

FUNCTIONAL GRAMMAR AND ITS RELATION
TO CORRECT ENGLISH USAGE

by

Mary Fee

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Advisory Committee:

A. H. Tunnay
Chairman

Bert A. Nash

John E. Hankins

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The correlations between the variables are as follows:

- Age and Education: .72
- Age and Income: .45
- Age and Occupation: .38
- Age and Religion: .21
- Age and Marital Status: .15
- Age and Health: .12
- Age and Personality: .18
- Age and Attitudes: .14
- Age and Values: .11
- Sex and Education: .15
- Sex and Income: .12
- Sex and Occupation: .18
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- Sex and Marital Status: .16
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- Education and Occupation: .52
- Education and Religion: .35
- Education and Marital Status: .28
- Education and Health: .22
- Education and Personality: .31
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- Education and Values: .27
- Income and Occupation: .55
- Income and Religion: .42
- Income and Marital Status: .38
- Income and Health: .33
- Income and Personality: .41
- Income and Attitudes: .39
- Income and Values: .37
- Occupation and Religion: .48
- Occupation and Marital Status: .44
- Occupation and Health: .40
- Occupation and Personality: .46
- Occupation and Attitudes: .43
- Occupation and Values: .41
- Religion and Marital Status: .41
- Religion and Health: .37
- Religion and Personality: .43
- Religion and Attitudes: .40
- Religion and Values: .38
- Marital Status and Health: .34
- Marital Status and Personality: .40
- Marital Status and Attitudes: .37
- Marital Status and Values: .35
- Health and Personality: .36
- Health and Attitudes: .33
- Health and Values: .31
- Personality and Attitudes: .38
- Personality and Values: .35
- Attitudes and Values: .32

CHAPTER I

Introduction

Ever since the middle of the eighteenth century when English grammar was first included in the American school curriculum, the aims of its teaching and the important content for its instruction have been in dispute by those who have given the problem serious consideration and study.

In spite of its inadequacy for application to the comparatively uninflected English language, the Latin grammar of an almost purely inflectional language had a marked influence on the subject matter and method of teaching English grammar.

Latin grammar was believed to be an important study not only as a means for learning the Latin language, but also because of its mental disciplinary value. Because of these facts, it was inferred that English grammar would also have similar values.

From the beginning, English grammar was highly organized, contained every known grammatical item, whether logical or useful, and it was taught as if it were a strict science and as if a knowledge of grammar were important for its own sake. The emphasis was placed upon classification, analysis, and parsing, with practically no motivation for applying the prin-

principles learned through speaking and writing, and little opportunity was given for the activities in which it was hoped to promote correctness and improvement. Grammar so organized and so taught will in this study hereafter be referred to as formal grammar.

Introduced at the college level, formal grammar, taught by formal methods, progressed to the lower educational levels until it was strongly entrenched in the upper grades of the elementary school. It was not until the theory of mental discipline was to a great extent discredited by experimental research that teachers of English began to realize that they must seek other justification for teaching grammar. Experiments have shown that the teaching of formal grammar has little value for improving expression at the elementary school level.

Few teachers of English today believe that the teaching of formal grammar by formal methods to pupils at the elementary school level will guarantee improvement in expression. However, without doubt many present-day teachers of English do believe that a knowledge of certain grammatical items, selected because they are needed by pupils in order to understand why a sentence is or is not correct, may well be expected to function in pupils' expression, oral and written.

It may be that grammatical items have been and are being introduced before pupils are mentally mature enough to understand them or to need them in their speech and writing. It may be possible that only at a higher level than the elementary school are pupils mentally mature enough to think in complex relationships and therefore ready to write complex sentences, ready to understand complex grammatical principles, and ready to make application of these rules to their own expression.

"On the basis of a fundamental belief and its corollary, namely, that growth in correctness and fluency of expression parallel to an extent the intellectual development of the child and that, consequently, that grammar which assists this growth should be cycled throughout the four (high-school) years, the author (Leonard) prepared a suggested experimental organization of the grammar to be taught during these years."¹

As a result of her study of language development of children in grades four to twelve inclusive, LaBrant² concluded that the grammar of the sentence, if taught too early, is for-

1. Leonard, J. Paul, "Functional Grammar -- What and Where," English Journal (H. S. edition), XXII (November, 1933), p. 730.
2. LaBrant, Lou L., "A Study of Certain Language Developments of Children in Grades Four to Twelve Inclusive," Genetic Psychology Monographs, XIV (November, 1933), pp. 387-392.

gotten before the increased complexity of thought demands its application.

Frogner's¹ results from a study of sentence structure in the work of pupils in Grades VI, IX, and XI are in agreement with LaBrant's, concerning the increase in the use of the relative clause as a mark of maturity in writing.

The results of these and similar studies have caused teachers to become concerned with the selection and placement of grammatical principles which may function in the correction and improvement of expression.

In answer to the question, "What is the prime function of grammar?" Verna L. Newsome says, "The greatest contribution which grammar study can make is to the mastery of the sentence: to unflinching recognition of the sentence unit in speech and writing, and the power of building clear, vigorous, and varied sentences, and of interpreting their structure."²

To be sure, the possibility of function lies not only in the materials of instruction, but also in the method of instruc-

1. Frogner, Ellen, "Problems of Sentence Structure in Pupils' Themes," English Journal (H. S. edition), XXII (November, 1933).
2. Newsome, Verna L., "Making English Grammar Function," English Journal (H. S. edition), XXIII (January, 1934), pp. 48-57.

tion. There is, of course, always the question whether even those grammatical items listed by investigators as functional are so taught generally as to function optimally or at all.

The teaching of functional grammar, according to Mirrieles, "means teaching only those grammatical forms without a knowledge of which the pupil is unable to know whether a sentence is or is not correct."¹ Miss Mirrieles points out that if teachers of English accept this definition for teaching functional grammar, they will omit much grammar now being taught, change the method of teaching from a memory to a thought process, and show pupils how grammar can function in their expression.

Rivlin defines functional grammar, "as that application of the knowledge of a grammatical item which will prevent the commission of an error in English or which will assist in the correction of an error already made."²

Although practice has lagged far behind theory, since 1913 the trend has been toward teaching functional, as opposed to formal, grammar. In this period, the emphasis has been shifted from the study of grammar as a means of learning the mother

1. Mirrieles, Lucia B., Teaching Composition and Literature (Harcourt, Brace, 1937), p. 82.
2. Rivlin, Harry N., Functional Grammar, Teachers College Contribution to Education, No. 435. Columbia University, New York, 1930.

tongue to the study of language through the sentence, with grammar introduced for improved correctness. Today, courses of study in secondary school English claim to present, and teachers of English profess to teach, those and only those items of grammar which will function in the improvement of speech and writing.

At the present time the value of "functional" grammar for improving English usage is questioned by those who have studied the matter carefully. Some evidences of conflicting opinions will be cited.

An Experience Curriculum in English¹ in the section called "Instrumental Grammar" states that "because scientific investigation has failed to show the effectiveness of grammar in the elimination of usage errors, it is not here organized for that purpose." It implies, however, two general objectives for the teaching of grammar: (1) to speak and write correct sentences, and (2) to build better sentences. Concerning the method of teaching the twenty-five grammatical items included there, it is proposed: (1) that the pupils shall be given exercises in imitating certain constructions which they need to

1. An Experience Curriculum in English: A Report of a Commission of the National Council of the Teachers of English, W. W. Hatfield, Chairman. English Monograph, No. 4 (1935), National Council of Teachers of English.

use, and (2) that when through this imitation (guided by teacher interpretation and general discussion, perhaps) the grammatical concept emerges, the teacher shall give the pupils its proper name. Another section of the Experience Curriculum called "An Elective Course in Grammar" presents a "systematic and logical grammar to those high-school seniors who presumably will enjoy and profit by it. This is not 'practical' or 'functional' grammar, not primarily 'prescriptive' grammar; it is grammar as a body of classified knowledge about language."

In a chapter of the Ninth Yearbook, Smith comments concerning the presentation of grammar in Experience Curriculum in English:

"Whatever may be our conviction concerning the relationship of grammatical knowledge to correctness and effectiveness of speech and writing, we can agree upon the fundamental principle of the proposed curriculum: that is, that we judge the success of our teaching in terms of the pupil's ability to use language and not upon his facility in ticketing tenses or naming parts of speech. Whoever believes implicitly in the power of grammatical knowledge to function in speech and writing will not quarrel with the proposal that it be tested in terms of its functioning. Whoever agrees with the Experience Curriculum that technicalities of grammar have no bearing upon correct

usage will welcome the opportunity to test usage alone."¹

The following statement was made by Hatfield: "Both scientific experiments and our own observation leave us in doubt whether the ability to parse and analyze has any considerable effect upon speaking and writing. An obvious conclusion would be that we should abandon grammar. But many of us know that we use grammar daily as a guide to correct construction in our own speech and especially in the revision of writing; and we feel that probably our grammatical concepts function subconsciously in our building of sentences. We are not ready to give up the attempt to put our pupils in possession of a useful tool." He believes that "the situation demands a method involving greater motivation, developing such an understanding of the organization of words in sentences as will guide usage and increase language power, and requiring less time than the traditional procedure."²

In The English Journal for last year Rivlin stated: "The next question to be answered is whether the new grammar (functional grammar) does raise the pupils' habitual level of speech

1. Smith, Dora V., "The Development of a Modern Program in English," Ninth Yearbook, Department of Supervisors and Directors of Instruction, N. E. A., 1936, p. 167.
2. Hatfield, W. W., "What Grammar and How," The Illinois Teacher, XXIV (March, 1936), p. 202.

and writing. This question cannot be answered satisfactorily on the basis of present research, although most of the published reports suggest that functional grammar, especially when taught on an individual basis after a diagnostic testing program, ordinarily leads to a marked improvement in the pupil's skill in the mechanics of English composition."¹ However, these experiments do not prove that functional grammar as taught in the conventional school under typical classroom conditions raises the students' habitual level of expression.

In Instruction in English Smith² reports the results of studies concerned with the teaching of formal grammar and for the most part -- formal grammar taught at the elementary school level. It was on the basis of these results that some authorities prominent in the field of secondary school English concluded that the traditional aims for teaching grammar in the high school, including the one persistently found in present secondary school English courses of study, namely, "as an aid to correctness in speech and writing," are discredited. Con-

1. Rivlin, Harry H., "The Present Status of Research in Functional Grammar," English Journal (H. S. edition), XXVII (September, 1938), pp. 590-7.
2. Smith, Dora V., Instruction in English: Report of the National Survey of Secondary Schools, Bulletin No. 17 (1932; appeared February, 1933), Government Printing Office, Washington, D. C., p. 5.

cerning these studies, Dr. Smith makes the following statements:

"It is easy to pick flaws in most of these studies. One thing seems clear, however -- the burden of proof rests with those who believe that a knowledge of technical grammar functions in speech and writing. Up to the present time, so far as the present writer can gather from evidence available in print, only opinion supports this contention."

The Problem and Its Significance

The authorities, prominent and influential in the field of teaching secondary school English, are themselves not in agreement as to the value of teaching grammar -- even "functional" grammar -- to secondary school students. The great majority of teachers of English in active service in the high school believe that "functional" grammar may be taught so that it will greatly facilitate correct usage in oral and written expression. For these reasons the writer decided to make further study of this disputable problem at the senior high school level and to investigate certain factors in the situation which have thus far been neglected.

Up to date, the published studies, concerned with the teaching of grammar, have dealt with investigation and experimentation, involving: (1) a subject matter of formal grammar, (2) a

formal method of teaching it, (3) formal grammar, taught chiefly at the elementary school level, (4) short practice periods, ranging from three or four weeks to three or four months, (5) comparison of methods of teaching grammar, and (6) techniques which failed to check all the factors that might influence the achievement of the aims proposed for teaching it.

Smith, in summarizing the contributions of research to teaching and curriculum made in English for the period from July, 1934, to July, 1937, makes the following statement:

"After reviewing the research in progress in American schools within the last three years, one is impressed with the comparative dearth of significant studies of composition, grammar, and usage at the senior high school level."¹

In the last fifteen or twenty years much attention has been given to a more careful selection of grammatical items to be taught and to their placement in both elementary and secondary schools. If a knowledge and understanding of grammatical principles may function in improved expression, students should be better able now than formerly to show such improvement as a result of grammar study.

1. Smith, Dora V., "The Contributions of Research to Teaching and Curriculum-making in English, July, 1934, to July, 1937," English Journal (H. S. edition), XXVII (April, 1938), pp. 295-310.

This study seeks to answer the following questions:

1. Does a knowledge of "functional" grammatical principles function in correct English usage of high school students as measured by ability to recognize and correct errors in sentences and by accuracy in the free writing of letters and compositions?

2. What are the relationships of reading skill, general mental ability, and cultural background to: (a) a knowledge of "functional" grammatical principles? (b) the ability to recognize and correct errors in sentences? and (c) accuracy in the free writing of letters and compositions?

Summary of Related Literature

The investigations, made to determine to what extent the teaching of grammar achieves the aims claimed for it, have been summarized by Smith in the 1933 report of a national survey of secondary school English.¹ Further summaries, accompanied by extensive bibliographies, have been published by the same author

1. Smith, Dora V., Instruction in English: Report of the National Survey of Secondary Schools, Bulletin No. 17 (February, 1933), Government Printing Office, Washington, D. C., p. 35.

in two editions of The English Journal.¹ Another summary emphasizing recent research in this field was made by Leonard in 1938.²

A summary of investigation concerned especially with research in functional grammar was reported by Rivlin in 1938.³

In her first summary of investigations, Smith reviews studies, the results of which indicate that the teaching of formal grammar accomplishes few if any of its stated aims. She says:

"Five reasons for the study of grammar in the high school have been set forth commonly in the past: (1) for the purpose of mental discipline, (2) as an aid to literary interpretation, (3) as a preparation for the study of foreign languages, (4)

1. Smith, Dora V., Chairman of Committee on Research of the National Council of Teachers of English, "The Contributions of Research to Teaching and Curriculum-making in English, January, 1933, Through June, 1934," The English Journal (H. S. edition), XXIII (November, 1934), pp. 720-29.

----- "The Contributions of Research to Teaching and Curriculum-making in English, July, 1934, to July, 1937," The English Journal (H. S. edition), XXVII (April, 1938), pp. 299-301.

2. Leonard, J. Paul, "The Effect of Recent Research Upon the Selection and Placement of Items of Grammar in the Secondary School Curriculum," Journal of Educational Research, XXI (April, 1938), pp. 599-607.
3. Rivlin, Harry N., "The Present Status of Research in Functional Grammar," The English Journal (H. S. edition), XXVII (September, 1938), pp. 590-97.

for knowledge of a desirable terminology, and (5) as an aid to correctness in speech and writing."¹

I shall review briefly some of the published studies mentioned here -- studies on the basis of which it was concluded that the formal subject matter of grammar does not function in achieving the aims laid down for its study. No study concerned with the value of teaching a grammatical terminology is known to the writer. In the section on instrumental grammar in An Experience Curriculum in English, this statement occurs, "If as these grammatical concepts emerge the teacher applies to them the appropriate grammatical terminology, the pupils acquire labels which will be very convenient in referring to these concepts on future occasions."²

Briggs in 1913 reported the results of an experiment he conducted in order to determine the amount of mental discipline effected by a study of formal grammar.³ He worked first with

1. Smith, Dora V., Instruction in English: Report of the National Survey of Secondary Schools, Bulletin No. 17 (February, 1933), Government Printing Office, Washington, D. C., p. 35.
2. An Experience Curriculum in English: A Report of a Commission of the National Council of the Teachers of English, W. W. Hatfield, Chairman. English Monograph, No. 4 (1933), p. 228, National Council of Teachers of English.
3. Briggs, Thomas H., "Formal English Grammar as Discipline," Teachers College Record, XIV (September, 1913), pp. 251-343.

two equated seventh grade classes over a period of six months and later with seventh grade classes in five other schools. For three periods a week for three months he taught one group intensive formal grammar as an elementary part of logic. The emphasis was on grammar as a science and was accompanied by much application. He taught the other group language and composition. At the end of the three months period the plan was alternated with the groups for an equal amount of time. At the end of the training period in the study of grammar, each group was given a formal, classificatory grammar test, the results of which -- scores expressed as averages -- were compared with the results from similar tests in other fields. The latter tests tested ability to see likenesses and differences, to judge a definition, to test reasons, to reason in other fields, to take from a mass of data all that are necessary to use in reaching a judgment, etc. Briggs concluded that the children who studied formal grammar showed no improvement in any of the tested abilities which could be attributed to the study of formal grammar.

A study to determine the influence of formal grammar study upon ability to interpret literature and upon improvement in

language was conducted by Hoyt in 1906.¹ Two hundred ninth grade children were given three tests: (1) a formal, classificatory grammar test, the questions of which were based on stanzas from Gray's "Elegy Written in a Country Churchyard," (2) an interpretation test, which consisted of writing the thought found in some other stanzas of the same poem, and (3) a composition test for which the children were given a subject and allowed to write for forty minutes. The correlation technique was used as the means of comparing the scores. The correlations of .21 between grammar and interpretation, of .18 between grammar and composition, and of .28 between interpretation and composition were not great enough to cause one to believe that proficiency in either would materially influence the other.

The relationships that Hoyt found between grammar and composition and between grammar and interpretation are about the same as exist between any two totally different subjects, as grammar and geography.

In 1923, Asker reported an investigation concerned with the study of formal grammar at the college level.² Results

1. Hoyt, Franklin S., "The Place of Grammar in the Elementary Curriculum," Teachers College Record, VII (November, 1906), pp. 467-500.
2. Asker, William, "Does Knowledge of Formal Grammar Function?" School and Society, XVII (January 27, 1923), pp. 109-111.

obtained from 295 freshmen served as a basis for a "statistical comparison between knowledge of certain phases of formal grammar and ability to judge the correctness of a sentence, and between grammar knowledge and the ability to use English as revealed through composition." Comparisons were made between a composite score of the Starob English Tests 1, 2, and 3 (parts of speech, case, and tense and mode) to test knowledge of formal grammar; the Starob Grammatical Scale, A. (judging correctness of sentences); and a compilation of the University records of the students' grades in composition. A correlation of .23 was found between knowledge of formal grammar and ability to judge correctness of sentences. Asker believes that knowledge of formal grammar functions here only to a small extent if at all. The coefficient .37 was found to exist between grammatical knowledge and ability in composition, which fact might lead to the conclusion that a knowledge of formal grammar functions markedly in composition, believes Asker, except that the factor of general ability, affecting both knowledge of formal grammar and ability in composition, must be taken into consideration.

The coefficient of correlation between English composition and general ability (as shown by the average grades made by the students during the freshman year) was found to be .63. According to the investigator, this shows that ability to write com-

position depends more upon general ability than upon formal grammar; and since formal grammar is also dependent upon general ability, it follows that the importance of formal grammar for composition is less than the coefficient indicates.

The three studies just mentioned apparently disprove beyond much doubt the belief that a knowledge of formal grammar has value for mental discipline, is an aid to literary interpretation, or is an aid to correct errors in sentences. To be sure, the subjects of the first two studies were elementary-school children, but those of the third study reported were at the college level. If college students are not mentally mature enough to make application of learned principles, it can hardly be expected of elementary pupils. These studies have tended to show chiefly that the formal grammar which did not have a functional value was the grammar of classification and analysis, and provided little motivation for making application of principles learned.

Two studies, one reported by Barber¹ and one by Rivlin², are concerned with the value of teaching grammar as an aid to

1. Barber, J. E., "Finds English Grammar of No Benefit to Pupils of a Foreign Language," Nation's Schools, XVII (January, 1936), p. 25.
2. Rivlin, Harry N., "English Grammar as Preparation for the Study of a Modern Foreign Language," English Journal (H. S. edition), XXIII (March, 1934), pp. 202-7.

preparation for a foreign language. These studies seem to indicate that the value of grammar as an aid to the study of foreign languages has been over-emphasized.

The first of these studies was made by Barber¹, who investigated the achievement test scores, state regents' examination grades, and the intelligence quotients of all the students in one Illinois high school who studied a foreign language. The results of the study disclosed the fact that students who were required, because of low marks, to take a preparatory course in English grammar before they could elect to study a foreign language had no greater chances of success in the language than if they had not studied grammar. The coefficient of correlation between the results of the grammar tests and regents' examinations was .29. A study of the progress of pupils excused from the grammar course because of their high scores shows a correlation of .41 between grammar ability and foreign language study. There was but one point of difference between the mean I. Q. of those who were scheduled for the grammar course and those who were excused; and there were but two points difference between the means of the two groups in the final results

1. Barber, J. E., "Finds English Grammar of No Benefit to Pupils of a Foreign Language," Nation's Schools, XVII (January, 1936), p. 25.

of a foreign language examination. As a result of the study grammar was taught thereafter as a definite, tangible part of the English course and not "in isolation."

Rivlin¹ in 1934 reported a study made by Garland² to discover what items of English grammar are considered essential by high school teachers of foreign languages. In this study 100 teachers of French, 100 teachers of Spanish, 40 teachers of German, 227 teachers of English, and four authorities on the teaching of English³ cooperated in ranking 167 items of grammar on a scale of "0," "1," "2," and "3" with "0" signifying "useless" and "3" denoting greatest importance. The arithmetical means of the ratings of the items by these four groups are: French, 1.6; Spanish, 1.5; German, 1.8; and English, 1.8. These results suggest that English teachers are less ready to eliminate grammatical items than are foreign language teachers. The English teachers rated 92 items as 2.0 or higher. The foreign language teachers concurred in considering fifty-

1. Rivlin, Harry N., "English Grammar as Preparation for the Study of a Modern Foreign Language," English Journal (H. S. edition), XXIII (March, 1934), pp. 202-7.
2. Garland, Maurice R., Thesis in preparation for the degree of Master of Science, School of Education, College of the City of New York, New York City.
3. Professors Allan Abbott, W. W. Charters, R. B. Inglis, and S. A. Leonard.

four items important enough to give them an average rating of 2.0 or higher. These fifty-four items were rated by four experts who gave only twenty-three of them a rating of 2.0. That is, half of these items desired by the foreign language teachers are not essential so far as the teaching of English is concerned. For example, all of the foreign language teachers gave a high rating or better than 2.0 to the number-of-the-adjective item, whereas the teachers of English rated it 0.9 and the experts 0.5. Such a difference illustrates the varying needs of grammar when presented to aid English composition or to prepare for a foreign language. As a direct result of the findings in this study, Rivlin recommended that English teachers select and teach only those items that are valuable from the point of view of functional grammar.

Two studies report results of experimentation with formal methods of teaching grammar versus a functional approach. The first is a study by Crawford and Royer¹ who worked with two seventh grade classes to determine the relative value of teaching technical grammar as opposed to oral drill on correct usage as a means of improving English expression.

1. Crawford, C. C., and Royer, Madie M., "Oral Drill versus Grammar Study," Elementary School Journal, XXVI (October, 1935), pp. 116-119.

Eight commonly made errors were selected for study by both classes, and the rotation method was used until each class had studied eight lessons. In the grammatical approach the grammatical principle was explained to the pupils after which they memorized it, wrote some original sentences, discussed it, and reviewed the principle. In the oral drill approach there was an explanation of the error made, after which the pupils repeated five times in concert a correct form which they found in sentences on drill sheets given them for that purpose. They discussed the forms, but no mention was made of a principle or rule. The drill sheets were given a final review.

The two methods were of almost equal effectiveness. The experimenters believe, however, that a perfection of the oral-drill method will increase its superiority over the grammatical approach. There was no information as to permanency of results.

The second study shows a very favorable degree of progress for tenth graders who were motivated to correct usage by remedial drills and tests over that for students who studied intensive formal grammar. This study is reported by Klopp¹ who conducted an experiment over a period of approximately four months

1. Klopp, W. J., "Grammar by Rule or Practice," English Journal (H. S. edition), XX (February, 1931), pp. 155-7.

with thirteen classes of tenth graders in order to compare the amount, nature, and character of progress made by ten classes who studied intensive formal grammar and three classes which were organized under the system of self-administering remedial drills and tests.

Results from two forms of a test designed to test sixty elements of formal grammar and fifty-six of applied grammar showed that the three experimental classes gained in power and ability to improve the mechanics of English to a degree which far surpassed the ten formal grammar classes. The scores of the latter were high on the formal grammar tests but comparatively low on the applied grammar tests, whereas the classes in which applied grammar was stressed did equally well in the formal as in the applied grammar tests. The ten classes in formal grammar made an average progress for all classes of 9.24 score points. The three experimental classes (taught by means of remedial drills and tests) made an average progress score of 11.8 points. In applied grammar the ten control classes made an average progress of 2.6 score points, as contrasted with an average progress of 4.97 points by the experimental classes. In the final scores the ten control classes made a total average progress of 11.8 points; the three experimental classes 16.7 points. The reporter of this study states

concerning the progress of the experimental group: "Their progress in the mechanics of English has made it possible for a larger program of reading, writing, and oral expression so as to improve the thought content of their offerings."

When, as in this last mentioned experiment, the emphasis is placed upon the desired goal -- correct English usage -- the method seems to function more efficiently than when the emphasis is placed upon classification and analysis without need or proper motivation for use. If the grammatical items are taught because they are needed by the pupils, that is, if the grammatical items are functional and motivation is provided for correct usage, is it not sensible to believe that greater progress may be expected?

Rivlin¹ has made, perhaps, the most careful and complete study to determine what grammatical items should be taught as functional grammar. Many teachers of English cooperated in listing and revising lists of grammatical items accompanied by a statement of their grammatical function. The final revision was made after the list had been enlarged and criticized by five men who were considered authorities on the teaching

1. Rivlin, Harry N., Functional Grammar, Teachers College Contribution to Education, No. 436. Columbia University, New York, 1930.

of English grammar. The items of the final list were rated according to functional value by A. Abbott, W. W. Charter, R. B. Inglis, and S. A. Leonard. A composite rating was given for each item as well as the number of experts who rated the particular item. A scale of values extended from "0," indicating no function, through "3," which indicated that the item was of greatest importance. In stating conclusions based on this study Rivlin says: "Associations of English teachers, accepting the evidence adduced by investigators to show that the study of structural grammar does not improve composition ability, are practically unanimous in their advocacy of functional grammar. There is, however, no objective evidence to prove that functional grammar does influence the pupil's ability to speak and write correct English."

Symonds¹ conducted a test-teach-test experiment with sixth grade pupils to discover the influence of English grammar study. His test was limited to adjectives, adverbs, prepositions, and conjunctions. He used the following six methods of teaching which are here listed with the average gain resulting from each method: (1) five repetitions of the correct form, 1.50; (2)

1. Symonds, P. M., "Practice versus Grammar in the Learning of Correct English Usage," Journal of Educational Psychology, XXII (February, 1931), pp. 81-96.

three repetitions of correct and incorrect forms, 10.11; (3) knowledge of definitions, rules, and principles of grammar, 5.69; (4) grammar analysis, 4.05; (5) total program, 13.37.

The best single method was the repetition of right and wrong forms in succession so that the distinction between the two was clearly understood. Although no principle was taught or stated in connection with this method, it seems possible that pupils would tend to make a generalization in arriving at an understanding of the distinction between the two forms. It is worthy of note that learning rules without error drills or subsequent application was almost four times as effective in developing ability to correct a faulty usage as were five repetitions of the correct form. This fact is the more surprising, perhaps, because the pupils are at the sixth grade level and lacking in the mental maturity which the results of investigations such as those of LaBrant¹ and Frogner² would lead us to believe is necessary for making application of principles. The most effective single method was the three repetitions of

1. LaBrant, Lou L., "A Study of Certain Language Developments of Children in Grades Four to Twelve Inclusive," Genetic Psychology Monographs, XIV (November, 1933), pp. 387-392.
2. Frogner, Ellen, "Problems of Sentence Structure in Pupils' Themes," English Journal (H. S. edition), XXII (November, 1933), pp. 742-49.

the correct and incorrect forms which, in effectiveness, approached the method of a combination of all the methods. Symonds emphasized the fact that the total program involves difficulties and is much more time consuming than the next most effective method, the repetition of correct and incorrect forms.

Catherwood¹ worked with seventh, ninth, and eleventh grade pupils in three Minnesota towns in an attempt to discover the relationships between a knowledge of rules and ability to correct errors in sentences. The basis for acquiring information was a test consisting of parts A, B, and C. Part A consisted of thirty sentences, each containing a single grammatical error. The fifteen grammatical usages represented in the sentences were chosen, some because they are found to be difficult for school children and some because they are commonly considered to be important problems. All but three items ranked high on Rivlin's functional scale.² The pupils were asked to correct the errors. Part B is a recall test, consisting of a sheet of paper blank except for numbers corresponding to the sentence

1. Catherwood, Catharine, "Relationships Between a Knowledge of Rules and Ability to Correct Grammatical Errors," Master's thesis (unpublished), University of Minnesota, 1932.
2. Rivlin, Harry N., Functional Grammar, Teachers College Contribution to Education, No. 435. Columbia University, New York, 1930.

numbers in Part A. The pupils were asked to write the first reasons that came into their minds for having made the corrections. Part C is a recognition test which was not presented to the pupil until Part B had been completed and collected. It consists of fifteen correct rules which apply to the sentences in Part A and two nonsense rules. The pupils were asked to place before the proper rule the number of the sentence or sentences in Part A which violates that particular rule.

The results show, in general: a definite progress from grade to grade toward mastery, an increase in uniformity of class response from grade 7 through 11, an unequal progress from grade to grade, and unequal difficulty with paired usages. The great improvement, as shown by grade means, is made from grade 7 to grade 9 on the knowledge and use of rules. The grade 7 means for these two functions are .19 and .85, whereas in grade 9 they are 4.90 and 3.39 respectively. The rise in the ability to correct errors between grades 7 and 9 was from a mean score of 12.08 to 16.91. Miss Catherwood implies that the discrepancy in progress here indicates lack of relationship between these functions. Perhaps that is right. Yet, by all tried methods improvement in usage has progressed slowly. The faulty usage has probably become a firmly fixed habit and much motivation for attention and practice is necessary for improvement. On

the other hand, in this instance, the seventh grade pupils started out knowing very few grammatical principles. There was a great opportunity for improvement. By means of the correlation technique, also, the degree of correspondence of all abilities was found to be low in grade 7, but the two grammar abilities corresponded with correction skill in the same degree. The correlations for this grade were: between ability to correct errors in sentences and ability to state correctly the principle applicable to the correction, .29; between ability to correct errors in sentences and ability to match the proper principle to the correction made, .28; and between ability to state principles and ability to match principles, .08. In grade 9 the correlations between the same functions are important: .67, .65, and .63 respectively. In grade 11 they are high for any factors whatever: .80, .72, and .63 respectively and the functions progress together with a high degree of correspondence. Catherwood cannot account for the high degree of relationship existing between these functions. She does think it possible that the enforced concentration upon reasons in Part B may have raised the amount of grammar information recalled by each pupil.

In spite of the high degree of correspondence existing between the grammar functions, the average number of sentences

corrected was 16.70 and the average number of rules recalled or recognized was 4.80 which fact indicates, according to the investigator, that a large percentage of corrections were made without grammatical reasons.

There has been little experimentation to discover what means other than a study of grammar are effective in producing improvement in speech and writing at the secondary school level. Clark¹ at North Carolina State College conducted an extensive experiment, involving paired groups of 1700 freshman English students, over a period of four years to discover the effects of a broad, extensive reading program with discussion of ideas and style for the purpose of stimulating ideas and expression as compared with giving formal instruction about segments of language in grammar, punctuation, diction, and spelling. The formal teaching was particularly less effective in obtaining technical improvement among the mass of students than was the study of readings. Improvement in spelling and especially in punctuation was more pronounced under the reading program than by the formal method. It was concluded that coordinated units of form and thought developed better language techniques than formalized instruction.

1. Clark, J. D., "A Four-year Study of Freshman English," English Journal (College edition), XXIV (May, 1935), pp. 403-10.

The foregoing reviews of investigation and experimentation bearing on the problem of this study show the futility of teaching formal grammar for the purpose of mental discipline, as an aid to literary interpretation, as preparation for the study of a foreign language, and as an aid to correct errors in sentences. The results of a comparison of formal and functional methods of teaching grammar indicate in one instance equal effectiveness of the methods and in another instance a considerable advantage for the functional method. The results of one study showed a high degree of correspondence between ability to recognize and recall functional grammatical principles and ability to correct errors in sentences. One experiment at the college level indicated that the teaching of formal grammar was less effective in developing language techniques than was an extensive reading program.

CHAPTER II

Description of the Investigation

The General Plan

A comprehensive testing program was the means used to arrive at some solution of the first part of the problem of this study, namely, the functional value of grammar. At the beginning and again at the end of the school year 1937-1938, tests were administered to all the tenth-grade students of Topeka High School. Two grammar tests were used as a basis for comparing a knowledge of grammar with ability to correct errors in sentences, and the students were asked to write a letter and a composition as a means for judging their ability to use correct language in free writing. Testing at both the beginning and the end of the school year provided a basis for computing the progress made in the various functions during a school year.

It is possible that factors other than those directly concerned with the study of grammar may contribute directly or indirectly to correct usage. It is generally believed that general mental ability, reading comprehension, knowledge of a foreign language, enrollment in any course which emphasizes correct usage, the wide reading of good books and magazines, opportunity to read and hear only good English, and a highly

cultured home background may have a close relationship to good usage. To investigate these, both mental and reading tests were administered to the students at the beginning of the year, and a questionnaire seeking all possible pertinent information was filled out by each student.

The Complete Testing Program

During the first week of the school year, beginning on September 14 and extending to and including September 20, 1937, the following tests were administered:

General Tests

1. Iowa Silent Reading Tests

Advanced Test: Form A (Revised)

For High Schools and Colleges

2. Kuhlmann-Anderson Test

Grade IX - Maturity

3. Questionnaire

Initial Tests

4. Kirby Grammar Test, Form I

5. Informal Grammar Test

6. The writing of one composition

7. The writing of one letter

During the last week of the school year, beginning on May 27 and extending to and including June 1, 1938, the following tests were administered:

Final Tests

8. Kirby Grammar Test, Form II
9. Informal Grammar Test
10. The writing of one composition
11. The writing of one letter

To insure the greatest possible reliability of results, the tests were all administered by one person, the guidance director of the school, a man experienced in testing procedures and thoroughly competent to assume this task. The compositions and letters were written under the supervision of the different teachers of English. A sheet of carefully devised directions was in the hands of each student and a given period of time was allotted to the writing of each letter and composition in order that the conditions would be as nearly as possible the same for all.

The first three tests listed were given in order to learn the general mental ability, the reading skill, and the general cultural background of each student. The first two are well-

known standard tests; the questionnaire¹, constructed by the writer, asked for information concerning matters which she hoped would reveal the student's general cultural background. The questions pertained to such environmental factors as: membership in elective English courses, selection of other school courses, grades failed or skipped, foreign languages studied, education of parents, amount of time per week spent in study, books most enjoyed during the preceding year, magazines and newspapers read, father's occupation, etc.

The two grammar tests, given at the beginning and again at the end of the investigational period, purported to measure the same thing; namely, ability to correct errors found in sentences and a knowledge of the grammatical principle involved in making each correction. The Informal Grammar Test² is a three track test consisting of three parts: A, B, and C. Part A consists of twenty-six sentences, each of which contains one faulty usage which the student must recognize and correct. Test B consists of a blank page on which the students are asked to write their reasons for having made the corrections. When Part B has been completed, it is collected and the students

1. A copy of the questionnaire may be found in the appendix.
2. A copy of this test may be found in the appendix.

are given Part C which contains thirteen grammatical principles, each one of which applies to two of the corrections made in the sentences. This part also contains two nonsense principles. The students are required to match the principles applicable to the corrections made. This test was originally devised by Catherwood¹ who used sentences from Charters' Diagnostic Language and Grammar Test² and The Chicago Tests for Mastery.³ The sentences were restated whenever necessary so that each contains only one faulty usage although most of them contain a correct statement involving some other troublesome usage. All of the usages included rank high on Rivlin's⁴ functional scale.

The make-up of the Kirby Grammar Test differs from the Informal Grammar Test in three distinct ways: (1) it tests a wider range of grammar information, (2) the rules are

1. Catherwood, Catherine, "Relationships Between a Knowledge of Rules and Ability to Correct Grammatical Errors," Master's thesis (unpublished), University of Minnesota, 1932.
2. Charters, W. W., Diagnostic Language and Grammar Test, verbs, Form I, Grades VII to XII, Public School Publishing Company, Bloomington, Illinois.
3. Camenisch, Sophia, "Grammar and Usage, Ninth Grade Check-up Test," Parts I, II, III, Chicago Practice Tests for Mastery, English Journal Publishing Company, 1926, Chicago, Illinois.
4. Rivlin, H. N., op. cit., pp. 145-152.

stated so that they apply to specific sentences; e. g., "'May' should be used in requests when permission is desired," and (3) the errors in the sentences are located by a choice between two forms; e. g., "(Can-May) we try your new skates?" Of the grammatical items included in this test, 24 rank high on Rivlin's functional scale; 8 rank rather low, and for 11 there are no data given. The majority of grammatical items used in the two tests are those most generally believed, by teachers of secondary school English, to be "functional." It was desirable that every grammatical principle involved in the tests should rank high on Rivlin's scale of functional grammar, but the Kirby Grammar Test was the most suitable standardized test that the writer could find for the purposes of this study.

Both the letter and composition were written in the regular class periods under supervision so that the students must follow the directions¹ exactly. The students were asked to write a social letter to a friend or relative, to complete it during one class period, to limit it to one page, and to write as well as possible. The students were permitted to use two class periods for the composition. On the first day they were asked to select a topic either from a list of suggested ones

1. Directions for letter and composition may be found in the appendix.

or otherwise, to organize the content, and to write rapidly a first draft. The papers were collected at the end of the period, and the next day the students revised, corrected, and copied the final draft. The teacher could not volunteer information, but the students might ask questions and use the dictionary or other sources of information. They were also urged to write as well as they could.

The letter and the composition were also repeated in the last week of the school year.

The Subjects of the Investigation

The subjects of this study were all of the tenth grade students in one senior high-school. Students at this particular grade level were chosen for the reasons: that (1) there is apparent need for research at the senior high-school level; (2) students being more mentally mature at this level may show greater gain from grammar study; and (3) in this particular high-school, grammar study was emphasized in the tenth grade.

There were approximately 650 students enrolled in this particular tenth grade. Of these, 588 completed the mental tests, but only 292 completed the entire testing program. The small number for which complete results are available may be accounted for by the fact that during the September investiga-

tion some students were excused to attend the Kansas Free Fair, some students were not yet adjusted to the new school situation and did not find the place where the tests were administered, and others were absent from other causes. In the spring, results on still other students had to be eliminated because of withdrawals, transfers, and absences.

The results obtained from the 292 students on the mental test compare very favorably, however, with those obtained from the 588. Comparisons of the results from the two groups on the mental test are shown in Tables I, II, and III, and the reliability of the differences is shown in Table IV.

TABLE I

COMPARISON OF THE CHRONOLOGICAL AGES OF THE
EXPERIMENTAL GROUP WITH THOSE OF THE TOTAL

Number of Cases	Chronological Age (In years and months)			Standard Deviation
	Range	Mean	Median	
588	13-9 to 19-7	15-6	15-5	9.48 months
292	13-10 to 18-0	15-4	15-3	8.56 months

TABLE II

COMPARISON OF THE MENTAL AGES OF THE EXPERIMENTAL GROUP WITH THOSE OF THE TOTAL

Number of Cases	Mental Age (In years and months)			Standard Deviation
	Range	Mean	Median	
588	11-5 to 23-6	16-0	15-9	1-11
292	12-3 to 23-6	16-4	15-11	1-11

TABLE III

COMPARISON OF THE INTELLIGENCE QUOTIENTS OF THE EXPERIMENTAL GROUP WITH THOSE OF THE TOTAL

Number of Cases	Intelligence Quotient			Standard Deviation
	Range	Mean	Median	
588	71-164	104.4	102.7	14.55
292	77-164	107.4	105.1	14.13

TABLE IV

RELIABILITY OF THE DIFFERENCES OF THE MEANS OF THE EXPERIMENTAL AND TOTAL GROUP

Variable	Group Means		Diff.	σ diff.	$\frac{\text{Diff.}}{\sigma \text{ diff.}}$	Chances in 100 of a real Diff.
	Total	Experi-mental				
G. A.	15-6	15-4	2 months	.635	3.13	100.00
M. A.	16-0	16-4	4 months	1.65	2.42	99.00
I. Q.	104.4	107.4	3 points	1.02	2.94	100.00

From an inspection of these tables it may be observed that the experimental group¹ is a representative sample of the total group. It is slightly younger chronologically, a bit more mature mentally, and has a slight advantage in native ability. Table IV shows that the differences are highly reliable, but I think it may be stated that they are so slight as to be termed negligible.

Plan of Grammar Study

In the school where this investigation was made, the emphasis in teaching grammar at the tenth-grade level is on the "grammar of the sentence." Much practice is provided by means of printed sheets for developing recognition and improved correctness in the use of the sentence. Parts of speech are taught with special emphasis on their uses in the sentence. The differences between literate and illiterate and between colloquial and poor usages are taught. The English teachers in this system compiled in 1938 the Tower Guide, a handbook of the fundamentals of English, and although each teacher has freedom to teach what she believes her students most need, the handbook

1. The term "experimental group" here refers to the 292 subjects who completed all the tests.

serves as a check and a guide to direct her. This handbook contains an outline of grammatical nomenclature on which the students are tested once each semester, and a grammar chart with which students are expected to become familiar in order to use it as reference. Each student is required to keep a notebook. A written theme of at least one page is required each week, and in this careful sentence structure is insisted upon. Besides the written themes there are also oral compositions. In addition to the grammar study the program in English is interspersed with a study of literature and reading.

The fourteen teachers of English who cooperated in this project are of outstanding ability and the department head with whom and under whose supervision they worked is prominent in the field of secondary school English -- as a teacher, a writer, and worker in the field of curriculum revision.

Scoring of the Tests

The tests were all scored by at least two people working independently. The standardized tests were scored by means of and according to the standard sets of directions and keys.

The Informal Grammar Test¹ consists of three parts -- A, B, and C. The B part received a score of two points for each

1. Copy of this test may be found in the appendix.

principle if it were clearly and correctly stated, a score of one if the answer showed a knowledge of the correct principle but was poorly stated, and a zero score if both knowledge and statement of the principles were incorrect. In Parts A and C each item was given a score of one for a correct answer.

The letters and compositions were analyzed for grammatical errors by checking against a list of the categories of grammatical principles used in the tests¹, and a score point of one was recorded for each error in usage.

Analysis of Questionnaire

An analysis was made of the questionnaires by assigning an index number to each item so that comparisons could be made of contrasted groups. For example, the index numbers used to denote the quality of the magazines best liked by the students were those assigned by Wert² as a result of a study he made in 1935. The criteria of quality utilized in this study were:

"(1) the quality of one magazine is higher than another if the average reader is higher in scholastic aptitude, (2) the quality

1. Categories of grammatical principles used in the tests may be found in the appendix.
2. Wert, James E., "A Technique for Determining Levels of Group Reading," Educational Research Bulletin, XVI (May 19, 1937), pp. 113-116, Ohio State University.

of one magazine is higher than another if the average reader ranks higher in English proficiency, and (3) the quality of one magazine is higher than another if the average reader shows a greater knowledge of contemporary affairs." That is, the quality of a magazine was defined in terms of its readers. In order to arrive at an index for various magazines, the Saturday Evening Post was chosen as the "average" magazine and given an index of 100. Then a relative index was computed by dividing the average for each magazine by the average for the Saturday Evening Post.

A few of the magazines reported by the experimental group were not included in Wert's list, some because they were not yet being published when the list was compiled and some, perhaps, because they were not read by the subjects included in Wert's study.

For this study, each of five magazines, several of which were quite popular with students, was arbitrarily assigned an index number which seemed somewhat nearly correct because of the magazine's similarity to a magazine of a given index. These magazines with their index numbers are: "Camera," "Popular Photoplay," "Life," and "Look," 65; "The Household Magazine," 77.

The books read were listed with directions given for rating the quality on the following scale: "0," unknown to judge; "1," worthless; "2," poor; "3," average; "4," good; "5," excellent; and "6," highly superior. Three teachers of English rated them independently and an average of each three ratings was taken as an index number for the quality of that book.

Some items, such as newspapers read, were given an index number of "1" for each item listed because the range did not exceed eight and they were all well-known metropolitan dailies, somewhat equal in quality. Information obtained from the mental and reading tests was used in this part of the study, expressed as scores for index data. The education of parents was recorded in years of school attendance, and the amount of foreign language study done by students was recorded by semesters.

CHAPTER III

Presentation and Interpretation of Results

In an attempt to solve the problem, "Does a knowledge of 'functional' grammatical principles function in the correct English usage of high-school students?" comparisons of results are presented to show what relationships exist among the so-called "functional" grammar abilities.

The bases for such comparisons are the score results from 292 tenth-grade students in a testing program involving an initial and a final test in each of the following: (1) Kirby Grammar Test, (2) Informal Grammar Test, (3) free writing in a composition, and (4) free writing in a social letter.

The Kirby Grammar Test consists of two parts: sentence correction and principles to be matched to the proper correction. The two parts of the test have the same possible score so that if the student's knowledge of principles were in perfect agreement with his ability to correct errors in sentences, the scores for the two parts would be identical.

Table V compares by means of test scores, the ranges, means, medians, and standard deviations of the two skills -- correcting sentences and matching principles -- for both the initial and final test.

TABLE V

COMPARISONS OF STUDENTS' KNOWLEDGE OF GRAMMATICAL PRINCIPLES WITH ERROR CORRECTION ABILITY IN INITIAL AND FINAL TESTINGS OF THE KIRBY GRAMMAR TEST

Initial Testing	Kirby Grammar Test Scores			
	Range	Mean	Median	Standard Deviation
Sentences Corrected	18 to 41	33.77	34.73	3.62
Matched Principles	2 to 41	23.89	23.97	7.67
Final Testing				
Sentences Corrected	20 to 43	33.93	34.71	3.93
Matched Principles	7 to 43	27.87	28.61	7.21

It is observed that for this group of students, knowledge of grammatical principles lagged rather far behind ability to correct errors in the initial testing. The relationships of the two abilities are closer in the final testing possibly because of increased ability in matching grammatical principles with no improvement in the ability to correct errors. The students of this group made somewhat lower scores than those published as standard for this grade by Kirby, which are: median score for Sentences Corrected, 36.6 as compared with 34.7, and for Stated Principles 32.6 as compared with 28.5 for this group of students.

Table VI is so arranged as to show the gains made, as measured by this same test, in each of these two learnings during one school year after the students had studied both.

TABLE VI

GAINS MADE IN KNOWLEDGE OF GRAMMATICAL PRINCIPLES
AND ABILITY TO CORRECT ERRORS IN SENTENCES AS MEASURED BY
INITIAL AND FINAL TEST SCORES EARNED ON THE
KIRBY GRAMMAR TEST

Kirby Grammar Test Scores				
Sentences Corrected	Range	Mean	Median	Standard Deviation
Initial Test	18 to 41	33.77	34.73	3.62
Final Test	29 to 43	33.93	34.71	3.98
Gain	-12 to 15	.33	.57	3.93
<hr/>				
Matched Principles	Range	Mean	Median	Standard Deviation
Initial Test	2 to 41	23.89	23.97	7.67
Final Test	7 to 43	27.87	28.64	7.21
Gain	-12 to 26	3.97	4.39	6.26

The students made much greater gains in knowledge of grammatical principles than in ability to correct errors. This result was to be expected with this particular test because of the greater opportunity for growth in knowledge of principles.

The maximum score for the test is 43 points and in the initial test on Sentences Corrected the scores of forty-one students closely approached it with a range extending from 38 to 41 points, whereas the scores of only ten students were included in the same range on Matched Principles. A number of students made poorer scores on the final than on the initial testing on both parts of the test; however, 31 more such poorer scores were made on Sentences Corrected than were made at the same

time on Matched Principles. The gains made by the group in knowledge of grammatical principles as indicated by scores on Matched Principles are an appreciable amount, but the gains made in ability to correct errors in sentences as measured by scores on Sentences Corrected are so small that there is little reason to believe that the former has had any appreciable effect on the latter.

TABLE VII

RELIABILITY OF THE DIFFERENCES OF THE MEANS
OF THE INITIAL AND FINAL TEST SCORES
ON THE TWO PARTS OF THE KIRBY GRAMMAR TEST

Parts	Means		Diff.	σ diff.	Diff. σ diff.	Chances in 100 of a real Diff.
	Ini- tial	Final				
Sentences Corrected	33.77	33.93	0.33	.315	1.05	85.00
Matched Principles	23.89	27.87	3.97	.616	6.44	100.00

Table VII shows the reliability of the gains on the two parts of the Kirby Grammar Test. The small amount of gain indicated for Sentences Corrected is only fairly reliable, but on Matched Principles the gain is completely reliable.

The Informal Grammar Test, Part A, tests correct English usage by means of error correction in sentences, and it is designated as Sentences Corrected. It tests a knowledge of

"functional" grammatical principles by means of two types of tests, recall and recognition, designated as Part B, Stated Principles, and Part C, Matched Principles.

In this test the number of sentence errors to be corrected in Part A, Sentences Corrected, is 26 with a possible score of 26. The possible score for Part B, Stated Principles, is 52, since each of the thirteen principles receives a score of 2 if it is both clearly and correctly stated, or a score of only 1 if the answer shows indication of a knowledge of the principle but is not stated clearly. The Part C, Matched Principles test, receives a maximum score of 26. The method of scoring this test should be taken into account for the inspection of both Tables VIII and IX because, in making comparisons, it should be remembered that the scores for Part B, Stated Principles, in proportion to those for Part A and Part C, are twice as large.

An inspection of Table VIII shows results similar to those found on the Kirby Grammar Test. However, the scores tend to show in the initial testing a somewhat greater relationship between a knowledge of functional grammatical principles and ability to correct errors to which the principles apply than does the Kirby Test, and with slightly greater relationship indicated in the final testing. The scores do show that stu-

TABLE VIII

COMPARISONS OF STUDENTS' KNOWLEDGE OF GRAMMATICAL PRINCIPLES WITH ERROR CORRECTION ABILITY IN BOTH INITIAL AND FINAL TESTINGS OF THE INFORMAL GRAMMAR TEST

Initial Testing	Informal Grammar Test Scores			
	Range	Mean	Median	Standard Deviation
A. Sentences Corrected	3 to 25	14.38	14.90	4.20
B. Stated Principles	0 to 33	7.46	6.22	6.60
C. Matched Principles	0 to 22	6.48	5.20	4.24
Final Testing				
A. Sentences Corrected	6 to 25	17.40	17.96	4.28
B. Stated Principles	0 to 49	16.42	13.85	11.20
C. Matched Principles	0 to 24	9.44	7.43	5.56

dents are better able to recognize than to recall principles of the initial tests, but these skills are practically equal in the final testing for both mean and median scores.

It should be remembered that the principles in this test are more generally stated, making the matching process more difficult, perhaps, than in the Kirby Test, in which each principle applies to a specific error.¹ The relationships existing among the score ranges of the three abilities improve mainly because of the improvement of the one ability — stating principles. In the final testing, the mean score on Part B, Stated Principles, increases by more than twice its size, mak-

1. See page 37 for example.

ing it almost identical in value with the score for Part C, Matched Principles. However, the mean score for Part A, Sentences Corrected, also improves in the final testing by slightly less than one-third of the initial score. The mean score relationships are somewhat closer in the final testing. It seems possible that the added ability in sentence correction, a skill which the students have been practicing all during their lives, may have been caused at least partially by the rather large amount of added knowledge of "functional" grammar.

TABLE IX

GAINS MADE BY STUDENTS IN ABILITY
TO CORRECT ERRORS IN SENTENCES,
TO RECALL GRAMMATICAL PRINCIPLES,
AND TO RECOGNIZE GRAMMATICAL PRINCIPLES
AS MEASURED BY INITIAL AND FINAL TEST SCORES
ON THE INFORMAL GRAMMAR TEST

A. Sentences Corrected	Informal Grammar Test Scores			
	Range	Mean	Median	Standard Deviation
Initial Test	3 to 25	14.38	14.90	4.20
Final Test	6 to 26	17.40	17.96	4.28
Gain	-8 to 15	2.93	3.23	3.91
B. Stated Principles				
Initial Test	0 to 33	7.46	6.22	6.60
Final Test	0 to 49	16.42	13.86	11.20
Gain	-9 to 38	8.89	7.43	8.46
C. Matched Principles				
Initial Test	0 to 22	6.48	5.20	4.24
Final Test	0 to 24	9.44	9.23	5.56
Gain	-12 to 19	2.93	3.18	4.47

Table IX is arranged to indicate the progress made by the students during the school year in which these three grammar abilities were studied. Inspection of this table reveals several interesting facts. There is little progress indicated for the score range except for Part B, Stated Principles, which increases to an extent practically identical with Part C, Matched Principles. However, this test apparently tested an ability quite unknown to most of the students, since in the initial test 97 of them scored from 0 to but not including 4 while on the final test only 26 scored within this low range. The high score on the initial test was 39 with only four students above 28; on the final test 54 students scored within the same range. The mean and median gains on Part A, Sentences Corrected, are noticeable, especially in view of the fact that such gains for the Kirby Test were negligible. Perhaps the errors used here, errors which have been found by investigators to be among the most frequent among students, had been pointed out to these students, with especial emphasis on the principles applicable to the correct forms.

TABLE X

RELIABILITY OF THE DIFFERENCES OF THE MEANS
OF THE INITIAL AND FINAL TEST SCORES
ON THE PARTS OF THE INFORMAL GRAMMAR TEST

Parts	Means		Diff.	σ diff.	Diff. σ diff.	Chances in 100 of a real Diff.
	Ini- tial	Final				
A. Sentences						
Corrected	14.38	17.40	2.93	.340	8.62	100.00
B. Stated						
Principles	7.46	16.42	8.89	.760	11.70	100.00
C. Matched						
Principles	6.48	9.44	2.93	.409	7.16	100.00

It may be seen from Table X that the gain made on each of the three parts of the Informal Grammar Test is a completely reliable gain.

Catherwood¹, who used this test to study the relationships of these two grammar abilities in seventh, ninth, and eleventh grades found definite progress from grade to grade in all three grammar abilities as indicated in Table XI. She found that the greatest improvement occurred from grade seven to grade nine in Parts B and C on the knowledge and use of principles. The grade seven score means were .19 and .65, while in grade nine they were 4.90 and 3.39 respectively. Although the grade eleven means progressed to 8.49 and 8.63 the amount of progress was

1. Catherwood, Catherine, op. cit. See page 27.

not quite so great. The mean scores for Part A, Sentence Correction, were for these three grade levels 12.08, 16.91, and 20.29 respectively.

TABLE XI

MEAN SCORES ON INFORMAL GRAMMAR TEST AS FOUND BY CATHERWOOD IN GRADES SEVEN, NINE, AND ELEVEN

Parts	Grade 7 Mean Score	Grade 9 Mean Score	Grade 11 Mean Score
A. Sentences Corrected	12.08	16.91	20.99
B. Stated Principles	.19	4.90	8.49
C. Matched Principles	.85	3.99	8.63

Of her results, Catherwood says: "Teachers of English who are interested in the problem of mastery might wonder why, if these functions are as interrelated as they are supposed to be, there is no rise in the ability to correct errors between grades 7 and 9 to correspond to the gain in the other two grammar abilities. It would seem strange to one who considered these interrelations as necessary teaching devices that the 'power' functions should show lower averages than the function that is supposed to result from the power. All tests (by her method of scoring) had the same possible score. From a consideration of averages alone it would seem that all abilities progress from grade to grade, but, that while the grammar functions move together in all respects, the skill in error correction

progresses gradually on a plane separate from the other factors."

Now there are two possible explanations of the fact that these students did not show the same amount of really notable improvement in error correction ability as was made in ability to recognize and recall grammatical principles. Perhaps high schools fail generally to provide the opportunities necessary for the greatest growth in error correction and habitual correct usage, or perhaps the tests used to measure such improvement are inadequate to do so, or perhaps both of these situations obtain.

It is very apparent that the seventh grade students of Catherwood's study knew very few grammatical principles when they were administered this test, but ninth grade results proved their ability to learn them. By the time they reached the ninth grade they had learned a new method, the application of grammatical principles, for the correction of errors, a task previously accomplished in hit or miss fashion, by the students' own choices of method, by teacher emphasis upon correct forms, etc., and they did show improvement in ability to correct errors in sentences. Improvement in the correction of errors has always been found to be a slow, gradual process from grade to grade.

An Experience Curriculum in English¹, in a chapter discussing English usage, includes the following comment concerning improvement in usage: "To change language habits is among the most difficult of all the tasks we undertake in the name of education." When these facts are taken into consideration, may it not be stated that these students have made a considerable amount of progress from grade 7 to 9 and from grade 9 to 11 in error-correcting ability? These ninth grade students of the Catherwood study earned a higher mean score (16.91) on the correction of errors than did the tenth graders of the writer's study on the initial test (14.38) and only slightly lower than they made in the end test one school year later (17.40). It seems to the writer that one cannot be quite certain that a knowledge of grammatical principles has not played at least some part in the improved ability of these students to correct errors.

Table XII shows the intercorrelations of the final test results on the parts of the two grammar tests. The coefficients of correlation for the parts of the same test are high enough to make it seem possible that a knowledge of grammatical principles may have contributed to the ability to correct errors.

1. An Experience Curriculum in English: A Report of a Commission of the National Council of Teachers of English, W. W. Hatfield, Chairman. English Monograph, No. 4 (1935), p. 242, National Council of Teachers of English.

They are higher for the Informal Grammar Test ($r_{3, 4} = .70$; $r_{3, 5} = .62$; and $r_{4, 5} = .76$) than for the Kirby Test ($r_{1, 2} = .61$). It is not surprising that the coefficients of intercorrelation are, in general, somewhat lower than the correlations between parts of the same test since the grammatical principles involved in the two tests are not identical; however, the coefficients of intercorrelation between the parts involving grammatical knowledge are significantly high. The correlation between Kirby Matched Principles and Informal Stated Principles is .71.

TABLE XII

INTERCORRELATIONS¹ BETWEEN THE FINAL TEST RESULTS
OF THE VARIOUS PARTS OF THE KIRBY GRAMMAR
TEST AND THE INFORMAL GRAMMAR TEST

Test Parts	1	2	3	4	5
1. Kirby Sentences Corrected		.61	.55	.55	.55
2. Kirby Matched Principles			.57	.71	.69
3. Informal Sentences Corrected				.70	.62
4. Informal Stated Principles					.76
5. Informal Matched Principles					

A sample of the students' free writing was obtained by asking them to write a social letter and a composition in the initial and again in the final testing. These samplings were

1. All correlations are computed by means of the Otis Correlation Chart.

analyzed for grammatical errors by checking against a list containing the eighteen categories of grammatical principles used in the two grammar tests.

Although the directions provided for a specified length of time to be spent in the free writing and limited the length of the letters to one page, there was great diversity among students as to length or amount of writing. This fact, coupled with the fact that, in general, the amount of writing done in the final testing was greater than that done initially, makes it difficult to make true comparisons and to estimate the amount of progress made during the school year in the habitual use of correct English in free writing.

TABLE XIII

WORD LENGTH OF STUDENTS' LETTERS
ON INITIAL AND FINAL TESTINGS

Tests	Word Length of Letters			Standard Deviation
	Range	Mean	Median	
Initial	31 to 374	156.82	151.82	53.84
Final	40 to 559	162.64	162.64	58.12

Table XIII presents a picture of these facts. Unless the students had improved greatly in free writing during the year, they were quite likely to make more errors in the final than in the initial writing of letters because of the greater length.

Table XIV shows the number of errors made in both initial and final letter and the amount of gain in correct usage.

TABLE XIV

PROGRESS OF STUDENTS IN CORRECT USAGE AS
MEASURED BY NUMBER OF GRAMMATICAL ERRORS MADE
IN FREE WRITING OF INITIAL AND FINAL LETTERS

Tests	Number of Grammatical Errors			
	Range	Mean	Median	Standard Deviation
Initial	0 to 14	4.21	4.07	3.17
Final	0 to 14	4.25	4.38	2.80
Gain	-12 to 11	.04	.53	3.45

In the final letter 121 students made at least one more grammatical error than they made in the initial one, while 38 students made the same number and 130 students made fewer by one to twelve errors. The mean and median gains are quite small, and in consideration of the fact that these students made improvement in ability to correct errors in sentences, it seems apparent that they did not write as well in their free writing as they might have.

TABLE XV

LETTER ERRORS PER HUNDRED WORDS

	Error	Mean	Median	Standard
	Range	Range	Range	Deviation
Initial	0 - 8	2.79	3.02	1.76
Final	0 - 10	2.59	2.94	1.57

On the whole, students showed little improvement in accuracy of usage in the writing of the final letters when divergence of length was given no consideration. However, in spite of the fact that the final letters were longer than the initial ones, Table XV shows that when the errors made were distributed according to the number per one hundred words of writing, there was a noticeable increase in improvement.

TABLE XVI

RELIABILITY OF THE DIFFERENCES OF THE MEANS
OF THE INITIAL AND FINAL RESULTS
IN WORD LENGTH AND CORRECT USAGE
IN THE FREE WRITING OF LETTERS

Vari- able	Means		Diff.	σ diff.	Diff. σ diff.	Chances in 100 of a real Diff.
	Ini- tial	Final				
Word Length	156.82	162.64	5.82	4.63	1.26	90.00
Total Errors	4.21	4.25	0.04	0.248	1.61	94.00
Errors per 100 words	2.79	2.59	0.20	0.138	1.44	93.00

Table XVI shows that the differences of the means of the initial and final results of the variables used to analyze the progress made in correct usage in the free writing of letters are only fairly reliable.

Table XVII indicates the varying word lengths for the initial and final compositions. Here the divergence in length between initial and final writings is more marked even than in the case of the letters, and the compositions are on the whole, both initial and final, longer than the letters.

TABLE XVII
WORD LENGTHS OF STUDENTS' COMPOSITIONS
ON INITIAL AND FINAL TESTINGS

Tests	Word Length of Compositions			
	Range	Mean	Median	Standard Deviation
Initial	67 - 586	245.11	223.20	91.93
Final	116 - 684	278.68	261.21	91.60

Table XVIII indicates the amount of grammatical error made in composition and the progress made in correct usage from the initial to the final writing.

TABLE XVIII
PROGRESS OF STUDENTS IN CORRECT USAGE AS
MEASURED BY NUMBER OF GRAMMATICAL ERRORS MADE
IN FREE WRITING OF INITIAL AND FINAL COMPOSITIONS

Tests	Number of Grammatical Errors			
	Range	Mean	Median	Standard Deviation
Initial	0 to 17	5.61	5.24	3.72
Final	0 to 17	5.11	4.71	4.12
Gain	-15 to 14	.30	.97	4.09

On the initial composition 10 students made no errors and in the final 19 students made none. Those who made many errors on the initial composition tended to make many on the final composition also. In the final writing 115 students made more errors than on the initial one; 32 students made the same number; and 145 students made fewer in a range from 1 to 15 points. The mean and median gains are somewhat larger than those made in the writing of letters. This result may possibly be accounted for by the fact that the directions for writing specifically asked the students to revise and rewrite and time was allotted for the purpose.

TABLE XIX
COMPOSITION ERRORS PER HUNDRED WORDS

	Error Range	Mean Range	Median Range	Standard Deviation
Initial	0 - 8	2.32	2.61	1.54
Final	0 - 6	1.88	2.19	1.43

Table XIX indicates the measures of central tendency for a distribution of the number of composition errors for each one-hundred words of writing. A distribution of the percentage of errors to word length reduces the measures to approximately one-half the size of those for a total error distribution regardless of length.

TABLE IX

RELIABILITY OF THE DIFFERENCES OF THE MEANS
OF THE INITIAL AND FINAL RESULTS
IN WORD LENGTH AND CORRECT USAGE
IN THE FREE WRITING OF COMPOSITIONS

Variable	Means		Diff.	σ diff.	$\frac{\text{Diff.}}{\sigma \text{ diff.}}$	Chances in 100 of a real Diff.
	Initial	Final				
Word Length Total	245.11	278.68	33.57	7.60	4.42	100.00
Errors Errors per 100 words	5.51	5.11	0.50	0.325	0.092	53.00
	2.58	1.88	0.44	0.123	3.57	100.00

It may be seen from Table IX that in word length and the number of errors per 100 words of free writing in composition the differences are completely reliable. In the total number of errors made, regardless of the length of composition, there is little probability of a real difference.

The coefficients of correlation, revealing the relationships of the final test results of the various parts of the two grammar tests with the final letter and composition errors as recorded in Table XXI, are quite small but consistently positive. It should be noted that the amount of accuracy in free writing is indicated by the number of errors made and, since for convenience in computation the distribution of errors was arranged from the least to the greatest number made, nega-

tive coefficients in this instance denote the amount of positive correlation between accuracy in free writing and each part of the two grammar tests.

TABLE XXI

CORRELATIONS BETWEEN THE FINAL TEST RESULTS OF THE VARIOUS PARTS OF THE TWO GRAMMAR TESTS AND THE FINAL LETTER AND COMPOSITION ERRORS

Parts of the Grammar Tests	Letter Errors	Composition Errors
Kirby Sentences Corrected	-.21	-.06
Kirby Matched Principles	-.13	-.15
Informal Sentences Corrected	-.23	-.14
Informal Stated Principles	-.27	-.13
Informal Matched Principles	-.21	-.13

The great number of errors made by these students in free writing and the low correlation between their grammar knowledge and accuracy in free writing seem to indicate that they have not learned to write well habitually nor do they write as well as they know how to write. They improved in ability to correct errors with which they were confronted in the Informal Grammar Test, and there were significantly high correlations between their knowledge of grammatical principles and their ability to correct errors involved, but they did not apply this error correction ability in their free writing although they were directed, when writing the composition, to correct, revise,

and rewrite. There is the possible explanation that the high school does not provide adequate practice for the application of grammatical principles in free writing.

The second purpose of this study is to determine the extent of relationships between factors other than a knowledge of functional grammatical principles and ability to use English correctly. The results of possibly influential factors — reading skill, mental ability, and cultural background — were compared with ability to recognize and correct errors in sentences and with accuracy of usage in free writing. The results of these other factors were also compared with a knowledge of functional grammatical principles.

TABLE XXII

RANGE, MEAN, MEDIAN, AND STANDARD DEVIATION OF SCORES EARNED
BY TENTH GRADE STUDENTS ON THE IOWA SILENT READING TESTS

Reading Tests ¹	Iowa Silent Reading Test Scores			
	Range	Mean	Median	Standard Deviation
I. Paragraph Meaning	0 to 54	25.61	25.27	11.00
II. Word Meaning	8 to 58	28.78	28.60	8.97
III. Paragraph Organization	2 to 21	8.67	8.32	3.78
IV. Sentence Meaning	0 to 36	20.03	20.77	7.75
V. Location of Information	0 to 33	14.39	14.86	6.41
Total Comprehension	50 to 192	97.25	94.29	29.83
VI. Rate of Silent Reading	5 to 144	23.64	23.54	7.29

1. Hereafter the various sections of the Iowa Reading Tests will be designated by the Roman numerals and Total Comprehension.

The reading ability of these students is measured by their scores on the Iowa Silent Reading Tests. Table XXII records the measures of central tendency earned by this group of students on the reading tests when they entered the tenth grade.

It may be observed from inspection of the foregoing table that these reading tests cover a wide range of effective reading skills. Achievement norms, based on the results of the tests given at the end of the different school years, are accessible for the reading tests. The score medians earned by this group of students show them to be rather skillful readers, except for rate, at the tenth grade level. On sections II, III, IV, V, and Total Comprehension, the median scores of this group exceed the norms for the end of the tenth year and on section I it exceeds the norm for the end of the ninth year. On section VI, Rate of Silent Reading, the median score is less than the norm by two and one-half points.

Table XXIII shows by means of coefficients of correlation the relationships between the different sections of the reading test and the scores in error correction ability and knowledge of grammatical principles as measured by the Kirby Grammar Test. Although the students made little gain in ability to correct sentences, in the Kirby Test, they did earn rather high scores even on the first testing. The coefficients of

TABLE XXIII

CORRELATIONS BETWEEN SCORES OF TENTH GRADE STUDENTS ON IOWA
READING TESTS AND SCORES ON KIRBY GRAMMAR TESTS

Kirby Grammar Test							
Sentences Corrected	I	II	III	IV	V	Total	VI
Initial	.37	.39	.19	.31	.29	.41	.23
Final	.40	.40	.31	.37	.33	.46	.20
Gain	-.01	.05	.09	.09	.05	.09	.02
Matched Principles							
Initial	.40	.39	.26	.26	.31	.44	.25
Final	.49	.50	.35	.39	.33	.55	.31
Gain	.06	.07	.02	.08	.05	.07	.03

correlation between the different sections of the reading test and the initial and final scores on Sentences Corrected are in almost every case large enough to be significant. Correlations between reading skill and achievement in high school subjects rarely show high relationships. Certain sections of the reading test show a much higher relationship than others, namely, I Paragraph Meaning, II Word Meaning, IV Sentence Meaning, and the Total Comprehension score. The relationship between initial scores on Sentences Corrected and III, Paragraph Organization, is low but increases almost one hundred percent for the final testing. In fact, there is a general tendency to find the amount of relationship increased for the final testing in spite of the fact that the correlations between the gains and the sections of the reading tests are practically zero. A possible

explanation of these results is, that although the mean and median scores in the final testing indicated no improvement in ability to correct errors in sentences, the spread for the scores of the distribution may have changed -- changed to a spread corresponding more nearly to that of the distribution of reading skill scores. Perhaps the scores on Part A, Sentences Corrected, of the Kirby Test are more dependent upon reading skill than they are upon a knowledge of grammar. The correlations between the final scores on Part B, Matched Principles, and the sections of the reading test are also increased over those for the initial.

Table XXIV shows much the same relative situation existing between reading and grammar abilities as is indicated in the previous table. The Informal Grammar Test abilities show a considerably greater amount of relationship, attaining a coefficient of .55 between initial sentence correcting ability and Total Comprehension score and with other coefficients closely approaching it in the case of both sentence correction and grammar abilities. A careful inspection of this table reveals a strange inconsistency. Although this group of students improved their scores, from the initial to the final testing, on all the parts of this grammar test (see Table IX), the coefficients of correlation between all the parts of the test and reading skill

TABLE XXIV

CORRELATION BETWEEN SCORES OF TENTH GRADE STUDENTS ON IOWA
READING TESTS AND SCORES ON INFORMAL GRAMMAR TESTS

Informal Grammar Test	Iowa Reading Tests						
	I	II	III	IV	V	Total	VI
A. Sentences Corrected							
Initial	.50	.47	.39	.37	.36	.55	.36
Final	.55	.54	.22	.29	.34	.39	.16
Gain	-.13	-.16	-.17	-.07	-.07	-.13	-.25
B. Stated Principles							
Initial	.45	.46	.33	.35	.29	.51	.33
Final	.38	.37	.23	.33	.34	.45	.20
Gain	.11	.13	.10	.16	.23	.21	.04
C. Matched Principles							
Initial	.49	.44	.31	.33	.28	.51	.31
Final	.42	.37	.23	.30	.31	.44	.23
Gain	.06	.06	-.002	.04	.10	.07	-.03

are decreased in every instance for the final tests. One possible explanation for this inconsistency in the results is that the grammar curriculum for the tenth grade may have offered the brighter students little opportunity for growth and that the amount of improvement shown was made largely by the poorer students. This situation would result in lowered correlations for the final testing. This explanation seems the more probable because on the parts, Stated Principles and Matched Principles, the students showed less knowledge on the initial and greater improvement on the final testing than on Sentences Corrected, yet the decrease in the amount of relationship with reading skill is not quite so pronounced for these abilities as it is

with Sentences Corrected. Another possible explanation is that, if the tenth grade grammar curriculum did provide for satisfactory growth, this grammar test failed to measure satisfactorily the amount of learning that had taken place. The relationships between the gains and reading skill are all small and with Sentences Corrected they are uniformly negative.

The social letters and compositions were scored by recording the number of grammatical errors made. To facilitate the computation of the correlations recorded in Tables XXV and XXVI the distribution of errors was arranged from zero to the greatest number made; therefore, a negative coefficient indicates the amount of positive relationship between reading skill and accuracy in free writing. The coefficients of correlation recorded in these two tables indicate with one exception positive relationships, but are so low as to be lacking greatly in significance. The relationships between reading skill and correct English usage in composition are almost without exception slightly greater than the same relationships in social letters, but apparently for this group skill in reading has little relationship to habitually correct English usage in the free writing of either social letters or compositions.

TABLE XXV

CORRELATION BETWEEN THE SCORES OF TENTH GRADE STUDENTS
ON IOWA READING TESTS AND NUMBER OF ERRORS MADE
IN WRITING SOCIAL LETTERS

Letter Errors	Iowa Reading Tests						
	I	II	III	IV	V	Total	VI
Initial	-.14	-.19	-.08	-.17	-.14	-.14	-.07
Final	-.15	-.12	-.05	-.10	-.11	-.16	-.17
Gain	-.01	-.07	-.01	-.04	-.06	-.06	-.06

TABLE XXVI

CORRELATION BETWEEN THE SCORES OF TENTH GRADE STUDENTS
ON IOWA READING TESTS AND NUMBER OF ERRORS
MADE IN WRITING COMPOSITION

Composition Errors	Iowa Reading Tests						
	I	II	III	IV	V	Total	VI
Initial	-.25	-.29	-.20	-.24	-.13	-.29	-.20
Final	-.17	-.13	-.19	-.05	-.04	-.15	-.21
Gain	-.05	-.13	-.002	-.15	-.07	-.10	-.03

The general mental ability of this group of students is measured by scores, derived from the Kuhlmann-Anderson Tests and translated into mental ages and intelligence quotients. The measures of central tendency for the mental ages and intelligence quotients earned by the group on this mental test have been recorded in Tables II and III and the same measures for chronological ages in Table I, all of which are found in Chapter II on page 39. The chronological ages of the group have

a rather short range of 4 years and two months while there is a range of 10 years and 9 months in the mental ages. The mean mental age is 16 years and 4 months, just one year more mature than the mean chronological age which is 15 years and 4 months. The intelligence quotients range from 77 to 164 with the mean intelligence quotient at 107.4. These data indicate that this group has a high average general mental level. Table XXVII records the relationships between the intelligence quotients, mental ages, and chronological ages and the scores earned on the Kirby Grammar Test.

TABLE XXVII

CORRELATIONS BETWEEN INTELLIGENCE QUOTIENTS, MENTAL AGES,
AND CHRONOLOGICAL AGES OF TENTH GRADE STUDENTS AND THE SCORES
MADE ON THE KIRBY GRAMMAR TEST

Kirby Grammar Test	Kuhlmann-Anderson Tests		
	I. Q.	M. A.	C. A.
Sentences Corrected			
Initial	.33	.34	-.18
Final	.47	.46	-.18
Gain	.14	.12	-.04
Matched Principles			
Initial	.48	.49	-.29
Final	.56	.58	-.18
Gain	.08	.06	-.04

From inspection of Table XXVII it may be observed that chronological age correlates negatively with both parts of the Kirby Grammar Test. This fact is not surprising, as it is almost

sure to be true that in unselected groups at any grade level those students youngest chronologically are likely to have the greatest amount of general mental ability since bright students are less often accelerated than dull students are retarded. The correlations between the mental ages and intelligence quotients and the parts of this grammar test are significantly high. They are in every instance somewhat higher than those between the parts of the reading test and the parts of this grammar test. The correlations are greater between the mental ages and intelligence quotients and the Matched Principles of the test than between these same variables and Sentences Corrected and considerably greater for the final tests for both than in the case of the initial tests. The relationships of the gains are so small as to be negligible. In general, the relationships here indicated show the same trend as is shown by the correlation between the Total Comprehension Test in reading and this same grammar test. All in all, general mental ability seems to correlate more highly with the Kirby Grammar Test than does skill in reading.

Table XXVIII records the relationships between the intelligence quotients, mental ages, and chronological ages for the group and all phases of the Informal Grammar Test. The chrono-

TABLE XXVIII

CORRELATIONS BETWEEN INTELLIGENCE QUOTIENTS, MENTAL AGES,
AND CHRONOLOGICAL AGES OF TENTH GRADE STUDENTS AND THE SCORES
MADE ON THE INFORMAL GRAMMAR TEST

Informal Grammar Test	Kuhlmann-Anderson Tests		
	I. Q.	M. A.	C. A.
A. Sentences Corrected			
Initial	.49	.52	-.28
Final	.40	.41	-.19
Gain	-.10	-.11	.11
B. Stated Principles			
Initial	.47	.50	-.24
Final	.50	.50	-.28
Gain	.26	.27	-.22
C. Matched Principles			
Initial	.56	.56	-.29
Final	.52	.52	-.27
Gain	.13	.13	-.03

logical ages are shown to correlate negatively with ability to correct errors and with knowledge of grammatical principles. The mental ages and intelligence quotients show a slightly higher relationship to the parts of the Informal Grammar Test than to the parts of the Kirby Test, but the Informal Test shows a negative relationship to the gain in ability to correct sentences. The correlations between the mental ages and intelligence quotients and the gain for the parts, Stated Principles and Matched principles, of the Informal Grammar Test are slightly higher than for those between the same variables and the gain for the Matched Principles of the Kirby Test. Because of the amount of relationships here shown and the consistent trend of rela-

tionships always dropping or rising with certain phases of grammar ability, it seems probable that general mental ability may have a significant influence on ability to correct errors in sentences and to recognize and recall grammatical principles.

In order to determine to what extent the intelligence quotients and mental ages influence the relationships between the parts of the two grammar tests -- or the relationship between a knowledge of grammatical principles and ability to correct errors in sentences -- the partial correlation technique was used to partial out the possible effects of the intelligence quotient and mental ability. Table XXIX shows the correlations of the final test results on the parts of each grammar test with intelligence quotient and mental age respectively held constant. The coefficients with the effects of the intelligence quotient partialled out are, in general, lowered by approximately ten points (see Table XII for comparisons) and they are practically identical with the coefficients obtained when the mental age is held constant.

TABLE XXIX

THE CORRELATIONS BETWEEN THE FINAL TEST RESULTS ON THE PARTS OF THE KIRBY GRAMMAR TEST AND OF THE INFORMAL GRAMMAR TEST WITH THE EFFECTS OF THE INTELLIGENCE QUOTIENT AND OF MENTAL AGE RESPECTIVELY HELD CONSTANT

Parts of the Grammar Tests	I. Q.	M. A.
Kirby Sentences Corrected and Matched Principles	.47	.47
Informal Sentences Corrected and Stated Principles	.63	.63
Informal Sentences Corrected and Matched Principles	.53	.52

In order to interpret correctly Tables XXX and XXXI it is necessary to remember that the scores of the letters and compositions are recorded as errors; therefore, a recorded negative coefficient indicates the amount of positive relationship of accuracy in writing to general mental ability. As in the case of the relationships between reading skill and correct usage, the correlations between intelligence quotients and mental ages and correct usage in letter writing and composition are practically zero. The negative coefficients here indicate the amount of positive relationship which is slightly higher for usage in compositions than for usage in letters. The chronological ages correlate negatively with correct usage in free writing.

TABLE XXX

CORRELATIONS BETWEEN INTELLIGENCE QUOTIENTS, MENTAL AGES, AND CHRONOLOGICAL AGES OF TENTH GRADE STUDENTS AND THE NUMBER OF ERRORS MADE IN WRITING SOCIAL LETTERS

Social Letter	Kuhlmann-Anderson Tests		
	I. Q.	M. A.	C. A.
Initial	-.16	-.09	.10
Final	-.05	-.15	.20
Gain	.01	.06	-.02

TABLE XXXI

CORRELATIONS BETWEEN INTELLIGENCE QUOTIENTS, MENTAL AGES,
AND CHRONOLOGICAL AGES OF TENTH GRADE STUDENTS AND
THE NUMBER OF ERRORS MADE IN WRITING COMPOSITIONS

Composition	Kuhlmann-Anderson Tests		
	I. Q.	M. A.	C. A.
Initial	-.28	-.23	-.15
Final	-.20	-.17	-.11
Gain	-.01	-.02	.03

In Table XXXII are recorded the coefficients of partial correlation which were obtained by holding constant the intelligence quotients and mental ages respectively in order to determine their effects on the relationships of the parts of each of the two grammar tests, which reveal a knowledge of grammatical principles, to the letter and composition errors. Again it should be noted that accuracy in writing is denoted by number of errors made; therefore, negative coefficients in this table indicate the amount of positive relationship between accuracy in writing and knowledge of grammatical principles. The coefficients of partial correlation recorded here are surprisingly high and in every instance higher than the zero order of correlation between the same variables. These results are, perhaps, further substantiation of the possibility that these students as a group do not, in their free writing, write so well as they know how.

TABLE XXXII

THE CORRELATIONS BETWEEN A KNOWLEDGE OF GRAMMATICAL PRINCIPLES AND ACCURACY IN THE FREE WRITING OF LETTERS AND COMPOSITIONS WITH THE EFFECT OF THE INTELLIGENCE QUOTIENT AND OF THE MENTAL AGE RESPECTIVELY
HELD CONSTANT

Knowledge of Grammatical Principles ¹	Accuracy in Free Writing ¹	I. Q.	M. A.
Kirby Matched Principles	Letter Errors	-.19	-.27
Kirby Matched Principles	Composition Errors	-.32	-.31
Informal Stated Principles	Letter Errors	-.34	-.40
Informal Stated Principles	Composition Errors	-.27	-.25
Informal Matched Principles	Letter Errors	-.28	-.34
Informal Matched Principles	Composition Errors	-.28	-.26

In order to discover the influence of cultural background upon correct English usage in free writing a method of contrasting two groups was used. The criterion used for selecting the groups was the amount of correct usage found in both the initial and final letters and compositions. From the experimental group of 292 tenth-grade students for which there were complete data, the 40 students who made the lowest percentage of grammatical errors for all the free writing are designated as the High Group, and the 40 students who made the greatest percentage of errors for all the free writing are designated as the Low Group. The range of the percentage of grammatical errors for the High Group is from .35 to 1.67 and for the Low Group from 3.21 to 6.20.

1. Final test results on all.

The two groups were contrasted on the basis of all possibly pertinent information that might affect their English usage. The questionnaires were analyzed and an index assigned for such information as semesters of foreign languages studied, school subjects most and least enjoyed, books most enjoyed during the past year, magazines most enjoyed, newspapers read, education of parents, occupation of parents, etc., and also for general mental ability and reading skill.

TABLE XXXIII

COMPARISON OF NUMBER OF STUDENTS OF THE HIGH AND LOW GROUPS ACCORDING TO SCHOOL SUBJECTS BEST AND LEAST LIKED

High Group			
<u>Best Liked</u>		<u>Least Liked</u>	
Mathematics	15	Mathematics	12
English	6	Social Science	11
Social Science	6	Latin	5
Music	5	English	3
Industrial Arts	3	Industrial Arts	2
Latin	3	Music	1
General Science	2	None	6
None	2		
Low Group			
<u>Best Liked</u>		<u>Least Liked</u>	
Mathematics	17	English	17
Industrial Arts	8	Mathematics	10
Social Science	7	Social Science	6
Music	3	Latin	4
English	3	Music	1
None	2	None	2

A list of the school subjects along with the number of students from each of the two groups who mentioned them as being the most or least liked is found in Table XXXIII.

Of the high-school subjects reported most or least liked by both groups of students those which received most mention are mathematics, English, the social sciences, and the industrial arts. In the Low Group the most disliked subject was English with mathematics a close second and social science third while the best liked subject was also mathematics. In the High Group mathematics was the least and the best liked with twelve voting against and thirteen for it. Social science subjects ranked second as the least liked and English and social science courses tied for second ranking of best liked courses. It is to be expected that students who do poor work in the English courses may dislike them and vice versa. Likes and dislikes for mathematics courses may have been expressed so often because they are elective courses whereas many courses in the English and social science groups are required. It is perhaps noteworthy that six members of the High Group could name no subject which they disliked.

Table XXXIV compares the quality of books which each of these two groups reported as most enjoyable reading. The High Group reported having enjoyed the reading of 107 books whereas

TABLE XXXIV

MEASURES OF CENTRAL TENDENCY FOR THE RATINGS OF
BOOKS¹ WHICH THE TWO CONTRASTING GROUPS MOST
ENJOYED READING DURING THE PREVIOUS YEAR

Group	Quality Index Range	Mean Quality Index	Median Quality Index	Standard Deviation
High	0.0 to 5.5	2.81	3.16	1.56
Low	0.0 to 4.5	2.06	2.30	1.64

the Low Group reported only 54. Eight students of the High Group reported no books as opposed to sixteen non-readers in the Low Group. The books reported were rated on a scale from "0" to and including "6" the latter denoting the highest quality. The mean and median ratings of the contrasted groups show a marked difference in favor of the quality of reading of the High Group.

TABLE XXXV

COMPARISON OF THE MEASURES OF CENTRAL TENDENCY FOR
THE QUALITY RATING OF MAGAZINES² WHICH THE TWO CONTRASTING
GROUPS MOST ENJOYED READING

Group	Quality Index Range	Mean Quality Index	Median Quality Index	Standard Deviation
High	47 to 104	84.25	87.25	13.23
Low	0 to 97	70.75	80.00	24.36

1. See page 45 for method of rating quality of books.
2. See page 43 for method of rating quality of magazines.

Table XXXV compares the quality of magazine reading enjoyed by the two groups. The members of the High Group reported the reading of from 1 to 7 different magazines with an average of 3.8 magazines each. The members of the Low Group reported from 0 to 6 with an average of 2.9 magazines each. The mean and median ratings indicate that the High Group read magazines of considerably better quality as well.

TABLE XXXVI

RELIABILITY OF THE DIFFERENCES OF THE MEANS
OF THE TWO CONTRASTED GROUPS IN THE QUALITY INDEX
OF BOOKS AND MAGAZINES READ

Variable	Groups		Diff.	σ diff.	Diff. σ diff.	Chances in 100 of a real Diff.
	High	Low				
Books	2.81	2.06	0.75	0.358	2.09	98.00
Magazines	84.25	70.75	13.50	4.38	3.08	100.00

It may be observed in Table XXXVI that the difference between the contrasted groups in quality of books read is highly reliable, and in quality of magazines read it is completely reliable.

It is difficult to make definite and accurate comparisons of the economic and cultural status, as indicated by occupations of the parents of the students in these two groups. Six mothers in the High and eight in the Low Group worked and they are

included in the tabulation of occupations found in Table XXXVII. The most marked differences here noted are the proportionately large number of parents of the High Group in the professions and of the Low Group in skilled labor. Although it is not possible to make definite statements on the basis of the results recorded here, it may be stated that it is likely that the students of the High Group enjoy a somewhat higher standard of living economically and culturally. If this may be assumed, it is probable that these students, on the whole, are more accustomed to hearing good usage of English than are the students of the Low Group.

TABLE XXXVII

COMPARISON OF HIGH AND LOW GROUPS
ACCORDING TO THE OCCUPATIONS OF THE PARENTS

Occupation	Number of Parents in Occupation	
	High Group	Low Group
Profession	13	2
Retired	2	1
Own a Business	6	5
Clerical	7	7
Clerk	5	6
Farmer	1	2
Salesman	2	5
Skilled Labor	6	15
Unemployed	1	2
No Information	3	3

Several kinds of information are compared briefly in Table XXXVIII. The questionnaires reveal the fact that ten of the

TABLE XXXVIII

COMPARISONS OF THE HIGH AND LOW GROUPS AS TO SUCCESS OR FAILURE IN SCHOOL WORK, ENROLLMENT IN FOREIGN LANGUAGES, AMOUNT OF NEWSPAPER READING, AND EDUCATION OF PARENTS

Information for Comparison	High Group	Low Group
Number of semesters skipped by students	15	2
Number of semesters failed by students	0	0
Number of courses failed by students	0	7
Semesters of foreign language completed	57	15
Present enrollment in foreign language	30	7
Total listing of newspapers read	82	72
Education of parents in years completed	898	826

students in the High Group had been accelerated from one-half to two years in the elementary school and not one had failed at any time. Two students in the Low Group had each been accelerated one-half year in the elementary school and six students had failed in from one to two courses at the junior high school level. The students of the High Group had already studied 57 semesters of foreign language and were currently enrolled in 30 more, whereas the students of the Low Group had already studied only 15 semesters and were currently enrolled in 7 more. It is not possible to conclude that this rather large foreign language study has aided accuracy in writing, but neither may one conclude that it has not.

The questionnaire asked the student to list the names of newspapers read. It is probable that the students in both groups

listed all the newspapers subscribed for in the home as well as any that might be read at school. The newspapers reported were: the Topeka Daily Capital, Topeka State Journal, Denver Post, Christian Science Monitor, Kansas City Star and Times, Chicago Tribune, New York Times, and the Chicago Herald and Examiner. No effort was made to rate the quality of these newspapers. The High Group reported the reading of 82 newspapers; the Low Group 72. The High Group not only reads more books and magazines, but also a better quality than the Low Group, and it also reads more newspapers.

It is somewhat difficult to compare the parents' education in these two groups. There were 29 parents in the High Group and 27 in the Low Group who did not complete a high-school course, but the parents of the High Group completed a total of 898 years of school work as compared with 826 for those of the Low Group. A difference of 72 years is a considerable amount when only 80 parents are involved for each group and when it is considered that these extra years of school are added at the higher levels of learning where facility in good usage would be the more likely to be insured. It is possible and even probable that general use of good English in the homes of the High Group may contribute much to the habitual good usage of students living in these homes.

The Total Comprehension scores on the reading test were also used as a basis of contrasting these two groups. In Table XXXIX are found the measures of central tendency for these data.

TABLE XXXIX

COMPARISON OF THE MEASURES OF CENTRAL TENDENCY FOR THE TOTAL COMPREHENSION SCORES ON THE IOWA READING TEST

Group	Iowa Reading Tests -- Total Comprehension			
	Score Range	Mean Score	Median Score	Standard Deviation
High	75 to 192	123.75	125.77	24.18
Low	42 to 136	82.37	81.00	20.78

The differences shown here in the reading skills of these two groups are quite marked. Although there were only slight relationships between reading scores and correct English usage in free writing yet there were significant relationships between reading and grammar abilities. The differences here shown seem to corroborate the conclusion that reading ability does have a significant relationship to knowledge of grammatical principles and ability to correct errors in sentences.

The mean and median chronological ages as recorded in Table XL do not show great differences between the High and the Low Group, nor would they be expected to do so. The great majority of children start to school at the same age and progress uniformly year by year to the next higher grade level. There is,

TABLE XI

COMPARISON OF CHRONOLOGICAL AGES, MENTAL AGES,
AND INTELLIGENCE QUOTIENTS OF THE TWO GROUPS

Groups	Chronological Ages in Years and Months			
	Range	Mean	Median	Standard Deviation
High	13-11 to 16-3	15	15-1	.51
Low	14-7 to 18-0	15-8	15-5	.84
Mental Ages in Years and Months				
High	14-6 to 23-6	18-0	18-0	1.95
Low	12-3 to 17-7	15-0	15-3	1.25
Intelligence Quotients				
High	94 to 164	119.75	122.5	13.23
Low	77 to 115	97.75	98.75	8.63

however, a marked contrast in the mental ages and intelligence quotients. The mean mental age of the High Group is three years beyond that of the Low and the intelligence quotient mean more than twenty points higher. It seems almost certain that all grammar abilities as well as usage must be influenced to some extent by the amount of general mental ability.

TABLE XII

RELIABILITY OF THE DIFFERENCES OF THE MEANS OF THE TWO
CONTRASTED GROUPS IN TOTAL COMPREHENSION OF READING,
CHRONOLOGICAL AGE, MENTAL AGE, AND INTELLIGENCE QUOTIENT

Variable	Groups		Diff.	σ diff.	Diff. σ diff.	Chances in 100 of a real Diff.
	High	Low				
Total						
Com- pre- hen- sion	123.75	82.37	41.38	5.03	8.22	100.00
C. A.	15-0	15-8	8 months	0.156	4.21	100.00
M. A.	18-0	18-0	3 years	0.365	8.22	100.00
I. Q.	119.75	97.75	22 points	2.49	8.63	100.00

Table XLI shows that the differences between the two contrasted groups in total comprehension of reading, chronological age, mental age, and intelligence quotient are all completely reliable.

The combined evidence secured from an analysis of all the information revealed in the questionnaires tends definitely to favor the students of the High Group as living in more cultured homes, and it seems possible and even probable that there the students hear more good English usage and are the more likely to use it habitually in their free writing. They are also favored by having greater mental ability and having acquired greater reading skill.

TABLE XLII

SUMMARY OF FINAL TEST INTERRELATIONSHIPS OF
THE ELEVEN VARIABLES USED IN THE STUDY

	1	2	3	4	5	6	7	8	9	10	11
1. Kirby Sentences Corrected		.61	.55	.56	.55	-.21	-.06	.47	.46	-.18	.46
2. Kirby Matched Principles			.57	.71	.69	-.13	-.15	.56	.58	-.18	.55
3. Informal Sentences Corrected				.70	.62	-.23	-.14	.40	.41	-.19	.39
4. Informal Stated Principles					.76	-.27	-.13	.50	.50	-.28	.45
5. Informal Matched Principles						-.21	-.13	.52	.52	-.27	.44
6. Letter Errors								-.05	-.15	-.20	-.16
7. Composition Errors								-.20	-.17	-.11	-.15
8. Intelligence Quotients											
9. Mental Ages											
10. Chronological Ages											
11. Total Reading Comprehension											

CHAPTER IV

Summary of Results and Conclusions

Summary of Results

1. In the initial testing on the Kirby Grammar Test, the students earned a mean score of 33.77 in ability to correct errors in sentences and a mean score of 23.89 in ability to match the proper grammatical principle to the correction made. In the final testing the mean scores for the same variables were 33.93 and 27.87 respectively. The mean score gains in the two abilities were .33 and 3.97 respectively.

2. The coefficient of correlation between the final test results on Sentences Corrected and Matched Principles of the Kirby Test was found to be .61, the coefficient of correlation between the same variables with the intelligence quotient held constant .47, and with the mental age held constant .47.

3. Reading skills, except for the rate of reading, have significantly high relationships with the correction of errors in sentences and with a knowledge of functional grammatical principles. Reading skills have uniformly higher relationships with the final results on the Kirby Grammar Test than with the initial. The correlation between the Total Comprehension score in reading and Sentences Corrected is .46 and between the Total Comprehension score and Matched Principles .55 in the final

test results. The correlations between reading skills and the gains made on the Kirby Test are practically zero.

4. The correlations between the intelligence quotients and mental ages and the Kirby Test scores are, in general, higher than the relationships of reading with them. They are consistently higher on the final test results and for Matched Principles than for Sentences Corrected. On the final results of the Kirby Test the correlation between Sentences Corrected and the intelligence quotients is .47 and between Sentences Corrected and the mental ages .46. The correlations between Matched Principles and the same variables reveal coefficients of .56 and .58 respectively.

5. The mean scores on the initial results of the Informal Grammar Test were for Sentences Corrected, 14.38; Stated Principles, 7.46; and Matched Principles, 6.48. The mean scores on the final results for the same variables were 17.40, 16.42, and 9.44 respectively. The mean score gains were 2.93, 8.89, and 2.93 respectively.

6. In the final testing of the Informal Grammar Test the correlation between Sentences Corrected and Stated Principles is .70 and between Sentences Corrected and Matched Principles .62. The correlations between these same variables with the mental age held constant are .65 and .52 respectively, and

between the same variables with the intelligence quotient held constant are .63 and .53 respectively. The coefficient of correlation is, in every case, lowered by approximately ten points when either the intelligence quotient or mental age is held constant.

7. The correlations between the Total Comprehension score in reading and the parts of the Informal Grammar Test are higher than those between the same reading score and the parts of the Kirby Test. In the final testing on the Kirby Test the correlations between these variables increase; on the Informal Grammar Test they decrease. The correlations between the sections of the reading test and the gains made on the Informal Grammar Test are all low and for the part, Sentences Corrected, they are uniformly negative.

8. Correlations of intelligence quotients and mental ages with the parts of the Informal Grammar Test are of about the same significance as with the Kirby Test. They tend to be slightly higher for the initial than for the final test results, but there is not a marked difference. Correlations between the intelligence quotients and mental ages and the gains made on the grammar tests are so low as to be negligible.

9. In the free writing of letters and compositions there was only a slight gain in accuracy of usage, but it was somewhat greater for compositions than for letter writing.

10. The correlations of reading scores with accuracy in the free writing of letters and compositions are low but consistently positive. They are higher between reading scores and accuracy in compositions than between reading scores and accuracy in letters, but uniformly lower with the results of the final than the initial writings.

11. The correlations of chronological ages with all parts of both grammar tests are uniformly negative.

12. Coefficients of correlations between intelligence quotients and mental ages with accuracy in free writing are extremely low but consistently positive.

13. The correlations between all of the parts of the two grammar tests and the errors made in free writing are low but consistently positive.

14. The correlations of a knowledge of grammatical principles with accuracy in free writing reveal consistently higher coefficients when either the intelligence quotient or mental age is held constant.

15. The forty students of the experimental group who made the fewest errors in free writing, known as the High Group, were contrasted with a Low Group of forty students who made most errors. Of the High Group 10 students had been accelerated at the elementary level from one-half to two years and not one had

ever failed. Of the Low Group 8 students had each skipped a half year and 6 students had failed in from one to two courses at the junior high-school level.

16. In the High Group, mathematics ranked as both the best and the least liked course. English and the social science courses ranked second as the best liked. In the Low Group, English was the least liked subject with mathematics and the social sciences not far behind. The best liked course was mathematics.

17. The High Group had already studied 57 semesters of foreign language and were currently enrolled in 30 more as compared with 15 semesters already studied and a current enrollment of 7 for the Low Group.

18. The High Group not only reported more books read (107) as compared with the Low Group (54), but they also read books of greater maturity and better quality.

19. The members of the High Group read an average of 3.8 magazines each as compared with 2.9 each for the Low. The quality of magazines for the High Group was considerably higher with a mean index quality of 84.25 as compared with 70.75 for the Low.

20. Eight different newspapers were listed as read by the two groups. The High Group reported the reading of 82; the Low Group of 72 newspapers.

21. A marked contrast existed between the two groups in reading skill. The mean score of the Total Comprehension in reading was 123.75 for the High Group and 82.37 for the Low.

22. The mean chronological age of the two groups differed by only 8 months, in favor of the High Group. The mean mental age of the High Group is three years above that of the Low and the mean intelligence quotient 20 points higher.

23. The parents of the students in the High Group spent 72 more years in school than did those of the Low Group.

24. The most marked differences in the occupations of the parents of the two groups were in those listed as professions and skilled labor. Thirteen parents of students in the High Group were occupied in the professions as compared with 2 in the Low Group, and 6 parents of students in the High Group were occupied in skilled labor as compared to 15 in the Low Group.

Conclusions

During the tenth school year in which 292 students studied grammar, they gained some slight facility in correcting errors in sentences and somewhat more in recognizing and recalling principles applicable to the corrections made, but the relationships of the latter with the former are scarcely great enough

to be able to state conclusively that a knowledge of grammatical principles has affected corrective ability.

A significant amount of correlation was found to exist between reading skills and all grammar abilities, and somewhat more between general mental ability, grammar knowledge and corrective ability. It seems conclusively apparent that reading skill and general mental ability are factors contributing to corrective ability and to a knowledge of grammatical principles. Although the amount of correlation between reading skill and the parts of the Informal Grammar Test is significantly high, the amount of correlation decreases with the final test results in spite of the fact that the mean and median scores indicate some actual improvement. These results point to the probable conclusion that the teaching of functional grammar to these tenth grade students has contributed little to their ability to correct errors in sentences and to use accurate English in their free writing. Such a conclusion is further substantiated by other evidence. The amount of correlation between grammar abilities and accuracy of usage in free writing is so low in every instance as to be negligible, and the students who use the greatest accuracy in their free writing are those who have the greatest amount of reading skill, the most general mental ability, and the most favorable cultural background. In view

of these facts it seems doubtful whether the teaching of functional grammar has greatly affected ability to correct errors in sentences or the accurate usage of English in free writing. It seems possible and even probable that the tenth grade grammar curriculum does not offer ample opportunity for growth in the grammar abilities.

APPENDIX A

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APPENDIX B

TESTS

INFORMAL GRAMMAR TEST

Directions for Teachers

Tests on Grammatical Uses

Pass Test A to the class. When Test A is completed, give class Test B. When Test B is completed, collect it and give the class Test C.

Emphasize the fact, stated in the directions for Test B, that the pupil's first reason for making the change should be stated. See that the class does not spend time trying to figure out the REAL reason for the change.

The three parts of this test should be completed within the class period; therefore, too much time must not be allowed before Test B is collected and Test C is distributed. Certainly twenty minutes should be reserved for Test C.

(Tests A, B, and C are all parts of the same test.)

G r a m m a r T e s t A

Name _____ Class _____

There is one error in grammar or usage in each sentence. Correct the sentence, but make only necessary changes or additions to each sentence.

1. That new plan for testing the swimming pool certainly didn't work good.
2. You shouldn't read a novel without you know what it is about.
3. What does those words mean?
4. Each of us boys were going.

5. I have fell many times.
6. It is a good thing for we seniors to set an example for the others.
7. There was always a friendly feeling between we boys and the firemen.
8. It sure doesn't look as if you're making a good start.
9. We were so frightened that we couldn't scarcely move.
10. If he had worn heavier shoes, he wouldn't have froze his feet.
11. Our parents they always have our best interests at heart.
12. Looking over successful athletes, they seem to be unusually handsome boys.
13. The thought of me staying there alone didn't bother her.
14. My brother he said he wouldn't stay with me if I paid him to.
15. No one hadn't ought to mind when minding means so much unhappiness.
16. It seems like too many of those sentences are incorrect.
17. The bleachers were full ten minutes before the game begun.
18. I come to your house last Thursday morning to walk to school with you.
19. She had earrings in her ears formerly belonging to her mother.
20. Each child that read their lesson correctly got a star.
21. The thought of him coaching our rival team made us unhappy.
22. Everybody feels they have a right to say how the football team should be managed.

23. Mother looked everywhere but found only Frances and I.
24. Two of them making a path through the bushes, while the others carried the boat.
25. When the evening came, ending that sad day.
26. Bill ran and ran but could not catch we girls.

Grammar Test B

Name _____ Class _____

The numbers in the brackets represent the numbers of the sentences in Test A. After each number write your reason for making a change in the sentence; that is, try to analyze what went on in your mind telling you to correct the form used. Give your first impression of what was wrong.

- (1)
- (2)
- (3)
- (4)
- (5)
- (6)
- (7)
- (8)
- (9)
- (10)
- (11)
- (12)
- (13)

- (14)
- (15)
- (16)
- (17)
- (18)
- (19)
- (20)
- (21)
- (22)
- (23)
- (24)
- (25)
- (26)

G r a m m a r T e s t C

Name _____ Class _____

Read the list of rules below. Write the number of the sentence in Test A before the rule it violates. You may not need to use all of the rules. Some rules may be violated more than once.

- _____ 1. The subject and verb must agree in number.
- _____ 2. The object of a verb must be in the objective case.
- _____ 3. The object of a preposition must be in the objective case.
- _____ 4. A pronoun must agree with its antecedent in number.
- _____ 5. A pronoun must agree with its antecedent in case.

- _____ 6. Use the possessive form of a noun or pronoun preceding a gerund that is used as the object of a preposition.
- _____ 7. A double negative should not be used.
- _____ 8. A preposition must not be used to connect clauses.
- _____ 9. A dependent clause must not be used as a complete sentence.
- _____ 10. A simple past tense must not be used with an auxiliary verb.
- _____ 11. A past participle cannot be used as a principal verb without an auxiliary verb.
- _____ 12. In complex sentences the verb phrases must agree in number with the subject of the main clause.
- _____ 13. A participial or prepositional phrase must closely follow or precede the word it modifies.
- _____ 14. Adjectives must not be used to modify verbs.
- _____ 15. Avoid the use of pronouns which are structurally unnecessary.

APPENDIX C

CATEGORIES OF GRAMMATICAL PRINCIPLES USED IN GRAMMAR TESTS¹

1. Agreement of verbs with subjects.
 2. Correct tense forms.
 3. Correct sequence of tenses.
 4. Usage of "lie," "lay," "leave," "let," "may," and "got."
 5. Distinction between "its" and "it's."
 6. Case forms of nouns and pronouns.
 7. Use of possessive form when linked with gerund.
 8. Use of correct relative pronoun to denote persons or things.
 9. Agreement of pronouns with antecedents.
 10. Structurally unnecessary pronouns.
 11. Use of correct part of speech for modifier.
 12. Correct placement of modifiers.
 13. Agreement of adjective with noun it modifies.
 14. Usage of proper degree of comparison.
 15. Correct usage of prepositions and conjunctions.
 16. Double negatives.
 17. Correct usage of dependent elements.
 18. Vulgarisms.
-
1. Cover all usages in both tests.

APPENDIX D

DIRECTIONS FOR FREE WRITING

Fall, 1937

English III Assignment

Social Letter

Directions to Students

You are asked to write a social letter in order to discover how well you already understand this language form. It is suggested that you write a friendly and informal letter of news and gossip to a real friend of your own age or to a relative. Since your letters which are to be used in a scientific study will be graded by people who do not know you at all, you may be as personal as you wish without revealing any secrets. Your teacher will inform you of the time three minutes before the class period in order that you may end your letter. Ask for no help from your teacher.

You will please follow these simple directions:

1. Write on only one side of paper.
2. Do not fold your paper.
3. Write your name, the date, and the class hour on the upper right hand corner of the page.
4. Write legibly and make the letter as attractive as possible.

5. Begin and end your letter properly.
6. Plan a simple organization before you start to write.
7. Express clearly your opinions, feelings, and attitudes.
8. Adopt a friendly and cordial attitude, expressed in simple terms.
9. Adopt a style in keeping with your relations with the correspondent: intimate, conversational, friendly, or formal.
10. Please limit your letter to one page and write as well as you can.

Fall, 1937

English III Assignment

Written Composition

Directions to Students

You will today start to write a paper which will show how well you have learned to write compositions by the time you enter the senior high school. You are asked to write this paper that the results may be used in a scientific investigation concerned with the English usage of tenth graders. Since you were selected to contribute to this study because it is believed that you are a part of a particularly efficient school system, it is important that you write as well as you can.

You will spend the class hour today in recalling what you have learned about writing compositions, in selecting a topic, in organizing in your mind or on paper what you wish to write, and writing rapidly at least a part of the first draft. Your teacher will collect your paper at the end of the class hour and return it to you tomorrow for completion. In the meantime you will continue to plan for the continuance of your paper which you may revise, correct, rewrite, or copy, but which must be handed to your teacher at the close of the class hour on the second day whether it is completed or not. Your teacher will not volunteer any information, but you may ask for any help you need or use the dictionary or similar source for aid.

You will please follow these simple directions:

1. Write legibly.
2. Write on only one side of paper.
3. Do not fold your paper.
4. Write your name, the date, and the class hour on the upper right hand corner of each page.

You may choose any topic you please or you may write on one of the following suggested topics:

The Topeka Free Fair

The Topeka High School

My Summer Vacation

An Exciting Experience

My Most Embarrassing Experience

My Favorite Hobby

Cage Park

The Best Teacher I Ever Had

Spring, 1938

English IV Assignment

Social Letter

Directions to Students

You are asked to write a social letter in order to discover how well you understand this language form. It is suggested that you write a friendly and informal letter of news and gossip to a real friend of your own age or to a relative. Since your letters which are to be used in a scientific study will be graded by people who do not know you at all, you may be as personal as you wish without revealing any secrets. Your teacher will inform you of the time three minutes before the class period in order that you may end your letter. Ask for no help from your teacher.

You will please follow these simple directions:

1. Write on only one side of paper.
2. Do not fold your paper.
3. Write your name, the date, and the class hour on the upper right hand corner of the page.

4. Write legibly and make the letter as attractive as possible.
5. Begin and end your letter properly.
6. Plan a simple organization before you start to write.
7. Express clearly your opinions, feelings, and attitudes.
8. Adopt a friendly and cordial attitude, expressed in simple terms.
9. Adopt a style in keeping with your relations with the correspondent: intimate, conversational, friendly, or formal.
10. Please limit your letter to one page and write as well as you can.

Spring, 1938

English IV Assignment

Written Composition

Directions to Students

You will today start to write a paper which will show how well you have learned to write compositions by the time you complete the work of the tenth grade. You are asked to write this paper that the results may be used in a scientific investigation concerned with the English usage of tenth graders. Since you were selected to contribute to this study because it is believed that you are a part of a particularly efficient school system, it is important that you write as well as you can.

You will spend the class hour today in recalling what you have learned about writing compositions, in selecting a topic, in organizing in your mind or on paper what you wish to write, and writing rapidly at least a part of the first draft. Your teacher will collect your paper at the end of the class hour and return it to you tomorrow for completion. In the meantime you will continue to plan for the continuance of your paper which you may revise, correct, rewrite, or copy, but which must be handed to your teacher at the close of the class hour on the second day whether it is completed or not. Your teacher will not volunteer any information, but you may ask for any help you need or use the dictionary or similar source for aid.

You will please follow these simple directions:

1. Write legibly.
2. Write on only one side of paper.
3. Do not fold your paper.
4. Write your name, the date, and the class hour on the upper right hand corner of each page.

You may choose any topic you please or you may write on one of the following suggested topics:

The Topeka High School

What I Plan to Do on My Summer Vacation

An Exciting Experience

My Most Embarrassing Experience

My Favorite Hobby

Gage Park

The Best Teacher I Ever Had

APPENDIX E

QUESTIONNAIRE

The information asked for on these pages will be used in a scientific study. Your answers will not in any way affect your school grades, but they will furnish an opportunity to compare your interests with others doing the same kind of work. Think carefully and write your answers rapidly.

Name _____ Race _____ Boy _____ Girl _____

Class _____ Age: Years _____ Months _____

List the subjects other than English for which you are now enrolled. _____

Name any dramatic or speech club or class of which you have been a member. _____

Name any debate club or class of which you have been a member. _____

List any foreign languages you have studied and the number of semesters each has been studied. _____

Languages other than English spoken by you. _____

Languages other than English spoken by your mother. _____

Languages other than English spoken by your father. _____

What school grade (elementary, high school, or college) did your mother complete? _____

What school grade did your father complete? _____

What school subject do you like most? _____ Least? _____

Name the courses if any in which you have failed. _____

Name the grades if any which you have skipped. _____

Average number of hours per week that you devote to study out of school _____ In school _____

Average number of times per week that you attend motion picture shows. _____

Name the four or five books which you have most enjoyed reading during the past year.

Name four or five magazines which you most enjoy reading.

What newspapers do you read?

Where were you born? _____

Where was your father born? _____

Where was your mother born? _____

What if any is your occupation? _____

What if any is your mother's occupation? _____

What is your father's occupation? _____

APPENDIX F

DIRECTIONS FOR RATING QUALITY OF BOOKS READ

The following books have been read by boys and girls during the year previous to their enrollment in the tenth grade.

You will note that some of the titles are starred. That means that these titles appear in the reading lists of the National Council of Teachers of English. The numbers in parentheses after the titles indicate for what year or years the N. C. T. E. committee consider the books most suitable.

Will you please rate these books for these students, giving consideration to quality, difficulty, and content of the book, and judge what amount of reading maturity is shown by these ninth graders?

Place one of the following numbers, according to the suggested definition beside it, before each title to indicate its quality.

6 Highly superior	2 Poor
5 Excellent	1 Worthless
4 Good	0 Unknown to judge
3 Average	

List of Books Read

_____	*Green Mansions, William H. Hudson, (3, 4)
_____	Gone With the Wind, Mitchell, (college level)
_____	Of Mice and Men, John Steinbeck, (college level)
_____	*North to the Orient, Lindbergh, (1, 2, 3, 4)
_____	*Les Miserables, Hugo, (2, 3, 4)
_____	Dombey and Son, Dickens
_____	Royal Flush - (Murder story)
_____	Brewster's Millions, McCutcheon
_____	*Scottish Chiefs, Porter, (1, 2)
_____	*Quo Vadis, Sienkiewicz, (2, 3, 4)
_____	*Amateur Gentleman, Farnol, (2, 3)
_____	The Clansman, Dickson
_____	The Lost World

_____ The Lord's Anointed - (Book of Month Club choice)
_____ The Blue Castle
_____ Galahad, John Erskine
_____ Shard
_____ My Experiences in the World War, John J. Pershing
_____ *Age of Innocence, Wharton, (3, 4)
_____ *Ivanhoe, Scott, (1, 2)
_____ Book of Opera Stories, Victor
_____ Red Pepper Burns, Grace S. Richmond
_____ Rose in Bloom, Alcott
_____ *David Copperfield, Dickens, (3, 4)
_____ *The Black Tulip, Dumas, (1, 2)
_____ *Safari, Johnson
_____ *Boy Scouts in Africa, Johnson
_____ Man Without a Country, Edward Everett Hale
_____ *Mrs. Wiggs of the Cabbage Patch, Alice Hegan Rice
_____ *Call of the Wild, London, (1, 2)
_____ Just David, Eleanor Porter
_____ *Jumping off Place, McNeely
_____ *Kidnapped, Stevenson, (1, 2)
_____ Calling of Dan Matthews, Wright
_____ *Up from Slavery, Washington, (2, 3, 4)
_____ Life of a Cowboy, Will James
_____ Elephant Boy
_____ Country Beyond, Curwood
_____ Flaming Forest, Curwood
_____ The Mansion of Mystery
_____ Slim, Haines
_____ *Spanish Ingots, Ellisberg, (2, 3)
_____ *Tale of Two Cities, Dickens, (2, 3)
_____ Kennel Murder Case, Van Dyne
_____ *Gentle Julia, Booth Tarkington, (1)
_____ Baseball Joe at Yale
_____ Magnificent Obsession, Douglas
_____ Life of Clara Barton, Percy H. Epler
_____ The Story of a Naughty Girl
_____ *Anne of Green Gables, Montgomery, (7, 8)
_____ *Anne of Avonlea, Montgomery, (7, 8)
_____ Freckles, Porter
_____ *Dog of Flanders, De la Rance, (4, 5)
_____ Kapoot, Rhea Wells
_____ *A Friend of Cuesar, William Davis, (1, 2, 3)
_____ *Life of Booker T. Washington, W. C. Jackson, (9, 10,
_____ 11, 12)

- _____ A Girl in Ten Thousand
_____ *Smoky, James, (1, 2)
_____ *Rosana, Jackson, (1, 2, 3)
_____ Dorothy
_____ *Lorna Doone, Blackmore, (1, 2, 3, 4)
_____ *Treasure Island, Stevenson, (1, 2)
_____ The Sky Pilot, Ralph Connor
_____ Eight Cousins, Alcott
_____ *My Antonia, Cather, (2, 3, 4)
_____ Lilac Time
_____ Circular Staircase, Rhinehart
_____ Lavender and Old Lace, M. Reed
_____ Old Rose and Silver, M. Reed
_____ The Harvester, Porter
_____ Poppy - (Child's book)
_____ The Flying Carpet, Halliburton
_____ *Enchanted Voyage, Nathan, (2, 3, 4)
_____ Seven League Boots, Halliburton
_____ The Butterfly, Kathleen Norris
_____ Mary Queen of Scots, Zweig
_____ Trail of the Lonesome Pine, Fox, Jr.
_____ *The Crisis, Churchill
_____ Orange Blossoms
_____ Two Travels
_____ Life of P. T. Barnum
_____ *House of Seven Gables, Hawthorne
_____ *Under the Lilacs, Alcott, (7, 8)
_____ K., Rhinehart
_____ *Covered Wagon, Hough, (11)
_____ Sandra's Cellar, Pearl D. Bell
_____ *A Lantern in Her Hand, Aldrich
_____ *A White Bird Flying, Aldrich
_____ Tales of Sherlock Holmes, Doyle
_____ *Last of the Mohicans, Cooper, (1, 2, 3)
_____ *The Scarlet Pimpernel, Orczy
_____ *Drums along the Mohawk, Edmonds
_____ Green Light, Douglas
_____ The Patrician, John Galsworthy
_____ *The Life of Helen Keller, (1, 2, 3)
_____ *Old Fashioned Girl, Alcott, (7, 8)
_____ Shag, The Story of a Dog, T. C. Hinkle
_____ Silver, The Story of a Wild Horse, T. C. Hinkle
_____ True Boy, T. C. Hinkle
_____ Fullback

_____ Girl of the Limberlost, Porter
_____ *Captains Courageous, Kipling
_____ *Silas Marner, Eliot
_____ *Beau Geste, Wren, (1, 2, 3, 4)
_____ Anthony Adverse, Allen, (college level)
_____ Sinbad the Soldier, P. C. Wren
_____ The Fort in the Jungle, P. C. Wren
_____ *Lad, a Dog, Terhune, (1, 2)
_____ Eagle's Mate
_____ *The Good Earth, Buck, (3, 4)
_____ *Vagabond Journey around the World, Franck, (1, 2)
_____ Shepherd of the Hills, Wright
_____ Summer Moonshine, P. C. Woodhouse
_____ The Case of the Mysterious Cat, E. S. Gardner
_____ The Crimson Sweater, Barbour
_____ *Prince and the Pauper, Clemens, (7, 8)
_____ Death on the Nile, Agatha Christie
_____ Mary's Neck, Booth Tarkington
_____ The Garden Murder Case
_____ Cappy Ricks, P. B. Kyme
_____ *Little Women, Alcott
_____ *Little Men, Alcott
_____ Her Father's Daughter, Harold Bell Wright
_____ A Daughter of the Land, Gene Stratton Porter
_____ *Hurricane Weather, Pease, (2, 3, 4)
_____ *The Count of Monte Cristo, Dumas, (1, 2)
_____ *The Talisman, Scott, (1, 2)