2" x 11".