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ABSTRACT

A study was conducted to determine whether counting correct word sequences is a valid measure of written expression for use in a formative evaluation system for elementary students. A correct word sequence was defined as two adjacent, correctly spelled words that were acceptable within the context of the phrase to a native speaker of the English language. Written expression samples from 50 students in grades 3 through 6 were scored in terms of correct word sequences to investigate (1) the consistency among scorers using the procedure, (2) the typical performance levels of students in these grades on this measure, and (3) the validity of this measure relative to criterion measures of written expression. Analyses revealed that the average inter-scorer agreement was 90.3%. Average scores for students in grades 3 through 6 ranged from 27.3 at grade 3 to 58.8 at grade 6, with an increase of about 10 for each successive grade level. Correlations between correct word sequences and several criterion measures, including a holistic rating, were very high, leading to the conclusion that correct word sequences were highly representative of appropriate writing and that counting them is a valid and reliable measure of written expression. (HOD)

Research Report No. 84

CORRECT WORD SEQUENCES : A VALID INDICATOR OF PROFICIENCY IN WRITTEN EXPRESSION

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Abstract

Written expression samples from 50 students in grades 3-6 were scored in terms of correct word sequences to investigate (a) the consistency among scorers using the procedure, (b) the typical performance levels of students in grades 3-6 on this measure, and (c) the validity of this measure relative to criterion measures of written expression. Analyses revealed that the average inter-scorer agreement was 90.3%. Average scores for students in grades 3-6 ranged from 27.3 at grade 3 to 58.8 at grade 6, with an increase of about 10 for each successive grade level. Correlations between correct word sequences and several criterion measures, including a holistic rating, were very high. Implications of the results for use of the correct word sequences measure within a formative evaluation system are discussed.

IRLD

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Correct Word Sequences: A Valid Indicator of Proficiency in Written Expression

In order for teachers to deliver appropriate instructional strategies in written expression, they must have available to them an efficient method of accurately measuring their students' progress. Lindsley (1971) states that what teachers need most is a way of comparing and evaluating the daily effects of their teaching procedures. There are a variety of methods for evaluating written expression. Many of these evaluation procedures are subjective in nature, difficult to score, or require expertise and special training.

For many aspects of written expression, there are no satisfactory standardized tests that can be used to evaluate a child's performance (Hammill & Bartel, 1978). Further, standardized tests have been criticized as being biased and inappropriate for individual assessment (Ysseldyke, 1979). A fairly new achievement test, Hammill and Larsen's (1978) Test of Written Language, is promising, although it requires special training, and is inappropriate for use in formative evaluation (Poplin, Gray, Larsen, Banikowski, & Mehring, 1980).

Formative evaluation, according to Scriven (1967), is "the outcome evaluation of an intermediate stage in the development of the teaching instrument" (p. 51). Through the use of feedback, formative evaluation, unlike summative evaluation, leads to the improvement of the instruction during the instructional process with the student (Mirkin & Deno, 1979). This is extremely important since students can only take advantage of improved instructional techniques during their instruction.

General support for formative evaluation methods has already been obtained (Boucher, 1982; Cooper & Johnson, 1979; Crutcher & Hofmeister, 1975; Lovitt, Schaff, & Sayre, 1970; Starlin, 1970; White & Haring, 1976). When formative evaluation is to be used in improving a program, however, specific measures of student performance must be used. Since how to assess written expression was unclear, a series of research studies was conducted (Deno, Mirkin, Lowry, & Kuehnle, 1980; Deno, Mirkin, & Marston, 1980; Marston & Deno, 1981; Marston, Lowry, Deno, & Mirkin, 1981) to determine both what teachers should measure and how tney should measure to reliably, validly, and efficiently monitor increases in writing proficiency. The results of the research revealed that production of words and letter sequences in response to story starters validly indexed proficiency in written expression (Deno, Mirkin, & Marston, 1980).

Despite the research data regarding the technical adequacy of word production as a measure of written expression, two issues were not addressed adequately by Deno, Mirkin, and Marston (1980). First, in their research no effort was made to relate written language production to holistic impressions of students' writing samples. Since holistic ratings are viewed with favor by some researchers interested in written expression (Cooper, 1977; Lloyd-Jones, 1977), the relationoship between word production and holistic impressions needs to be examined.

A second issue is whether students will begin to rather arbitrarily, or randomly, generate additional words when they discover that teachers are scoring their written samples in terms of total

words written. Thus, while initial sample scores for production of written language might validly index skill in written expression, repeated measurements might result in spurious increases in number of words written that are unrelated to real improvement in written language proficiency. The present study was designed, in part, to address this issue.

The purpose of the study presented here was to determine whether counting correct word sequences is a valid measure of written expression for use in a formative evaluation system for elementary students. Several major aspects of writing, including capitalization, punctuation, grammar, spelling, and content or meaning (Hammill & Bartel, 1978; Marston & Deno, 1981; Slotnick, 1973), were incorporated into the counting correct words sequences measure. The specific questions addressed were:

(1) Can elementary students' samples of written expression be scored consistently in terms of the number of correct word sequences?

(2) What is the typical performance of elementary students, grades 3-6, in writing correct word sequences?

(3) What is the relationship between writing correct word sequences and other criterion measures of written expression, including holistic impressions?

For this study, "written expression" was defined as the use of conventional English language to convey thoughts and experiences through a standard graphic symbol system utilizing acceptable capitalization, punctuation, grammar, and spelling competencies. A "correct word sequence" was defined as two adjacent, correctly spelled words that are acceptable within the context of the phrase to a native speaker of the English language.

Method

Subjects

The subjects for this study were 50 students whose files were randomly selected from 135 elementary children who had participated in a study conducted by Deno, Mirkin, and Marston (1980). The students were in grades three through six (ages 7-11) and had been selected randomly from seven elementary schools in the Twin Cities metropolitan area.

Deno, Mirkin, and Marston (1980) administered the reading, mathematics, and written language achievement subtests from the Woodcock-Johnson Psycho-Educational Battery (Woodcock & Johnson, 1978) to a subsample of 31 of their subjects. Reading Achievement, Math Achievement, and Written Language Achievement grade scores were computed for the 31 students tested. The average age of these students was 120.1 months and their average grade level was 4.7. Their average grade level scores were 4.6, 4.7, and 4.6 on the reading, math, and written language acheivement measures, respectively.

Table 1 specifies the number of males and females, per grade level, whose written expression samples were analyzed in the present study, as well as their average raw score totals on the Test of Written Language (TOWL) (Hammill & Larsen, 1978).

Insert Table 1 about here

Criterion Measures

Seven criterion variables were used to establish the concurrent validity of Correct Word Sequences as a measure of written expression. In order for a measure to be acceptable for use as a validation criterion, that measure also must be reliable and valid (Mehrens & Lehmann, 1978; Salvia & Ysseldyke, 1978). According to the American Psychological Association (1974), "the merit of a criterion-related validity study depends on the appropriateness and quality of the criterion measures chosen" (p. 27). Each of the seven criterion measures will be discussed in terms of its reliability and validity.

Test of Written Language (TOWL). The reliability of the TOWL (Hammill & Larsen, 1978) was determined using measures of internal consistency, i.e., the average correlation among all the items in a test (Nunnally, 1978), test-retest, and inter-scorer reliability. The internal consistency coefficients ranged from .77 to .89, test-retest coefficients ranged from .41 to .90, and inter-scorer reliability coefficients ranged from .76 to .98. The authors caution the examiner about interpreting scores on subtests with reliability coefficients below .80.

The validity of the TOWL (Hammill & Larsen, 1978) was determined through criterion-related validity correlations with Myklebust's (1965) PSLT. Content validity was discussed by reporting an item analysis of the test, and construct validity was assessed with three measures. The many reported validity coefficients ranged from .10 to .81. Essentially, this large range of coefficients forces the judgment of the TOWL's validity on the examiner. Salvia and Ysseldyke

(1978) concur that judgment of the validity of the content of a test is often a matter of expert opinion, and that achievement tests must reflect the content of the curriculum if they are to provide relevant information.

For the present study, the raw score total from the TOWL was utilized as a criterion measure, with the adjustment used by Deno, Mirkin, and Marston (1980):

> The TOWL consists of five subtests: Vocabulary, Thematic Maturity, Spelling, Word Usage, and Style. The criterion measures obtained from the TOWL were the raw scores from the five subtests and the raw total of the five subtests. It should be noted that four of the five subtests are 25-item scales, and therefore were equally weighted in the raw total. However, the Vocabulary Subtest does not have a limited number of items and as a result students may obtain a score higher than 25 points on this subtest. We found the range of Vocabulary scores in our sample of 135 students to be from zero to 70 points. To ensure that the Vocabulary subtest was equally weighted in the raw score total, a student's score on this measure was multiplied by a correction factor of .357 (or 25 ÷ 70). (Deno, Mirkin, & Marston, 1980, p. 13)

Developmental Sentence Scoring. Lee and Canter's (1971) instrument, which measures syntactic maturity, also was considered to be a criterion for establishing concurrent validity. The validity of this instrument can be inferred from a study conducted by Rubin, Buium, and Balow (1975), which indicated that a general correspondence existed between early verbal grammatical forms and levels of words produced most frequently in writing.

Originally developed to describe syntax in oral language, Developmental Sentence Scoring (Lee & Canter, 1971) was used in the present study as a criterion measure of the syntactic maturity of the written samples. Appendix A outlines the scoring categories adopted

from this approach.

Mean T-unit Length. Hunt's (1966) mean T-unit length has been accepted as a reliable measure of syntactic complexity (Dixon, 1972; Hunt, 1977). It also is considered to be a valid measure since it distinguishes between students' writings (Dixon, 1972).

Hunt's (1966) rules for scoring the mean T-unit length in a written composition were utilized in the present study. An example of the mean T-unit length scoring procedures are presented in Appendix B.

Checklist of Written Expression. The reliability of Poteet's (1980) checklist was determined by having six scorers complete the checklist on samples of written expression. An interscorer percent of agreement was obtained for all six scorers as well as for two sets of pairs of scorers. Inter-score agreement for the six scorers was 70.5%, and the average inter-score agreement for the pairs was 47.7%.

The validity of Poteet's Checklist of Written Expression as yet has been determined only by its face validity, i.e., the extent to which an instrument "looks like" it measures what it is intended to measure (Nunnally, 1978). According to reseachers (Deno, Mirkin, Lowry, & Kuehnle, 1980; Hammill & Bartel, 1978; Wallace & Larsen, 1978), a measure of written language should include penmanship, spelling, grammar, and ideation, all of which are elements of Poteet's checklist.

Poteet (1980) developed his checklist to be an informal assessment of written expression. Its four components, Penmanship, Spelling, Grammar, and Ideation, are each divided into sub-components. A check mark is placed in one of the four columns, Too Advanced (TA),

Adequately Used (A), needs to be Introduced (I), and needs Remediation (R), that best describes the student's achievement in that component of written expression.

For purposes of this study, each student's sample was rated only as Adequate or not Adequate. The following components and sub-components of the checklist were disregarded due to their inappropriateness for the present study: Pencil Grip, Spelling sub-components A-J, Syntax, Productivity, and Word Choice. Syntax was the only entire component that was disregarded. Preliminary scoring indicated that the Syntax component and sub-components were too subjective for inclusion in the present study. Productivity was disregarded because the total number of words that were written was included in the Total Words Written measure. Hermreck (1979), in her study with the preliminary checklist, stated that in Poteet's informal assessment, the examiner is free to delete parts since no total scores are derived from the checklist.

Holistic Rating Scale. The holistic rating scale was completed by two scorers. The inter-scorer percent of agreement was 24% for perfect agreement, and 68% for agreement within plus or minus one number on the rating scale.

Cooper (1977) stated that holistic rating scales are a "valid and direct means of rank ordering students by writing ability" (p. 3). Based on the inter-scorer agreement on the holistic rating scale utilized in the present study, and Cooper's (1977) statement, use of this scale appeared appropriate for purposes of this study.

Raters were asked to read each sample, and give ratings of their

over-all impression of the quality on a scale from 1 to 7. A score of 1 was poor, 4 was average, and 7 was excellent. A copy of the raters' written instructions is provided in Appendix C.

Words Spelled Correctly and Total Words Written. The reliability of scoring the number of words spelled correctly, and the total number of words written in a student's composition, was assessed by Marston and Deno (1981). They determined that "all measures appeared to meet the professional standards set for reliability" (p. 9). The test-retest reliability coefficients ranged from .62 to .81 for Words Spelled Correctly, and from .64 to .91 for Total Words Written. Internal consistency coefficients ranged from .70 to .97 for Words Spelled Correctly, and from .87 to .99 for Total Words Written. The mean inter-judge reliability of these two criterion measures seemed quite adequate.

The validity of counting the number of words spelled correctly and the number of total words written was determined by Deno, Mirkin, and Marston (1980). Correlations with the criterion measures range from .56 to .71 for Words Spelled Correctly, and from .56 to .72 for Total Words Written. Deno, Mirkin, and Marston (1980) stated that correlational data from the combined samples substantiated the validity of Total Words Written and Words Spelled Correctly as measures of written expression.

For Words Spelled Correctly, incorrectly spelled words were checked, and the remaining words were counted to obtain the total number of correctly spelled words in each written sample. An example of this procedure is proyided in Appendix D.

In the measure of Total Words Written, the words in each written sample were counted, whether or not they were spelled correctly. Except for single letter words such as "I" and "a," two or more letters in sequence were counted as words. An example of this procedure may be found in Appendix E.

Scorers

Six teachers rated student samples according to Poteet's (1980) Checklist of Written Expression. Four of these teachers held Master's degrees and five were certified in regular and special education. All six teachers had at least four years of teaching experience; all were employed by the same school district.

Two teachers rated the 50 written samples on the holistic rating scale. One teacher held a Master's degree and had 20 years of teaching experience, and the second teacher held a Bachelor's degree and had four years of teaching experience.

One teacher and one non-teacher scored correct word sequences. The teacher was completing her Master's degree, and had four years of teaching experience. The non-teacher had completed eight years of college and was practicing as a Doctor of Dental Surgery.

Procedure

Three trained graduate research assistants tested the students on an individual basis. Testing required about 55 minutes per student. Students were asked to write for five minutes in response to a Story Starter or Topic Sentence (Deno, Mirkin, & Marston, 1980). Since the correspondence between Story Starters and Topic Sentences for use as stimuli for written expression has been adequately demonstrated (Deno,

Mirkin, & Marston, 1980), student samples based on either of the two stimulus methods were acceptable for the present evaluation of written expression. A copy of a Story Starter and a Topic Sentence, as well as a list of all Story Starters and Topic Sentences utilized in the present study, may be found in Appendix F.

After each child was presented with a Story Starter or Topic Sentence, the examiner recited the following instructions:

> I want you to write another story. I am going to read a sentence to you first, and then I want you to write a short story about what happens. You will have a minute to think about the story you will write and then have five minutes to write it. When I say 'please start writing,' you may begin. (Deno, Mirkin, & Marston, 1980, p. 16).

All students were allowed five minutes to complete their compositions.

The TOWL (Hammill & Larsen, 1978) also was administered to the students. Administration procedures in the instructional manual were followed; administration of the test took approximately 40 minutes.

Each composition was later scored using each of the remaining criterion measures (Developmental Sentence Scoring, Hunt's mean T-unit length, the Checklist of Written Expression, the holistic rating scale, Words Spelled Correctly, and Total Words Written). In addition, the written samples were scored for the number of correct word sequences. Correct word sequences were defined as two adjacent, correctly spelled words that are acceptable within the context of the phrase to a native speaker of the English language. The term "acceptable" means that a native speaker would judge the word sequences as syntactically and semantically appropriate. The caret method (White & Haring, 1976) for scoring correct and incorrect word sequences was utilized.

A portion on the scoring procedures for Correct Word Sequences follows:

> This method involves placing a "caret" (^) over every correct sequence, and a "caret" (v) under every incorrect sequence. Examples are provided below. Note that the first sequence is considered "blank-to-first-word" (a sensible start), and "last-word-to-blank" (a sensible end). This means that there will always be one more sequence than words in the phrase.
>
> Example I: ^ The ^ ball high ^ in ^ the aire.
> v v v
>
> Seven sequences are possible, four are correct and three are incorrect.
>
> In example I, the carets at the beginning and at the end of the sentence are for a sensible start and end. The remaining correct carets denote correct word sequences. The incorrect carets in the example denote word sequences that are not correct.
>
> An omission of one or more words is possible, but the important aspect is that "ball high" does not constitute a correct sequence in that sentence. Since "aire" is an incorrect sequence because it is spelled incorrectly, count incorrect carets before and after the misspelled word. With a misspelled word, the sequences on both sides of the incorrectly spelled word are incorrect.

The examiner received approximately 15 minutes of training, which consisted of explaining the scoring procedures for counting correct word sequences. A copy of the complete scoring procedures may be found in Appendix G; an example of this measure is provided in Appendix H. Scores were obtained by counting the total number of correct word sequences and the total number of incorrect word sequences. In addition, the number of minutes required to score each student sample was tabulated.

Each of the six teachers scoring Poteet's (1980) checklist were provided with a 30-minute group training session, as well as printed instructions covering the scoring procedures of the checklist. They

were instructed to work independently on their packets of written expression samples and checklists. Copies of the scoring procedures and the Checklist of Written Expression (Poteet, 1980) are provided in Appendices I and J, respectively.

Two scorers rated each written sample according to Cooper's (1977) General Impression Marking procedures for the holistic rating scale. Each rater received approximately five minutes of training as well as the printed procedures.

Results

The first question examined whether elementary students' samples of written expression could be scored consistently in terms of the number of correct word sequences. Two preliminary sets of 10 samples of written expression were scored by three scorers. The scorers marked the first set of samples disregarding spelling errors. This meant that a word that was spelled incorrectly, but was still adequate in terms of grammar, capitalization, surrounding punctuation marks, and content, was counted as correct. Each correct and incorrect word sequence was tabulated for agreement between each of the 10 pairs of samples in order to obtain the percent of agreement for the word sequences in those samples; the average percent agreement was 85.8%.

Since spelling has been determined to be an important aspect of written expression (Deno, Mirkin, Lowry, & Kuehnle, 1980; Hammill & Bartell, 1978; Page, 1968; Poteet, 1979; Slotnick, 1973; Wallace & Larsen, 1978), and since the scorers generally demonstrated less agreement on incorrectly spelled words, the scoring procedures were altered so that a misspelled word would be scored as an incorrect word

sequence. The 10 samples then were rescored, with spelling errors counted as incorrect word sequences. Results showed the percent of agreement to be 90.5%, almost a 5% increase over the earlier preliminary percent of agreement.

Utilizing the revised scoring procedures, 20 samples of written expression were scored by two scorers. Percent of agreement on these samples was 90.3%.

The second question examined the number of correct word sequences that could be considered as typical for elementary students in grades 3-6. The mean number of correct and incorrect word sequences per grade level is provided in Table 2.

Insert Table 2 about here

As seen in Table 2, the number of correct word sequences increased as the grade level increased. Sixth graders wrote more than twice as many correct word sequences as the third graders. In contrast, the number of incorrect word sequences was relatively consistent across grades 3-6.

The final question of this study examined the relationship between the number of correct word sequences and the criterion measures. Correlations between correct and incorrect word sequences, and each of the seven criterion measures of written expression are presented in Table 3.

Insert Table 3 about here

Investigation of Table 3 reveals that the highest correlations with Correct Word Sequences were found for Words Spelled Correctly (.92), Total Words Written (.91), the Holistic Rating (.85), and the raw score total on the TOWL (.69). A moderate correlation was found between Correct Word Sequences and Developmental Sentence Scoring (.49). All of these correlations were significant at the .001 level. Mean T-unit length and the Checklist of Written Expression subtest scores generally were not associated with the number of correct word sequences.

As seen by inspection of the correlations with Incorrect Word Sequences, a moderate negative correlation was found for Poteet's Capitalization subtest (-.46). A negative correlation also was obtained between the raw score total on the TOWL and Incorrect Word Sequences (-.23).

To further demonstrate the relationships between word sequences and the criterion measures, an intercorrelation matrix is presented in Table 4. As can be seen by close examination of Table 4, Correct Word Sequences was virtually unrelated to Poteet's (1980) Checklist of Written Expression subtests. However, only one other criterion measure, Developmental Sentence Scoring, correlated with the Capitalization subtest and that correlation was low (.28). The other criterion measure that exhibited a low correlation with Correct Word Sequences was Mean T-unit Length. Again, however, only Total Words

Written and Words Spelled Correctly correlated (.39 and .38, respectively) with Mean T-unit length. In essence, the two criterion measures that had low correlations with Correct Word Sequences also had low correlations with the other criterion measures of written expression utilized in the present study. All of the criterion measures that correlated significantly with Correct Word Sequences also correlated with the other criterion measures. As evidenced in Table 4, the two criterion measures that had significant negative correlations with Incorrect Word Sequences--the Capitalization subtest, and the raw score total on the TOWL--correlated positively with other criterion measures utilized in the present study.

Discussion

The purpose of the study presented here was to determine whether Correct Word Sequences is a valid measure of written expression that could qualify for use in a formative evaluation system for elementary students in grades 3-6. Three questions were posed to examine the validity and potential usefulness of counting correct word sequences as part of a formative evaluation system.

Results related to the first question (i.e., determining the consistency with which samples of written expression could be scored) indicated a high percentage of agreement between two scorers. This finding provides evidence for the reliability of counting correct word sequences, utilizing the revised scoring procedures, for measuring students' written expression samples.

Typical performance for elementary students, grades 3-6, in producing correct word sequences during a five minute writing sample

was the second question examined. The scores ranged from 27.3 for third graders to 58.8 for sixth graders. This finding is important since it indicates that Correct Word Sequences measures improvement in the written expression of elementary students. The number of correct word sequences increased by approximately 10 with each successive grade level.

Examination of the relationships between Correct Word Sequences and the seven criterion measures was the final question of the present study. Correct Word Sequences was found to correlate significantly with five of the seven criterion measures used in the present study: the Holistic Rating Scale, Total Words Written, Words Spelled Correctly, the raw total on the TOWL, and Developmental Sentence Scoring. The correlations indicated that counting the number of correct word sequences is a valid measure of elementary students' written expression in grades 3-6. It is important to note the high correlation between Correct Word Sequences and the Holistic Rating Scale. This correlation indicates that Correct Word Sequences strongly represents what is considered as appropriate written expression.

Interestingly, Total Words Written and Correct Word Sequences both correlated with the Holistic Rating Scale at levels considerably higher than did the TOWL. Therefore, both Total Words Written and Correct Word Sequences appear to be superior to the TOWL in measuring what generally impresses people as good written expression. In addition, Correct Word Sequences significantly correlated with other criterion measures at a higher level than the TOWL correlated with the

other criterion measures. This finding raises some questions about the validity of the TOWL.

The extremely high correlations between Correct Word Sequences and Total Words Written, and with Words Spelled Correctly, also help to substantiate the validity of counting correct word sequences to measure written expression. Total Words Written has been shown to be a valid indicator of written language ability (Brigham, Graubard, & Stans, 1972; Deno, Marston, & Mirkin, 1982; Hunt, 1966; Myklebust, 1965), as well as Words Spelled Correctly (Deno, Marston, & Mirkin, 1982; Page, 1968; Slotnick, 1973). The correlation of these measures with Correct Word Sequences is important due to the similarity of all three measures. Counting the number of correct word sequences includes the total number of words written and spelled correctly; however, the difference is in the stipulation of appropriate semantics for Correct Word Sequences.

A moderate correlation existed between Correct Word Sequences and Developmental Sentence Scoring, indicating that counting the number of correct word sequences can moderately represent the results of the complex scoring system of Developmental Sentence Scoring.

Incorrect Word Sequences, while moderately correlating negatively with two criterion measures, exhibited the interesting property of relative consistency across grade levels 3-6. It appears that although the students' writing improved with each grade level, the number of incorrect word sequences remained relatively unchanged. It seems expected that as the number of correct word sequences increases, the number of incorrect word sequences would decrease. Improvement is

generally associated with fewer errors. However, the results of the present study indicated that this may not be the case. As elementary students' written expression improves, they are writing more correct word sequences, rather than lowering their number of incorrect word sequences.

A final comment should be made about efficiency in scoring Correct Word Sequences. The mean length of time required for scoring the samples was 4.3 minutes, with this time less for the shorter third grade samples and greater for the sixth grade samples. Thus, time requirements are not great, but the amount of time for scoring is substantially greater than for total words.

Conclusion

The results of the research presented here indicate that counting the number of correct word sequences is a valid and reliable measure of written expression for elementary students in grades 3-6. Scoring procedures resulted in high agreement between two scorers, and typical performance of elementary students in grades 3-6 showed expected increases with grade level. Correct Word Sequences appears to meet most of the criteria necessary to qualify for use in a formative evaluation system.

A need for further research utilizing Correct Word Sequences is obvious. Empirical data on the use of Correct Word Sequences as a measure of written expression in an actual formative evaluation system is imperative. The extent to which growth is visible through daily measurement needs to be determined. Further, whether parents and students can be easily taught to administer and score this measure

consistently and accurately need to be documented.

Counting the number of correct word sequences may not appear to be as impressive as other measures of written expression because it is not a published measurement device requiring complex scoring procedures. However, Correct Word Sequences has been determined to be highly representative of what is considered as appropriate writing, and shows high correlations with other valid measures of written expression. This is not true of many of the more elaborate measures of written expression.

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Table 1

Characteristics of Students Whose Written Expression Samples were Scored for Word Sequences

Grade	N	Males	Females	TOWL Raw Total
3	9	5	4	68.8
4	20	7	13	80.2
5	11	4	7	92.8
6	10	3	7	94.7

Table 2

Means and Standard Deviations of Number of Correct and Incorrect Word Sequences at Each Grade

	N	Mean	Standard Deviation
Correct Word Sequences			
Grade 3	9	27.3	13.9
Grade 4	20	41.3	24.7
Grade 5	11	48.2	26.2
Grade 6	10	58.8	27.2
Incorrect Word Sequences			
Grade 3	9	15.2	5.7
Grade 4	20	13.7	10.7
Grade 5	11	16.3	7.3
Grade 6	10	12.6	6.2

Table 3

Correlations Between Word Sequences and Criterion Measures[a]

	Raw Total	Holistic Rating	Poteet[b] Pen.	Poteet[b] Cap.	Poteet[b] Pun.	Developmental Sentence Scoring	Mean T-unit Length	Total Words Written	Words Spelled Correctly
Correct Word Sequences	.69**	.85**	-.03	.20	-.06	.49**	.18	.91**	.92**
Incorrect Word Sequences	-.23*	-.02	.14	-.46*	-.26	.01	.22	.11	.06

[a]Significant correlations are indicated by * (p = .05) and ** (p = .001). N = 50.

[b]The components of Poteet's checklist included were Penmanship (Pen.), Capitalization (Cap.), and Punctuation (Pun.).

Table 4

Intercorrelation Matrix[a]

	Correct Word Sequences	Incorrect Word Sequences	TOWL Raw Total	Holistic Rating	Poteet[b] Pen.	Poteet[b] Cap.	Poteet[b] Pun.	Developmental Sentence Scoring	Mean T-unit Length	Total Words Written	Words Spelled Correctly
Correct Word Sequences	--	-.21	.69**	.85**	-.03	.20	-.06	.49**	.18	.91**	.92**
Incorrect Word Sequences		--	-.23*	-.02	.14	-.46**	-.26	.01	.22	.11	.06
TOWL - Raw Total			--	.61**	.08	.09	-.08	.31*	.07	.66**	.68**
[c]				--	.10	.15	-.16	.45*	.21	.85**	.84**
Poteet - Pen.					--	-.10	-.25*	.06	-.09	.00	-.01
Poteet - Cap.						--	.17	.28*	.19	.09	.11
Poteet - Pun.							--	-.06	.09	-.11	-.10
Developmental Sentence Scoring								--	.13	.51**	.52**
Mean T-unit Length									--	.39*	.38*
Total Words Written										--	.99*
Words Spelled Correctly											--

[a]Significant correlations are indicated by *($p = .05$) and **($p = .001$). $N = 50$.

[b]The components of Poteet's checklist included were Penmanship (Pen.), Capitalization (Cap.), and Punctuation (Pun.).

APPENDICES

APPENDIX A

Category	Score	Criteria
Indefinite Pronouns or Noun Modifiers	1	it, this, that
	2	no, some, more, all, etc.
	3	something, somebody, someone
	4	nothing, nobody, no one, none
	5	any, anything, anybody, anyone, every, etc.
	6	both, few, many, each, several, most, etc.
Personal Pronouns	1	1st and 2nd person (I, me, you, etc.)
	2	3rd person (he, him, his, she, etc.)
	3	plural pronouns (we, us, they, etc.)
	4	those, these
	5	reflexive pronouns (myself, yourself, etc.)
	6	wh-pronouns (who, which, etc.); wh-word + infinitive
	7	(his) own, one, oneself, whichever, etc.
Main Verbs	1	uninflected verb; copula (is, 's)
	2	is + verb + ing
	3	-s, -ed; irregular past; copula am, are, was, were; auxiliary am, are, was, were
	4	can, will, may + verb; obligatory do + verb; emphatic do + verb
	5	could, would, should, might + verb; obligatory does, did + verb; emphatic does, did + verb
	6	must, shall + verb; have + verb + en; have ('ve) got
	7	passive, any tense
	8	have (had) been + verb + ing; modal + have + verb + en; modal + be + verb + ing; other auxiliary combinations

Category	Score	Criteria
Secondary Verbs	1	early developing infinitive complements
	2	noncomplementing infinitives
	3	participle, present or past
	4	early infinitival complements with differing subjects in kernals; later infinitival complements; obligatory deletions; infinitive with wh-word
	5	passive infinitival complement
	6	gerund
Negatives	1	it, this, that + copula or auxiliary is, 's + not
	2	can't, don't
	3	isn't, won't
	4	copula - negative or auxiliary-negative contractions; pronoun-auxiliary contraction + not; uncontracted negatives
	5	negatives with have; auxiliary have-negative contraction; pronoun-auxiliary have contraction
Conjunction	1	and
	2	but
	3	because
	4	so, and so, so that, if
	5	or, except, only
	6	where, when, for, till, since, as, etc. + adjective + as, as if, etc.; obligatory deletions; optional deletions; wh-words + infinitive
	7	therefore, however, whenever, etc.

Category	Score	Criteria
Interrogative Reversals	1	reversal of copula
	2	reversal of auxiliary be
	3	obligatory do, does, did; reversal of modal; tag question
	4	reversal of auxiliary have; reversal with any two auxiliaries
	5	reversal of three auxiliaries
Wh-Questions	1	who, what, what + noun
	2	where, how many, how much, etc.
	3	when, how, how + adjective
	4	why, what if, how come, how about + gerund
	5	whose, which, which + noun

APPENDIX B

Example of T-Unit Scoring

[When I went on a trip to Texas I rode on an airplane.] [I had a really good time.] [I stayed in a hotel for three days] [and I went to a lot of parks.]

T-units = 4

Words = 34

Mean T-unit Length = 8.5

APPENDIX C

Instructions for Scoring Samples with the Holistic Rating Scale

(1) Read the sample.

(2) Please rate your over-all impression of the quality of the student's written sample.

(3) The scale to rate each sample on is as follows:

1 - 2 - 3 - 4 - 5 - 6 - 7
poor average excellent

(4) Put the rating beside the appropriate number of the sample.

APPENDIX D

Example of Words Spelled Correctly Scored

When I went on a trip to Teksas I road on an aerplane. I had a reely good time. I staid in a hotel for 3 days and I went to a lot of parks.

Words Spelled Correctly = 28

APPENDIX E

Example of Total Words Written Scored

When I went on a trip to Texas I rode on an airplane. I had a really good time. I stayed in a hotel for 3 days and I went to a lot of parks.

Total Words Written = 33

Form B-1 Story Starter

APPENDIX F

Name _____

Tell a story about the night you were camping in the woods and you heard strange noises in the woods.

TW	MWC1	MWC2	BW1	BW2	TU1	TU2	SP1	TIME

Form B-2 Topic Sentence Name _____

Imagine that you could travel anywhere in the world that you wanted.
Where would you go? Why?

TW	MWC1	MWC2	BW1	BW2	TU1	TU2	SP1	TIME

List of all the Story Starters and Topic Sentences Used

Story Starters

1. Tell a story about what kind of car you would buy and what features it would have.

2. Pretend you are stranded on a tropical island by yourself. Tell a story about what happens to you.

3. Wirte a story that begins with: One summer I went on a trip.

4. Write a story that begins with: One day something happened which made me very happy.

5. Tell a story about the night you were camping in the woods and you heard strange noises in the woods.

6. Write a story that begins with: One night I went outside when it was very dark.

7. Pretend that you can travel anywhere that you want. Where would you go? How would you get there and what would you do when you got there?

Topic Sentences

1. Describe your favorite season of the year and tell why.

2. What is your favorite Holiday of the year? Give your reasons.

3. Imagine you could travel anywhere in the world that you wanted. Where would you go? Why?

APPENDIX G

Scoring Procedures

Read the entire sample.

Based on the context of each phrase, score each written sample according to Correct Word Sequences. Correct Word Sequences are two adjacent, correctly spelled words that are acceptable within the context of the phrase to a native speaker of the English language. The term "acceptable" means that a native speaker would judge the word sequence as syntactically and semantically appropriate.

The caret method for scoring correct and incorrect word sequences will be used. This method involves placing a "caret" (^) over every correct sequence, and a "caret" (v) under every incorrect sequence. Examples are provided below. Note that the first sequence is considered "blank-to-first-word" (a sensible start), and "last-letter-to-blank" (a sensible end). This means that there will always be one more sequence than words in the phrase.

Example I: ^ The^ ball_v high^ in^ the_v aire_v.

Seven sequences are possible, four are correct and three are incorrect.

Example II: ^ The_v cats_v sits_v drinks^ milk^ and^ she^ likes^ to^ play_v
her^ name^ is^ Sal_v I_v. _v like_v her_v to_v.

Twenty sequences are possible, ten are correct and ten are incorrect.

In Example I, the carets at the beginning and at the end of the sentence are for a sensible start and end. The remaining

correct carets denote correct word sequences. The incorrect carets in Example I denotes word sequences which are not correct.

An omission of one or more words is possible, but the important aspect is that "ball high" does not constitute a correct sequence in that sentence. Since "aire" is an incorrect sequence because it is spelled incorrectly, count incorrect carets before and after the misspelled word. With a misspelled word, the sequences on both sides of the incorrectly spelled word are not correct.

In Example II, each caret will be explained as follows:

^ The: a sensible start for that phrase (sentence).

The v cats: based on the rest of the sentence, cats should be cat.

cats v sits: should be cats sit or cat sits, not cats sits.

sits v drinks: omission of at least one word.

drinks ^ milk - to ^ play: correct word sequences.

Sal v I: The period was inappropriately placed, which makes the sequence not sensible.

I v .: sensible phrases do not end with I.

. v like: this phrase should not start with like. Since it comes after a period, it should have been capitalized; therefore, it is misspelled and marked accordingly.

like v her v to v .: like her is incorrect because like is misspelled. Her to is incorrect because to is misspelled. To. is incorrect because it is misspelled.

Any compound words that are written seperately should be counted as one word that has been misspelled.

If a period or comma is missing where there obviously should be one, count that sequence as incorrect.

If there is not a period at the end of the written sample, do not count the last word as correct or incorrect because the samples were timed; the student may not have had time to finish the sentence.

When a student copies instructions or words are unreadable, skip those words. Do not count as incorrect, and start counting carets with the first two words that are readable and not instructions.

Form B-1 Story Starter APPENDIX H 070323000001402010

Name

Tell a story about the night you were camping in the woods and you heard strange noises in the woods.

One day I was in the woods with my mom we were trying to put up the tent. All of a sudden we heard a noise we saw something moveing in the bushes it was brown my mom grabed the gun we heard a growl then it came closer and closer I was afraid I screamed it backed away my mom and I jumped in the tent then we heard a shot the brown thing was dead then dad came we were so happy

marking counting
3 men + 1 man = 4 minutes a kill
^ = 64
V = 22

1	18	3	0	0	2	17	60	71
2	35	5	1	1	4	33	120	142
3	49	11	2	1	1	46	180	211
4	64	16	3	1	9	64	240	279

TW	MWC1	MWC2	EW1	EW2	TU1	TU2	SP1	TIME
84	21	/				/		

APPENDIX I
Written Expression Checklist

I. Penmanship

1. Rating - Circle 1 2 3 4 5 as appropriate.

A-C. General adequacy based on what was written. The impression of adequacy or inadqueacy is being evaluated. Use a check (✓) mark.

A. Spacing on the page: Mark according to how adequately the entire sample is placed on the page. Do not mark as to wheter or not the first paragraph is indented.

B. Spacing of the sentences: Mark according to whether or not there is adequate space left between each sentence.

C. Spacing of the words: Mark according to whether or not there is adequate space left between each word.

D. Spacing of letters: Mark according to whether or not there is adequate space left between each letter.

E. Slant: Mark according to the adequacy of the general slant of the letters.

F. Letter formations: Mark according to whether or not the letter formations are adequate, not perfect.

G. Pressure on the paper: The lightness or darkness of the letters is the indicator of too little, or too much pressure on the paper.

H. Skip

II. Spelling

1. _____% misspelled. Please complete according to: number of misspelled words divided by the total number of words.

Place a tally mark, one for every misspelled word, under the section titled Notes. If there are two errors in one word, then mark the tally according to only the first error in the word. For example, if there are two misspelled words, and one of those words has two errors, there should still be only two tally marks (A-G) in the spelling section.

III. Grammar

A. Captialization: (Do 1-11; skip 12) Place a check (✓) mark according to whether or not the student capitalized those types of words adequately or inadequately. If there is one word correctly capitalized, and one word incorrectly capitalized, useyou judgement as to whether or not you feel the student knows the correct way of capitalizing those types of words. If the student did not use a type of capitalization rule, and the sample is still adequately written, then do not check anything.

B. Punctuation: (Do 1-11; skip 12) Put a check (✓) mark according to whether or not the student used each type of punctuation mark adequately or inadequately. If the student did not use a type of punctuation mark that should have been used, check adequate or inadequate based on your judgement of whether or not you fe the student knows how to use that type of punctuation correct.. If the student did not use some of the different types of punctuation marks, and these types were not needed, then leave those spaces on the checklist blank.

C. Syntax: Skip.

IV. Ideation

A. Type of writing: Please check one of the five choices.

B. Substance:

1. Naming - writer lists objects or actions. Example: I see a dog.
2. Description - objective reporting. Example: The dog sat down.
3. Plot - a completed (or somewhat completed) story however short or long. Remember that these samples were timed and the student may not have had time to complete his story.
4. Issue - beyond a simple plot; it deals with some moral theme or issue.

C. Productivity: Skip.

D. Comprehensibility: Self-explanatory.

E. Reality: Self-explanatory.

F. Style:

1. Sentence Sense: For each sentence in the sample (use the sentences the student wrote that end in a period. Do not mark according to where the sentences should be.), mark one tally in one of the three sections of Completeness.

   a) Completeness - put a tally mark according to whether each sentence is complete (subject and predicate), run-on, or just fragments of a sentence.

   Only use those sentences you marked as being complete, not run-on or fragments for tally marks under structure and type

   b) Structure - put a tally mark according to whether each sentence is simple, compound (two sentences combined with and), complex (use of prepositional phrases set off by commas, use of but, which, etc.), or compound and complex.

   c) Types - put a tally mark according to whether each sentence is declarative (.), interrogative(?), imperative (. but much stronger than declarative), or exclamatory(!).

2. Tone: Described in relationship to the distance the writer establishes between himself/herself and the reader.

3. Word Choice: Skip.

APPENDIX J

CHECKLIST OF WRITTEN EXPRESSION*

Student Number:

Student's Name _____ Grade _____

	not adequate	adequate			
I. PENMANSHIP ✔	TA	A	I	R	Notes
Rating: 1 2 3 4 5					
A. Spacing on the page					
B. Spacing of the sentences					
C. Spacing of the words					
D. Spacing of letters					
E. Slant					
F. Letter formations					
G. Pressure on the paper					
H. Pencil grip					
II. SPELLING ✔					
_____% misspelled					
A. Miscalled rule					
B. Letter insertion					
C Letter omission					
D Letter substitution					
E. Phonetic spelling					
F. Directional confusion					
G. Schwa or r-controlled vowels					
H Letter orientation					
I. Sequence					
J Other					

III. GRAMMAR

	TA	A	I	R	Notes
A. *Capitalization* ✔					
1. proper noun					
2. proper adjective					
3. first word in a sentence					
4. first word in a line of verse					
5. first word in a quotation					
6. principal words in a title					
7. personal title					
8. use of "I" or "O"					
9. personification					
10. salutation in a letter					
11. complimentary close in a letter					
12. other					
B. *Punctuation* ✔					
1. period					
2. comma					
3. apostrophe					
4. quotation marks					
5. question mark					
6. semicolon					
7. exclamation mark					
8. colon					
9. the dash					
10. parentheses					
11. brackets					
12. the slash					
C. *Syntax*					
1. parts of speech					
a. verbs					
b. nouns					
c. pronouns					
d. adjectives					
e. adverbs					
f. prepositions					
g. conjunctions					
h. interjections					
2. agreement					
3. case					
4. pronoun reference					
5. order/position of words					
6. parallelism					
7. abbreviations/numbers					
8. the paragraph					

IV. IDEATION ✓

A. *Type of writing*

1. story_____ 2. poem_____ 3. letter_____ 4. report_____ 5. review_____

B. *Substance*

1. Naming_____ 2. Description_____ 3. Plot_____ 4. Issue_____

~~C. Productivity~~

~~1. Number of words written_____ 2. Acceptable number_____ 3. Too few_____~~

D. *Comprehensibility*

Easy to understand_____ Difficult to understand_____ Cannot understand_____

_____perseveration of words _____illogical

_____perseveration of ideas _____disorganized

E. *Reality*

_____Accurate perception of stimulus or task

_____Inaccurate perception of stimulus or task

F. *Style* make tallies (mv)

1. Sentence Sense

a. Completeness — Tallies:

(1) complete sentences _____

(2). run-on sentences _____

(3). sentence fragments _____

b. Structure

(1). simple _____

(2) compound _____

(3) complex _____

(4). compound/complex _____

c. Types

(1). declarative _____

(2). interrogative _____

(3). imperative _____

(4) exclamatory _____

2. Tone ✓

a. intimate_____ b. friendly_____ c. impersonal_____

3. Word Choice (N = none, F = few, S = some, M = many)

a. formality

formal_____ informal_____ colloquial_____

b. complexity

simple_____ multisyllabic_____ contractions_____

c. descriptiveness

vague_____ vivid_____ figures of speech_____

d. appropriateness

inexact words_____ superfluous/repetitions_____ omissions_____

*Adapted from *The Inventory of Written Expression and Spelling* (Poteet, 1980).

PUBLICATIONS

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