

VARIABILITY OF RESPONSES TO A TEST OF
" MORPHOLOGY AS A FUNCTION OF MODE
OF PRESENTATION

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in partial fulfillment of the
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Chapter 1

STATEMENT OF THE PROBLEM

Terms

Morphology is the study of morphemes and their arrangements in forming words (Nida, 1961). Morphemes are the minimal meaningful units which constitute words or parts of words (Nida, 1961). They may either take the form of lexical words, inflectional suffixes, or derivational affixes. Lexical words are the substantive or contentive aspects of an utterance (Muma, 1978) such as noun, verb, or adjective. Inflectional suffixes are linguistic devices that modulate meanings such as tense, plurality, possession, and noun-verb agreement (Muma, 1978). Some examples of inflectional suffixes are "-ed" (past tense), "-ing" (progressive aspect), "-es" (plurality), or "-s" (plurality). Derivational affixes produce new word forms from old words (Muma, 1978). Examples of derivational prefixes would include "pre-" (precook), "re-" (reread), or "un-" (unhappy), while examples of derivational suffixes would include "-ment" (argument), "-ful" (beautiful), or "-ness" (sadness).

Statement of the Problem

Current morphological tests more comprehensively assess inflectional suffixes in spontaneous lexical words and nonsense words than they assess derivational prefixes and suffixes. These tests such as the Berko (1958) and the Illinois Test of

Psycholinguistic Abilities (1968) have been devised to determine at what age a child acquires morphological rules. The Berko test assesses production of morphological inflections in nonsense words while the Grammatical Closure Subtest of the Illinois Test of Psycholinguistic Abilities (1968) assesses production of morphological inflections in lexical words. Other tests assess production of morphological inflections in both lexical words and nonsense words in order to determine if there is any significant difference in the use of morphological endings in those two contexts. There is little information, however, on the acquisition of rules for derivational prefixes and suffixes. Although it is known that inflectional suffixes are mastered at the age of five or six (Berko, 1958), derivational affixes have not been studied sufficiently to evaluate the age of onset. Since derivational rules are also an aspect of morphology, it is important to assess these prefixes and suffixes as well as the inflectional suffixes to note any developmental difference between the two types of affixes.

The Purpose of the Study

The purpose of this study was threefold: (1) to determine if any significant developmental differences existed between the performance of kindergarten students and first-grade students on the various subtests of the Florida Morphology Evaluation; (2) to determine if any significant differences existed between performance on the various subtests of the Florida Morphology Evaluation in response to three different

manners of presentation- spontaneous lexical words, spontaneous nonsense words, and modeled lexical words; (3) to determine if any significant differences existed between performance on the various subtests of the Florida Morphology Evaluation: a. Inflectional suffixes and Derivational affixes, b. Regular and Irregular Inflectional suffixes, c. Derivational prefixes and suffixes, d. Inflectional suffixes and Derivational affixes combined.

For purposes of this study, the following null hypotheses were developed and tested at the .05 level of confidence:

1. The kindergarten students will exhibit no significant difference in response to the spontaneous lexical words, spontaneous nonsense words, and modeled lexical words of the regular forms of the Inflectional Suffixes Subtest.

2. The first-grade students will exhibit no significant difference in response to the spontaneous lexical words, spontaneous nonsense words, and modeled lexical words of the regular forms of the Inflectional Suffixes Subtest.

3. The kindergarten students will exhibit no significant difference in response to the spontaneous lexical words and modeled lexical words of the irregular forms of the Inflectional Suffixes Subtest.

4. The first-grade students will exhibit no significant difference in response to the spontaneous lexical words and modeled lexical words of the irregular forms of the Inflectional Suffixes Subtest.

5. The kindergarten students will exhibit no significant difference in response to the regular forms of the Inflectional Suffixes Subtest and the irregular forms of the Inflectional Suffixes Subtest.

6. The first-grade students will exhibit no significant difference in response to the regular forms of the Inflectional Suffixes Subtest and the irregular forms of the Inflectional Suffixes Subtest.

7. The kindergarten students will exhibit no significant difference in response to the spontaneous lexical words, spontaneous nonsense words, and modeled lexical words of the Derivational Suffixes Subtest.

8. The first-grade students will exhibit no significant difference in response to the spontaneous lexical words, spontaneous nonsense words, and modeled lexical words of the Derivational Suffixes Subtest.

9. The kindergarten students will exhibit no significant difference in response to the spontaneous lexical words, spontaneous nonsense words, and modeled lexical words of the Derivational Prefixes Subtest.

10. The first-grade students will exhibit no significant difference in response to the spontaneous lexical words, spontaneous nonsense words, and modeled lexical words of the Derivational Prefixes Subtest.

11. The kindergarten students will exhibit no significant difference in response to the Inflectional Suffixes subtests and the Derivational affixes subtests.

12. The first-grade students will exhibit no significant difference in response to the Inflectional Suffixes subtests and the Derivational affixes subtests.

13. The kindergarten students and the first-grade students combined will exhibit no significant difference in response to the four subtests of the Florida Morphology Evaluation.

Chapter 2

THE STUDY OF MORPHOLOGY

Over the past twenty-five years, many studies on morphology have been conducted (Cazden, 1972, Menyuk, 1963, Berko, 1958, Brown, 1973) and a variety of strategies have been developed to evaluate this aspect as a means for assessing acquisition of morphological rules in novel contexts. Tests have been devised which use nonsense words (Berko, 1958), and still others have used language samples to gather data on the acquisition of morphology (Brown, 1973). Other tests obtain the same information through the use of lexical words. Each of these strategies and their application to a wide variety of children will be discussed below.

THE ACQUISITION OF MORPHOLOGY

Lenneberg and Lenneberg (1975) noted that the early speech of children learning language consists of contentive words- nouns, verbs, and adjectives- and lacks grammatical morphemes. They observed that a child begins to acquire morphological structure at the age of eighteen to twenty-four months but the complex multi-staged process of mastering the morphological system lasts from five to six years there-after.

Irene Warburton (1976) stated that acquisition of morphological structures influences learning of phonological structures. She noted that a child who has not mastered morphological rules will not exhibit correct speech sound production.

Courtney Cazden (1972) stated that common irregular forms of words are learned first in the acquisition of morphology. She felt that these may be learned as isolated vocabulary words.

Menyuk (1963) stated that there was a structure of each sentence, and that structural changes are necessary to derive other sentences from the basic sentence. She believed that in this way the child's grammar can be described as a structural whole rather than in segments. Menyuk stated that the child acquires morphological rules around the age of five. She also stated that morphemes are developed cognitively, and that a child can carry morphological rules over to nonsense words, and still use the correct morpheme.

MORPHOLOGICAL DATA--NORMAL

Tests have been devised that assess children of normal intelligence and development, with results that suggested children of normal intelligence acquire morphological rules around the age of five or six (Berko, 1958). The data have been collected by administering tests of nonsense words, lexical words, and by collecting language samples and evaluating them.

Tests of Nonsense Words

The first study of morphology using nonsense words was done in 1958 when Jean Berko set out to discover what is learned by children exposed to English morphology. The test consisted of thirty items; ten sentences of noun plurals, eight of past tense, three each of singular possessive and

plural possessive derivation, two each of third person singular verbs and adjectival inflection, and one each of progressive tense and compounding. Using the cloze technique to elicit various inflections and derivations, Berko tested children in preschool and first grade, four to seven years old. Twenty girls and twenty boys between four and five years old were used in the study, and twenty-six boys and thirty-five girls between the ages of six and seven were tested. Berko found that the boys and girls were equal in their ability to handle English morphology. She found that if a child could supply the correct plural ending to a nonsense word, he has internalized a working system of plural allomorphs in English and is able to generalize to new cases and select the right form. She felt that the child would know the rules unconsciously if he could correctly produce a nonsense word.

Ramer and Rees (1975) employed a modification of Berko's test to assess the use of six morphological rules as a function of age by ninety black children in New York. The ages of the children studied ranged from five to twelve years old. Studying both the morphological constructions of Black English and Standard American English, Ramer and Rees found that the occurrence of Standard English responses increased as the age of the children increased.

Blake and Williams (1968) devised their own morphological test of English words and nonsense words. They included children from four to eleven years old in their study. The children in their study had no problems with

simple plurals, but only a few could produce irregular plurals correctly.

Tests of Lexical Words

Arnold and Reed (1976) devised a study in which they administered the Grammatic Closure Subtest of the Illinois Test of Psycholinguistic Abilities (1968) to fifty children between five and eight years of age. They found that the children had a great deal of difficulty with this test, due to dialectical differences. This test evaluates the child's knowledge of morphological and syntactical structures in the use of lexical words.

Duchan and Baskerville (1976) also used the Grammatic Closure Subtest of the Illinois Test of Psycholinguistic Abilities (1968) to evaluate seventy black children and white children ranging in age from five to twelve years old. They also stated that there was test bias due to the American English dialect used as the standard for the development of this test. They concluded that there are three stages in a normal child's development of irregular inflectional morphemes. During the first stage the lack of inflection of base forms is prominent; for example, the child says "big" for "bigger". In the second stage the child overgeneralizes regular form endings to irregular bases. An example of this stage is the child's using "foots" for "feet". During the last stage, the child learns the correct formation of irregular morphemes. An example of this stage is the child's changing "foot" when singular to "feet" when plural.

Language Samples

Brown (1973) made a detailed description of the acquisition of fourteen grammatical morphemes in three young normal children. He included possible semantic meanings which characterized these morphemes. Brown found evidence that both the Mean Length of Utterance and chronological age were reasonable predictors of morphological acquisition. He also found the order of acquisition nearly invariant for the three young children. Brown concluded from his study that children acquire most of the grammar of English between eighteen months and four years.

deVilliers and deVilliers (1973) devised a cross-sectional study in which they collected spontaneous speech samples averaging 360 utterances for twenty-one children between the ages of sixteen and forty months. The samples were analyzed for the same fourteen grammatical morphemes studied by Brown (1973). deVilliers and deVilliers found that because of the small sample size in Brown's study, they could not use his acquisition of criterion of ninety percent presence of each morpheme in three successive time samplings. With only the data from three children, Brown's criterion seemed unreliable for this study. The Mean Length of Utterance order devised by Brown was not used in this study, due to the Mean Length of Utterance variation in the children of the deVilliers and deVilliers study. deVilliers and deVilliers ranked the age that the percentage of each morpheme appeared across all children. The fourteen morphemes identified by Brown and used in the deVilliers and deVilliers study are

present progressive, the prepositions "in" and "on", plural, past irregular, possessive, uncontractible copula, articles, past regular, third person regular, third person irregular, uncontractible auxiliary, contractible copula, and contractible auxiliary. There appeared to be a high correlation in the acquisition order of the fourteen morphemes in the Brown and deVilliers and deVilliers studies. Brown stated that the Mean Length of Utterance and the chronological age were important predictors for usage of these morphemes. deVilliers and deVilliers found a clear advantage in the use of Mean Length of Utterance as a predictor of morphological development over chronological age.

Summary of Morphological Data-Normal

A child of normal intelligence is able to generalize morphological inflections to nonsense words at five or six years of age (Berko, 1958). Duchan and Baskerville (1976) found that a child learns the correct formation of irregular morphemes as a final stage during the acquisition of language. Brown (1973) and deVilliers and deVilliers (1973) found that with language samples, the Mean Length of Utterance was an important predictor of morphological development.

MORPHOLOGICAL DATA-PATHOLOGICAL

Tests have also been used to assess morphology in children of below normal intelligence and development. The tests have been administered contain both nonsense words and lexical words. Language samples have also been recorded to

note any difference in morphological rules. No consistent pattern in the acquisition of morphology existed with the children of below average intelligence as did with the children of normal intelligence (Dever, 1972).

Tests of Nonsense Words

Lovell and Bradbury (1967) used Berko's method with mildly retarded children (mean I.Q. of 70) between the ages of fourteen and fifteen years. They found that the mildly retarded group's production of morphological inflections and derivations was poorer than that of the children of normal intelligence that Berko used in her study. They concluded that the children were unable to generalize to new lexical items in contexts that required the use of particular inflections.

A follow-up study by Bradbury and Lunzer (1967) found that retarded children could learn inflectional rules, but were less successful than normal children on a transfer task requiring the use of those rules.

Newfield and Schlangler devised a study with Berko's test in 1968, in which they paralleled the nonsense words with lexical words. They compared thirty retarded children with a mean mental age of 6.2 years with thirty normal children with a mean chronological age of 6.10 years. They found that the order of morphological acquisition in both groups was nearly the same, but that the retarded children learned at a slower rate. The retarded children had a greater ability than the normal children in generalizing from familiar to unfamiliar words.

In 1972, Dever revised Berko's test and used it to evaluate thirty educable mentally retarded children. He found that neither use of nonsense words nor lexical words to elicit morphological endings was beneficial in testing the development of morphology in educable mentally retarded children. These children followed no true pattern as did the normal children.

Liles, Shulman, and Bartlett (1977) conducted a study in which they included ten high risk children, ten normal children, twelve learning disabled children, and twelve achieving children. They used an adaptation of Berko's test for their study. They purposely used incorrect words in the test to see if the children could detect the incorrect words in the sentences. They found that the learning disabled group and the normal group differed in the mean number of correct responses on syntactically wrong and syntactically and semantically wrong sentences. They also found that the high risk and learning disabled children had fewer correct responses than the normal children, but that these two groups demonstrated similar delays in the acquisition of morphological rules.

Shriner and Miner (1968) compared the scores of twenty-five culturally disadvantaged and twenty-five culturally advantaged six year-olds in response to figures similar to the ones used in Berko's test. They found no significant difference in the test scores of the two groups.

Cooper (1967) devised a morphology test composed of forty-eight items. He compared 140 congenitally deaf children with 176 hearing children with a chronological age of seven to twenty years for both. He found that the normal children's performance on the test was superior to that of the deaf children. The age that the largest percentage of children tested passed the items ranked according to difficulty. The percentages were very similar for the two age groups.

Language Samples

Johnston and Scherry (1968) studied the development of grammatical morphemes in language deficient children. They tested 287 children from three to sixteen years. All children were of normal intelligence and were judged to have a deficit primarily in language. A sample of one hundred utterances from each child at play was collected for the study. The authors found that the frequency of occurrence of grammatical morphemes increased as linguistic level increased, and that the acquisition of morphological rules occurred at different rates for individual children.

Summary of Morphological Data-Pathological

These studies support the hypotheses that children of below average intelligence do not follow morphological acquisition as do children of normal intelligence (Dever, 1972). A set pattern does not exist with the children of below average intelligence used in the previous studies who were

administered tests of lexical words (Cooper, 1967), tests of nonsense words (Lovell and Bradbury, 1967), or language samples (Johnston and Scherry, 1968).

SUMMARY

This literature suggests that normal children acquire most of the inflectional morphological rules in their vocabulary by the age of five or six. Given the same tests as the children of normal intelligence and development, children with pathological problems seemed to score below that of the normal children.

These studies seem to imply that morphological rules are learned cognitively more than grammatically, since children of low intelligence do not perform as well on the tests as do the normal children. It has been implied that the morphological rules are developed in the cognitive processes since the performance on the nonsense words is equal to that of lexical words on Berko's test and modifications of her test.

Chapter 3

DESIGN OF THE STUDY

Description of the Florida Morphology Evaluation

The Florida Morphology Evaluation (FLAME) assesses the production of both derivational affixes and inflectional suffixes in spontaneous lexical words, spontaneous nonsense words, and modeled lexical words (Appendix A). This test, although not standardized, provides a more comprehensive evaluation of morphology than the Grammatical Closure Subtest of the Illinois Test of Psycholinguistic Abilities (1968), the Berko (1958), or the Berry-Talbott (1966), since it assesses mastery of a wider variety of morphological rules--inflectional as well as derivational.

Moreover, the Florida Morphology Evaluation evaluates morphological skills in nonsense words as well as real words. By testing use of morphological inflections in both of these contexts, it is possible to determine if a child is able to generalize previously learned rules to new words never before heard. The ability to correctly apply affixes to lexical words may merely indicate that a child is emitting those forms which he has learned throughout his life. The evaluation of nonsense words, on the other hand, tests the child's ability to form new words through the application of old rules already learned. This task not only tests the child's grammatical skills but also assesses his cognitive internalization and generalization of morphological rules.

Morphological skills are also tested in the imitative mode through modeled words in this study. By presenting short sentences to the child and having him repeat them, the administrator may determine if there is a difference in the scores achieved through spontaneous production and imitation. Success on the imitative portion of the test may be a favorable prognostic indicator for future success in therapy.

Description of the Study Sample

Fifty students from Whitnel Elementary School in Caldwell County were administered the Florida Morphology Evaluation. Only Caucasian children were used in this study to minimize the influence of dialectical differences. Twenty-five kindergarten students of normal intelligence and twenty-five first-grade students of normal intelligence were included. The boy/girl ratio was not considered for this study. Parental permission was obtained for each child before the test was administered.

The Administration

Each child was administered the four subtests of the Florida Morphology Evaluation. The four subtests include: (1) regular forms of inflectional suffixes, (2) irregular forms of inflectional suffixes, (3) derivational prefixes, and (4) derivational suffixes. Subtests 1, 3 and 4 were administered in three different manners of presentation: (1) spontaneous lexical words, (2) spontaneous nonsense words, and (3) modeled lexical words. Subtest 2 was administered in two

different manners of presentation: (1) spontaneous lexical words and (2) modeled lexical words. Spontaneous nonsense words were not used in subtest 2 due to the inability to create nonsense words from irregular word roots.

Black-line drawings on four-inch by five-inch index cards depicted each stimulus item. The cloze procedure was used to elicit the desired response during the presentation of the spontaneous lexical words and the presentation of the spontaneous nonsense words. The stimulus sentences were from two-to-seven sentences in length. The directions for the presentation of the spontaneous lexical words were:

I'm going to show you a picture and read you some sentences about the picture, but I'm going to leave out the last word and I want you to put it in the sentence for me. If I say, 'I am a girl and you are a _____', (pointing to the child) you would say, 'girl/boy', wouldn't you? That's what I want you to do for me, OKay?

The directions for the presentation of the spontaneous nonsense words were:

We're going to do the same thing we just did, but this time you're going to hear some words you've never heard before. Some of them will be silly, but I want you to listen and put that silly word in the blank just as you did with the words you've heard before.

While pointing to each drawing, the examiner presented an appropriate sentence but omitted the final word or words. The child then supplied the omitted word or words and made what he considered to be the appropriate morphological change.

An imitative task was used in the presentation of the modeled lexical words subtests. The directions for this manner

of presentation were as follows:

Now I'm going to say a sentence and I want you to try to say exactly what I say without leaving out any words.

The examiner then showed the child a picture and presented a five-to-seven-word sentence containing the morphological rule to be assessed. The child then repeated the sentence in the same form as the examiner. The average testing time for each child was thirty-five minutes.

The Recording of the Data

Each response was recorded on a computerized OpScan Data score sheet (Appendix A). Raw scores were obtained by calculating the number of correct items for each subtest.

Chapter 4

THE ANALYSIS OF THE DATA

The scores of the twenty-five kindergarten students and the twenty-five first-grade students were tabulated through the computer service at Appalachian State University in Boone, North Carolina, and are presented in tables in Appendix B. The raw score range for the kindergarten students was from 95 to 121, and from 115 to 122 for the first-grade students. The overall raw scores ranged from 95 to 122. The data were analyzed to test the hypotheses that performance would not vary according to manners of presentation on each subtest of the Florida Morphology Evaluation. The data are summarized in percentages according to the total number of errors each of the two groups made (Table 1, Appendix B). Tables 2, 3, and 4 in Appendix B summarize the analysis of variance for each subtest and for combined subtests.

The results from this study rejected eleven of the thirteen hypotheses that stated that no significant difference in the number of errors would exist between different manners of presentation on the four subtests of the Florida Morphology Evaluation, with only two findings that did not reject the hypotheses.

Hypothesis 1 was not rejected. When the percentages for each manner of presentation and the analysis of variance were computed, the kindergarten students exhibited no significant difference in the number of errors on the regular

forms of the Inflectional Suffixes subtest. The students were able to generalize from lexical words, to nonsense words, to modeled lexical words with no significant morphological problem.

The first-grade students exhibited a significant difference in response to different manners of presentation, which rejected hypothesis 2. The greater number of errors occurred with the spontaneous lexical words in comparison to the errors of the modeled lexical words. One hundred percent accuracy was achieved on the modeled lexical words. This illustrated that the students responded more correctly to the repetition of a five-to-seven-word sentence than to the cloze method.

Hypothesis 3 was rejected. The kindergarten students exhibited a greater percentage of errors on the spontaneous lexical words than with the modeled lexical words. This again illustrated that the students were able to repeat the modeled sentences with more accuracy than they were able to respond to the cloze method.

Hypothesis 4 was rejected, which illustrated that the first-grade students were not able to respond to the irregular forms of the inflectional suffixes subtest with accuracy on the two different manners of presentation. One hundred percent accuracy was achieved on the modeled lexical words, with a great percentage of errors on the spontaneous lexical words.

Hypothesis 5 was not rejected. The kindergarten students exhibited no significant difference in the percentage

of errors on the manners of presentation on the regular forms and the irregular forms on the Inflectional Suffixes subtests. This analysis illustrated that the students did not overgeneralize the rules of the regular forms to the rules of the irregular forms.

Hypothesis 6 was rejected. The first-grade students exhibited a tendency to overgeneralize the rules of regular inflectional suffixes to the rules of the irregular inflectional suffixes. The greatest percentage of errors on both subtests occurred with the presentation of the lexical words. One hundred percent accuracy was achieved on both presentations of the modeled lexical words.

Hypothesis 7 was rejected, with the kindergarten students exhibiting a significant difference in their responses to the lexical words compared to the responses to the modeled words. This difference again exhibited the tendency of the students to correctly respond to the modeled lexical words with greater accuracy than to the lexical words, due to the length of the lexical stimulus items.

Hypothesis 8 was also rejected. The first-grade students exhibited a significant difference in their responses to different presentations on the Derivational Suffixes subtest. One hundred percent accuracy was achieved on the modeled lexical words, with the significant difference existing between the spontaneous lexical words and the spontaneous nonsense words.

Hypotheses 9 and 10 were rejected. All subjects exhibited the greatest percentage of errors on the manners of presentation on the Derivational Prefixes subtest. The kindergarten students exhibited the greatest percentage of errors on the spontaneous lexical words which illustrated that they were able to generalize the prefixes to the nonsense words, but the first-grade students exhibited the greatest percentage of errors on the spontaneous nonsense words which illustrated that they were not able to generalize the prefixes to the nonsense words.

Hypotheses 11 and 12 were also rejected. A significant difference occurred between the Inflectional Suffixes subtests and the derivational affixes subtests with the kindergarten students and the first-grade students. This illustrated that the students were able to respond correctly with the inflectional suffix with greater accuracy than they were able to respond correctly with the derivational affix. This could also suggest that the two types of morphology are not acquired at the same age of onset.

Hypothesis 13 was rejected. The overall percentage of errors occurred with the kindergarten students. This suggests that the first-grade students had acquired more of the morphological rules than the kindergarten students.

The split-half reliability score of the twenty-five kindergarten students was .767. Using a reliability table, any score over .330 with twenty-four subjects is significant (.05). The reliability of the twenty-five first-grade students

did not meet Kuder Richardson computer assumptions. Of the 130 test items, so many were achieved with one hundred percent accuracy that the computer did not predict its reliability. With all of the correct responses, the reliability score would also be significant (.05). The overall reliability of the fifty students tested was .771, and with forty-nine subjects on the reliability table, any score over .231 is significant (.05).

The type of validity used with this test was face validity. The ten speech therapists who reviewed the Florida Morphology Evaluation unanimously cited it as a thorough test of morphology, even more so than the standardized morphological tests now used.

Chapter 5

SUMMARY AND CONCLUSIONS

Restatement of Problem

Current morphological tests assess inflectional suffixes more comprehensively than they assess derivational prefixes or suffixes. Because it is just as important to assess mastery of derivational prefixes and suffixes as it is to assess the mastery of inflectional suffixes, the Florida Morphology Evaluation was developed and tested in this study.

In addition, this study has also been concerned with differences in the manner of stimulus presentation.

Conclusions

On the basis of the findings of this investigation, it was demonstrated that the twenty-five kindergarten students and the twenty-five first-grade students from Whitnel Elementary School in Caldwell County did exhibit differences in the mean number of errors made in response to the various manners of presentation on the Florida Morphology Evaluation. The kindergarten students did not exhibit a significant difference in the mean number of errors made in response to the manners of presentation of the regular forms of the Inflectional Suffixes subtest (Hypothesis 1). They also exhibited no significant difference in their response to the regular forms of the Inflectional Suffixes subtest and the irregular forms of the Inflectional Suffixes subtest (Hypothesis 5). Hypotheses 2, 3, 4, 7, 8, 9, and 10 were rejected, which illustrated that the

students were not able to generalize the morphological rules of lexical words to nonsense words, and respond as accurately to the cloze method as they can to the modeled sentence. Hypothesis 6 was rejected, which illustrated that the first-grade had a tendency to overgeneralize the rules of regular forms to irregular forms of the inflectional suffix. Hypotheses 11 and 12 were rejected, which illustrated that inflectional suffixes and derivational affixes are not developed at the same age of onset. Hypothesis 13 was rejected, which illustrated that the first-grade students had acquired more of the morphological rules than the kindergarten students.

The least number of errors occurred in response to the presentation of the modeled lexical words with the kindergarten students, the first-grade students, and these two groups combined. This suggests that children perform better on a morphological task requiring sentence repetition than they do on a task of grammatic closure.

There was no significant difference between the spontaneous lexical words and spontaneous nonsense words.

A teacher suggested that no difference occurred between the lexical words and the nonsense words because both grades had been using TOBE (1972) puzzles in their plans of study. These puzzles are presented to the child in five black-line drawings which stand for five lexical words. The students listen to a nonsense word that the teacher says, and circle the picture of the lexical word drawing that closest approximates the nonsense word's sound. Because of their

prior practice with the puzzles, it is possible that the children were familiar with the similarities of nonsense words and lexical words so that no significant difference in the number of errors on the two manners of presentation could be observed.

It is impossible to conclude whether or not morphology is acquired cognitively based on the scores of this test because of the prior experience of the students with nonsense words.

Finally, it was demonstrated that a significant difference between inflectional suffixes and derivational affixes does exist. This may be due to the fact that the two types of morphological structures do not develop at the same time or at the same rate.

Recommendations for Further Investigation

It is recommended that the Florida Morphology Evaluation be administered to children younger than five or six years of age to compare their performance to that of the children studied in the present investigation.

It is also recommended that the manners of presentation be reordered in a further study. It is hypothesized that the presentation of modeled lexical words prior to the presentation of spontaneous lexical words and spontaneous nonsense words might reduce the number of errors obtained in this study. It is also hypothesized that the presentation of spontaneous nonsense words prior to the presentation of spontaneous

lexical words and modeled lexical words might increase the number of errors in response to nonsense words.

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APPENDIX A

FLORIDA MORPHOLOGY EVALUATION (FLAME)

INFLECTIONAL SUFFIXES

Spontaneous Lexical Word

1. PAST TENSE. This is a man who knows how to kick. He is kicking. He did the same thing yesterday. What did he do yesterday? Yesterday he 1.
2. PLURAL. This is a cup. Now there is another one. There are two of them. There are two 2.
3. SINGULAR AND PLURAL POSSESSIVE. This is a boat which has a sail. The sail belongs to the boat. It is the 3 sail. Now there are two boats. They both have sails. The sails belong to the boats. They are the 4 sails.
4. COMPARATIVE AND SUPERLATIVE. This dog is dirty. This dog is more dirty. And this dog is even more dirty. This dog is dirty. This dog is 5. And this dog is the 6.
5. PAST TENSE. This is a girl who knows how to play. She is playing. She did the same thing yesterday. What did she do yesterday? Yesterday she 7.
6. PAST TENSE. This is a boy who knows how to count. He is counting. He did the same thing yesterday. What did he do yesterday? Yesterday he 8.
7. SINGULAR AND PLURAL POSSESSIVE. This is a baby who has a hat. Whose hat is it? It is the 9 hat. Now there are two babies. They both have hats. Whose hats are they? They are the 10 hats.
8. PROGRESSIVE. This is a girl who knows how to run. What is she doing? She is 11.
9. PAST PARTICIPLE. This is a boy who likes to eat. He eats every day. What has he done every day? Every day he has 12.
10. THIRD PERSON SINGULAR. This is a boy who knows how to jump. He is jumping. He does it every day. Every day he 13.
11. SINGULAR AND PLURAL POSSESSIVE. This is a witch who has a hat. Whose hat is it? It is the 14 hat. Now there are two witches. They both have hats. Whose hats are they? They are the 15 hats.
12. THIRD PERSON SINGULAR. This is a lady who knows how to drive. She is driving. She does it every day. Every day she 16.

13. PLURAL. This is a glass. Now there is another one.
There are two of them. There are two 17.
14. PLURAL. This is a door. Now there is another one.
There are two of them. There are two 18.
15. THIRD PERSON SINGULAR. This is a man who knows how to
fish. He is fishing. He does it every day. Every day
he 19.
16. PAST PARTICIPLE. This is a girl who likes to bake. She
bakes every day. What has she done every day? Every day
she has 20.

INFLECTIONAL SUFFIXES

Spontaneous Nonsense Word

1. PAST TENSE. This is a man who knows how to frick. He is fricking. He did the same thing yesterday. What did he do yesterday? Yesterday he 21.
2. PLURAL. This is a tup. Now there is another one. There are two of them. There are two 22.
3. SINGULAR AND PLURAL POSSESSIVE. This is a pote who has a hat. Whose hat is it? It is the 23 hat. Now there are two potes. They both have hats. Whose hats are they? They are the 24 hats.
4. COMPARATIVE AND SUPERLATIVE. This dog is ferdy. This dog is more ferdy. And this dog is even more ferdy. This dog is ferdy. This dog is 25. And this dog is the 26.
5. PAST TENSE. This is a girl who knows how to jay. She is jaying. She did the same thing yesterday. What did she do yesterday? Yesterday she 27.
6. PAST TENSE. This is a boy who knows how to bownt. He is bownting. He did the same thing yesterday. What did he do yesterday? Yesterday he 28.
7. SINGULAR AND PLURAL POSSESSIVE. This is a nabby who has a hat. Whose hat is it? It is the 29 hat. Now there are two nabbies. They both have hats. Whose hats are they? They are the 30 hats.
8. PROGRESSIVE. This is a girl who knows how to lun. What is she doing? She is 31.
9. PAST PARTICIPLE. This is a boy who likes to sneet. He sneets every day. What has he done every day? Every day he has 32.
10. THIRD PERSON SINGULAR. This is a boy who knows how to gump. He is gumping. He does it every day. Every day he 33.
11. SINGULAR AND PLURAL POSSESSIVE. This is a fooch who has a hat. Whose hat is it? It is the 34 hat. Now there are two fooches. They both have hats. Whose hats are they? They are the 35 hats.
12. THIRD PERSON SINGULAR. This is a lady who knows how to tive. She is tiving. She does it every day. Every day she 36.

13. PLURAL. This is a nass. Now there is another one. There are two of them. There are two 37.
14. PLURAL. This is a gore. Now there is another one. There are two of them. There are two 38.
15. THIRD PERSON SINGULAR. This is a man who knows how to krech. He is kreching. He does it every day. Every day he 39.
16. PAST PARTICIPLE. This is a girl who likes to nik. She niks every day. What has she done every day? Every day she has 40.

INFLECTIONAL SUFFIXES

Modeled Lexical Word.

1. PAST TENSE. Yesterday the man danced⁴¹.
2. PLURAL. Here are two lakes⁴².
3. SINGULAR AND PLURAL POSSESSIVE. This is the truck's⁴³ tire. These are the Trucks'⁴⁴ tires.
4. COMPARATIVE AND SUPERLATIVE. This dog is big. This dog is bigger⁴⁵. And this dog is the biggest⁴⁶.
5. PAST TENSE. Yesterday the girl cried⁴⁷.
6. PAST TENSE. Yesterday the boy waited⁴⁸.
7. SINGULAR AND PLURAL POSSESSIVE. This is the teacher's⁴⁹ hat. These are the teachers'⁵⁰ hats.
8. PROGRESSIVE. The dog is barking⁵¹.
9. PAST PARTICIPLE. Every day the boy has fallen⁵².
10. THIRD PERSON SINGULAR. Every day the boy laughs⁵³.
11. SINGULAR AND PLURAL POSSESSIVE. This is the nurse's⁵⁴ hat.
12. THIRD PERSON SINGULAR. Every day the lady reads⁵⁶.
13. PLURAL. Here are two dresses⁵⁷.
14. PLURAL. Here are two flags⁵⁸.
15. THIRD PERSON SINGULAR. The man washes⁵⁹ his car.
16. PAST PARTICIPLE. Every day the girl has called⁶⁰.

INFLECTIONAL SUFFIXES- IRREGULAR FORMS

Spontaneous Lexical Word

1. PAST TENSE. This is a girl who knows how to sing. She is singing. She did the same thing yesterday. What did she do yesterday? Yesterday she 61.
2. PAST TENSE. This is a boy who knows how to read. He is reading. He did the same thing yesterday. What did he do yesterday? Yesterday he 62.
3. PLURAL. This is a man. Now there is another one. There are two of them. There are two 63.
4. PAST TENSE. This is a girl who likes to sleep. She is sleeping. She did the same thing yesterday. What did she do yesterday? Yesterday she 64.
5. PLURAL. This is a foot. Now there is another one. There are two of them. There are two 65.
6. PLURAL. This is a deer. Now there is another one. There are two of them. There are two 66.
7. PAST TENSE. This is a man who knows how to cut. He is cutting. He did the same thing yesterday. What did he do yesterday? Yesterday he 67.
8. PLURAL. This is a knife. Now there is another one. There are two of them. There are two 68.

INFLECTIONAL SUFFIXES- IRREGULAR FORMS

Modeled Lexical Word

1. PAST TENSE. Yesterday the boy rang⁶⁹ the bell.
2. PAST TENSE. Yesterday the boy fed⁷⁰ his dog.
3. PLURAL. Here are two women⁷¹.
4. PAST TENSE. Yesterday the girl swept⁷² the floor.
5. PLURAL. Here are two mice⁷³.
6. PLURAL. Here are two sheep⁷⁴.
7. PAST TENSE. Yesterday the man hit⁷⁵ the ball.
8. PLURAL. Here are two paths⁷⁶.

DERIVATIONAL SUFFIXES

Spontaneous Lexical Word

1. -ER. This is a man who knows how to paint. What do you call him? He is a 77.
2. -ING. This is a girl who likes to swim. Her favorite sport is 78.
3. -MENT. These men argue a lot. Here they are having an 79.
4. -NESS. This boy is very sad. He is full of 80.
5. -EN. This man needs to make his coffee sweet. He needs to 81 it.
6. -FUL. That lady is a real beauty. She is very 82.
7. -Y. This boy got a lot of dirt on his shirt. His shirt is very 83.
8. -ED. This girl has a lot of talent. She is a very 84 girl.
9. -LESS. This boy does not handle his toys with care. He is very 85.
10. -LY. This turtle is slow. He moves very 86.
11. -EN. This toy soldier is made of wood. It is a 87 soldier.

DERIVATIONAL SUFFIXES

Spontaneous Nonsense Word

1. -ER. This is a man who knows how to fent. What do you call Him? He is a 88.
2. -ING. This is a girl who likes to glim. Her favorite sport is 89.
3. -MENT. These men asmooge a lot. Here they are having an 90.
4. -NESS. This boy is very nad. He is full of 91.
5. -EN. This man needs to make his hat freet. He needs to 92 it.
6. -FUL. That lady is a real patooty. She is very 93.
7. -Y. This boy got a lot of foof on his shirt. His shirt is very 94.
8. -ED. This girl has a lot of bint. She is a very 95 girl.
9. -LESS. This boy does not handle his dog with nare. He is very 96.
10. -LY. This rabbit is groll. He moves very 97.
11. -EN. This toy soldier is made of snid. It is a 98 soldier.

DERIVATIONAL SUFFIXES

Modeled Lexical Word.

1. -ER. This man is a farmer⁹⁹.
2. -ING. Her favorite sport is swimming¹⁰⁰.
3. -MENT. This lady can make an announcement¹⁰¹.
4. -NESS. This house is full of sickness¹⁰².
5. -EN. He needs to fasten¹⁰³ his seatbelt.
6. -FUL. That lady is very helpful¹⁰⁴.
7. -Y.. This table is very dusty¹⁰⁵.
8. -ED. She is a very skilled¹⁰⁶ artist.
9. -LESS. This boy is very hopeless¹⁰⁷.
10. -LY. This horse moves quickly¹⁰⁸.
11. -EN. This is a golden¹⁰⁹ egg.

DERIVATIONAL PREFIXES

Spontaneous Lexical Word

1. A-. These twins look exactly like one another. They look 110.
2. IN-. This drawing is not complete. It is 111.
3. PRE-. The lady needs to cook the rice before she puts it in the casserole. She needs to 112 the rice.
4. RE-. This boy likes to read his favorite stories over and over again. He likes to 113 his favorite stories.
5. UN-. This girl is not happy. She is 114.
6. DIS-. These little girls do not agree. They 115.
7. UN-. This boy's jacket is buttoned. He wants to take it off. He needs to 116 it.

DERIVATIONAL PREFIXES

Spontaneous Nonsense Word

1. A-. These boys dress exactly nike one another. They dress 117.
2. IN-. This picture is not dumfete. It is 118.
3. PRE-. This lady needs to goop the rice before she puts it in the casserole. She needs to 119 the rice.
4. RE-. This boy likes to sneed his car over and over again. He likes to 120 his car.
5. UN-. This girl is not pippy. She is 121.
6. DIS-. These little girls do not gafee. They 122.
7. UN-. This boy's jacket is sipponed. He wants to take it off. He needs to 123 it.

DERIVATIONAL PREFIXES

Modeled Lexical Word

1. A-. That little boy is all ¹²⁴alone.
2. IN-. This answer is ¹²⁵incorrect.
3. PRE-. She needs to ¹²⁶preheat the water.
4. RE-. He likes to ¹²⁷rebuild model airplanes.
5. UN-. This girl is ¹²⁸unkind.
6. DIS-. The magician made the rabbit ¹²⁹disappear.
7. UN-. He needs to ¹³⁰uncover the box.

APPENDIX B

Table 1

Percentage of Errors of the Twenty-five Kindergarten
Students and the Twenty-five First-grade Students
Who Were Administered the Subtests of the
Florida Morphology Evaluation

		Kindergarten	First Grade
Regular Forms- Inflectional Suffixes Subtest	Spontaneous	8	1
	Lexical		
	Spontaneous	6.6	2.6
	Nonsense		
	Modeled	3.8	0
	Lexical		
	COMBINED	6	1
Irregular Forms- Inflectional Suffixes Subtest	Spontaneous	30	25.5
	Lexical		
	Modeled	4	0
	Lexical		
	COMBINED	17	12.7
Derivational Suffixes Subtest	Spontaneous	25	17
	Lexical		
	Spontaneous	24.7	10.9
	Nonsense		
	Modeled	4	0
	Lexical		
Derivational Prefixes Subtest	Spontaneous	41	33.7
	Lexical		
	Spontaneous	34.8	36.5
	Nonsense		
	Modeled	4	0
	Lexical		
Inflectional Presentations		8	3.6
Derivational Presentations		21	14.8
Overall Presentations		13.8	8

Table 2

Analysis of Variance of the Inflectional Suffixes
Subtests of the Twenty-five Kindergarten
Students and the Twenty-five
First-grade Students

Analysis of Variance Regular Forms-Inflectional Suffixes Subtest				
SOURCE OF VARIATION	DEGREES OF FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	2	Kindergarten	2.03	3.13
ERROR	72	First Grade	3.24	
TOTAL	74			
Analysis of Variance Irregular Forms-Inflectional Suffixes Subtest				
SOURCE OF VARIATION	DEGREES OF FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	1	Kindergarten	69.33	4.04
ERROR	48	First Grade	119.13	
TOTAL	49			
Analysis of Variance Regular and Irregular Forms Combined				
SOURCE OF VARIATION	DEGREES OF FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	1	Kindergarten	0.19	3.94
ERROR	123	First Grade	19.58	
TOTAL	124			

Table 3

Analysis of Variance of the Derivational Affixes Subtests
of the Twenty-five Kindergarten Students and the
Twenty-five First-grade Students

Analysis of Variance Derivational Suffixes Subtest				
SOURCE OF VARIATION	DEGREES OF FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	2	Kindergarten	33.57	3.13
ERROR	72	First Grade	70.28	
TOTAL	74			

Analysis of Variance Derivational Prefixes Subtest				
SOURCE OF VARIATION	DEGREES OF FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	2	Kindergarten	32.09	3.13
ERROR	72	First Grade	30.98	
TOTAL	74			

Table 4

Analysis of Variance of the Inflectional Suffixes Subtests
and the Derivational Affixes Subtests and the Analysis
of Variance of the Overall Florida Morphology
Evaluation Administered to the Twenty-five
Kindergarten Students and the
Twenty-five First-grade
Students

Analysis of Variance Inflectional Suffixes Subtests and the Derivational Affixes Subtests				
SOURCE OF VARIATION	DEGREES OF FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	1	Kindergarten	11.69	3.89
ERROR	273	First Grade	28.53	
TOTAL	274			

Analysis of Variance <u>Florida Morphology Evaluation</u>				
SOURCE OF VARIATION	DEGREES FREEDOM		OBSERVED F	REQUIRED .05
DUE TO FACTOR	1	Both Grades Combined	29.18	3.86
ERROR	548			
TOTAL	549			

Abstract

The purpose of this investigation between a group of kindergarten and first-grade students was threefold: (1) to study the developmental differences on the Florida Morphology Evaluation (FLAME), (2) to determine variability of responses on FLAME, (3) to determine differences in performance on the various subtests of FLAME: a. regular Inflectional suffixes, b. irregular Inflectional suffixes, c. derivational prefixes, and d. derivational suffixes. Analysis of variance procedures were used to test the thirteen null hypotheses developed for the purposes of this study. Analysis of the data indicated that there are significant developmental differences in the morphological skills of kindergarten and first-grade students. Significant differences were also observed as a function of presentation mode with one exception. Kindergarten students did not exhibit significantly different responses as a function of presentation mode on the regular forms on the inflectional suffixes subtest. Of the eight hypotheses developed to test for differences in performance on the various subtests of FLAME, only one was not rejected. The kindergarten students did not exhibit a significant difference in performance on the regular and irregular forms of the inflectional suffixes subtests.