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A COMPARATIVE STUDY OF TECHNICAL PUPILS
IN THE ELIMINATION OF ERRORS
IN ENGLISH COMPOSITION

BY
ISABEL CLARK

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts
in
Loyola University
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CHAPTER I

PURPOSE AND METHODS OF THE STUDY

The inclusion of vocational and technical subjects in the secondary school curriculum has given rise to a number of problems of organization and teaching. This is especially true of the planning and teaching of classes in the academic subjects, in the secondary schools which offer both vocational and academic training. Such schools have large groups of pupils who are primarily interested in the vocational training, and other large groups which follow the traditional academic courses.

This study does not concern itself with the question of whether it is practicable or desirable to segregate the vocational groups. Neither is it concerned with the amount and character of academic instruction to be given to the vocational pupils. It deals with the situation as it is: the presence of vocational pupils in classes which are not vocational; more specifically, with the presence of vocational pupils in English classes.

The habit of teachers to generalize from their own casual observations and experience indicated the desirability of such a study as this. The attitude of teachers of non-vocational subjects toward the vocational pupils in their classes has generally been one of disfavor. Among such teachers there is a feeling that the vocational pupils are a handicap and a burden. Typical are such complaints as these: "The technical pupils lack background." "They are mentally inferior." "They slow up the classes." "They are more poorly equipped and prepared." "They read too

little." "Their lack of interest in the subject has a bad influence on class morale." "They require a different sort of instruction."

These complaints and others like them indicate a problem of such great breadth that a study like this cannot hope to deal with more than a small part. It can address itself only to one phase of the problem in the teaching of that subject. Other and more extensive studies will be necessary to determine how far the complaints are justified. If this study can throw a little light on the comparative achievement of vocational pupils in a non-vocational subject, it will be a step toward a fuller understanding of the problem, and will have fulfilled its purpose.

This is a study of the elimination of errors in grammar made in English compositions by second-year pupils in Roosevelt Senior High School, Chicago, Illinois. Seven four-year courses of study leading to graduation are offered at Roosevelt High School, but most of the pupils are enrolled in one of three courses: the Technical Course, the General Language Course, and the General Science Course. The Technical Course includes a large proportion of vocational subjects; the other two are more of the traditional college preparatory type. English is a required subject in all of these courses, and some of the English classes are made up of pupils in all three courses. From such mixed classes the pupils who are the subjects of this study were selected. The selection was a random sampling, so far as it was possible to select at random. Sixty pupils were chosen from those taking the Technical Course, who will be referred to henceforth as the Technical group, and sixty from those taking the

General Language Course, who will be referred to as the General Language group. No pupils were taken from the General Science group, as this group was not adequately represented in the classes studied, and since the General Science Course is similar to the General Language Course in traditional academic content, this group was not needed to make the desired comparison.

In order to test the progress of the pupils in the elimination of errors in grammar, all were required to write a set of compositions at the beginning of the school year, in September, and another set in January, to mark the ends of a semester's instruction.

Besides these composition tests, the pupils were given a Cross English Diagnostic Test in September, and another in January. They were also tested for intelligence ratings by an Otis Self-Administering Test (Higher Examination, Form A).

The methods used in measuring and evaluating the results of the various tests deserve discussion at some length. First there is the question of how errors in grammar should be counted. There has been much counting of grammar errors in the past, but generally with a different purpose in view. The studies of Charters¹, Thompson², Meek³, Betz and

¹Charters, W. W., and Miller, Edith, A Course of Study in Grammar Based Upon the Grammatical Errors of School Children of Kansas City, Missouri. University of Missouri Bulletin, Vol. XVI, No. 2, Educational Series 9, Columbia, Missouri, University of Missouri, 1915.

²Thompson, O. S., "Essentials of Elementary English", Tenth Yearbook of Superintendents' and Principals' Association of Northern Illinois, May 1915.

³Meek, C. S., Special Report of the Boise Public Schools. (See Sixteenth Yearbook of the National Society for the Study of Education, Part 1, p. 89).

Marshall⁴, Sears and Diebel⁵, Johnson⁶, Lyman⁷, Stormzand and O'Shea⁸,
Potter⁹, Pressey¹⁰, Vaughn¹¹, Ruhlen and Pressey¹², Wiswall¹³, Anderson¹⁴,

⁴Betz, Annette, and Marshall, Esther, "Grammar Based on Errors", English Journal, Vol. V, (June 1916), pp. 491-500.

⁵Sears, Isabel, and Diebel, Amelia, "A Study of the Common Mistakes in Pupils' Oral English", Elementary School Journal, XVII (Sept. 1916), pp. 44-54.

⁶Johnson, Roy Ivan, "The Persistency of Errors in English Composition", School Review, XXV (Oct. 1917), pp. 555-580.

⁷Lyman, R. L., "Fluency, Accuracy, and General Excellence in English Composition", School Review, XXVI (Feb. 1918), pp. 85-100.

⁸Stormzand, Martin J., and O'Shea, M. V., How Much English Grammar?

⁹Potter, H. E., Abilities and Disabilities in the Use of English in the Written Compositions of Entering Freshmen at the University of California, Department of Education, Bureau of Research, Study No. 12, September 1922.

¹⁰Pressey, S. L., "A Statistical Study of Children's Errors in Sentence Structure", English Journal, XIV (September 1925), pp. 529-535.

¹¹Vaughn, W. E., "A Survey of Freshman English Composition", Peabody Journal of Education, II (Sept. 1924), pp. 99-104.

¹²Ruhlen, Helen, and Pressey, S. L., "A Statistical Study of Current Usage in Punctuation", English Journal, XIII (May 1924), pp. 325-331.

¹³Wiswall, Zilla Elizabeth, "A Study of Sentence Structure in Eighth Grade Composition", Elementary School Journal, XXVI (Feb. 1926), pp. 441-448.

¹⁴Anderson, Harold Albert, A Study of Errors in Composition in the University of Chicago High School. Unpublished Master's Thesis, Department of Education, University of Chicago, 1926.

and Meintel¹ are of this sort. They aimed to determine the frequency of errors of various types, with the object, in most cases, of recommending curriculum changes based upon the deficiencies thus revealed. None of them takes into account variations of pupils' ability to profit by the teaching offered, nor of variations of improvement in the elimination of errors.

It was necessary in this study to devise a scoring method which would give a measureable basis of comparison among the individual pupils as well as between the groups. Consequently it was assumed that the ratio of the number of errors in the compositions to the number of words written would give a fairly reliable measure of achievement. This ratio, hereafter called the error quotient, was obtained by dividing the number of errors by the number of words written. It is true that such a quotient is not free from objections. It is not, like the "error quotient" of Stormzand and O'Shea², derived from the number of chances that a pupil has to make certain errors, but assumes that in any given wordage a large number of errors is a poorer achievement than a small number of errors in a like number of words. It leaves out of account repetition of errors. However, that may be a reason for considering it a better measure than that of Stormzand and O'Shea, for, as Anderson³ points out, 50 errors,

¹Meintel, Sister Mary Valeria, C. S. A., A Comparison of the Present Conventional Curriculum in English Grammar With A Curriculum Based Upon Pupil Deficiencies in Grades Six, Seven, and Eight in Certain Parochial Schools. Unpublished Master's Thesis, Loyola University, 1934.

²Op. Cit., pp. 187-188

³Op. Cit., p. 54.

all of the same kind, are more significant than two errors of another kind, even though they produce the same quotient by Stormzand and O'Shea's method. Moreover, it appeals to our logical sense to believe that a composition of certain length, relatively free from errors, is a better one than another of equal length, liberally spotted with errors.

However, there are other reasons for considering the word-error ratio a reliable measure. The quotients used in this study are derived from a relatively large number of words. Each group of pupils wrote four compositions in September. The average number of words written by each pupil in the Technical group in September was 650, and the average for the General Language group was 729. The averages in January were 1502.8 words for the Technical group, and 1615.4 words for the General Language group. The error quotients are computed on the total number of words and errors of each pupil in each month (see Tables I and II, Pages 52-57).

Thus it will be seen that each set of four compositions is treated as a unit. To have computed an error quotient for each separate theme would have raised some question as to the validity of a quotient based on as little as 150 words, but undoubtedly the measure becomes more reliable as the wordage from which it is obtained increases. Unfortunately it was not possible to add the January wordage to that of September and retain the progressive feature of the comparison. That could have been done if all that were wanted were a comparison of the frequency of errors in the two groups, without regard to their improvement during the semester, but a simple comparison of that sort would shed but little light on the question, do the Technical students profit equally with the General

Language pupils in formal English teaching?

Another reason for considering the error quotient reliable is that the distribution of scores thus obtained is fairly close in its outline to the distribution of scores on the Cross test. The measures of variability used also show comparable results in the Cross test and the compositions.

On the whole it may be said that while the error quotient is not a perfect measure, its imperfections are not great enough to invalidate it. Indeed, there is scarcely anything that can be said against it that is not true, in some degree at least, of other quantitative measures used in the ranking of pupils. It is objective enough to shut out the human equation which generally enters into teachers' attempts to rank their pupils, and while it may lack some of the sureness of a well-constructed objective test, it is essentially accurate.

Mention of the objective-type test may raise the question, why consider composition errors at all? Why not rely on the Cross tests alone? The answer is obvious, and is found in the limitations of such tests.

They are not a part of the teaching process, but samplings of its results. To make a comparison of two types of students on the basis of tests alone would be incomplete. What this study aims to discover is not merely how well the two types of pupils respond to tests, but how their progress is reflected in ordinary class work. By using both tests and composition error quotients, a more complete comparison is given. Besides, objective-type tests, no matter how cleverly they are devised, cannot perfectly test the ability to use what one has learned. No elaborate

study is necessary to convince us that a pupil may be able to check off faulty sentences in a test without a mistake, and the next day write a composition in which he puts sentences containing the same faults. But taken together, the tests and the composition errors are excellent complements for each other.

How the Comparison Was Made

After the words and errors were counted on the four sets of compositions, an error quotient was computed for each pupil (See Table I, Page 52). The scores so obtained were arranged in a frequency distribution. It will be noticed that these error quotients are not like test scores, in that they decrease in size as the performance of the pupil approaches perfection. That is, a low error quotient indicates a high ranking, and vice versa. A set of compositions with no errors would produce an error quotient of .0; a set of compositions totalling 750 words with 750 errors would produce an error quotient of 1. It is important to keep this in mind in the interpretation of the results. In order to keep the tabulations in their logical order, the frequency distribution (Table V, page 62) of error quotients is arranged with the lowest quotients at the top, working downward to the higher quotients.

The scores on the two Cross English tests were tabulated in the same manner. Since these scores increase in size as the performance of the pupil approaches perfection, they are arranged in a frequency distribution (Tables III and IV, page 59), with the higher scores at the top. In

comparing the two distributions, therefore, it is only necessary to remember that the geographical position on the table indicates whether any score interval is high or low in merit.

The first comparison made was that of error quotients in the month of September. First the mean of scores for the Technical group was computed, and then the mean of scores for the General Language group.

This process was repeated for the error quotients in January, computing for both groups as was done for the month of September.

To rest with a comparison of these means would give only a superficial idea of how the groups compare. If the difference of the means were greater in September than in January, it might be concluded that the Technical group profited more by the instruction of the period than did the General Language group; if the difference remained the same, it might be concluded that the two groups had profited equally; while an increase of the difference of the means might be taken to indicate that the Technical group had failed to gain as much from a semester's teaching as did the General Language group.

Consequently we must apply measures of variability which will give a better idea of the difference between the two groups. The standard deviation was computed for each distribution (See Table IX, page 68) to show the variation within the group. Then to give a comparison of the variability of the two groups, the difference of the means was divided by the standard deviation of the difference of the means (See Table IX, page 68). This ratio was computed for the two groups in September, and

again in January.

As a further check upon the validity of the measurements, it was decided to compute the probable error of the difference of the means.

This was computed by the familiar $PE_{diff.}$ formula:

$$PE_{diff.} = \sqrt{PE_1^2 \text{ plus } PE_2^2}$$

While Lindquist suggested the use of an improved formula,¹ he also admits the probable validity² of the older formula in comparisons of groups selected at random. Since the two groups of this study were a random selection, there seems little point in using the Lindquist formula, even though it may be valid for unmatched groups. Lindquist's criticism of the older formula was directed solely at its use when the groups compared were matched in ability.³ And, as Ezekiel⁴ points out, Lindquist's formula is cumbersome. As additional evidence of the unsuitability of both the Lindquist and the "Student's" formulae, it will be noticed that the simpler "Student's" formula cannot be used at all in this study, requiring, as it does, the subtraction of the scores of matched pupils, pair by pair.

¹Lindquist, E. F., "The Significance of a Difference Between Matched Groups", Journal of Educational Psychology, XXII (March 1931), pp. 197-204.

²Op. Cit., p. 199.

³Op. Cit., p. 198.

⁴Ezekiel, Mordecai, "'Student's' Method for Measuring the Significance of a Difference Between Matched Groups." Journal of Educational Psychology XXIII (Sept., 1932), pp. 446-451.

To complete the comparison of the two groups, the series of operations just described was repeated for the two groups' scoring in the Cross English tests. Again the scores were arranged in a frequency distribution, and the mean for each group in September was computed, and also the mean for January. These are shown in Table VIII, Page 67.

Again the standard deviation was computed for each group in September and in January. Then the difference of the means (Table VIII, page 67) was again divided by the standard deviation of the difference of the means.

Summary of Purpose and Methods

I Purpose

- 1 To compare the work of Technical Students in formal English classes with the work of pupils in the General Language course.
- 2 To determine, so far as the limitations of this study will permit, and within the undertaking of the subject, the truth of the following charges:
 - a That the Technical pupils are less capable of carrying on the work of the formal English classes.
 - b That the Technical pupils are more poorly fitted for the work of the formal English classes.
 - c That the rate of improvement of the Technical pupils is inferior to that of the General Language pupils.

II Methods:

- 1 Pupils were selected at random from mixed classes.
- 2 Pupils were required to write compositions as a part of the regular class work.
- 3 The months of September and January were selected to mark the beginning and end of a semester's instruction.
- 4 Four compositions were written by each pupil in September and four in January.
- 5 The number of words and number of errors in each set of four compositions was counted.
- 6 A Cross English Diagnostic test was given to the pupils in September and another in January.
- 7 An Otis Self-Administering intelligence test was given to the pupils at the beginning of the study.
- 8 A ratio, designated in this study as an error quotient, was computed for each pupil on each set of four compositions, by dividing the number of errors by the number of words.
- 9 A table of frequencies was arranged for the error quotients in September of both groups, and another for January.
- 10 Similar tables of frequencies were prepared on the Cross test scores for September and January.
- 11 The frequency distribution of intelligence test scores is given by way of casual comparison (Table VII, page 64), but did not enter the final computation.

- 12 Standard deviations of the error quotients in January and September were computed.
- 13 Standard deviations were computed for the Cross test scores in September and January.
- 14 The difference of the means of the error quotients of the two groups was found for September and January.
- 15 The difference of the means of error quotients was divided by the standard deviation of the difference of the means in September and January.
- 16 The probable error of the difference of the means in September and January was also computed on the error quotients.
- 17 The processes in 14, 15, and 16 were repeated for the Cross test scores.

Implications of the Study

It is too much to expect that a study of limited scope, such as this, will do much toward settling the questions raised in the early part of this chapter. It remains for other and more elaborate investigations to approach more closely a complete understanding. A little pioneering is the most that this study can do.

Underlying the problem of this study is a broad field of educational theory. There is, for example, the broad question of whether vocational and technical subjects should be incorporated into the curricula of our general secondary schools, or confined to vocational secondary schools.

There is the further question of the extent and nature of instruction given to pupils seeking vocational training: how much should be included of the traditional academic subjects. Since it will be readily granted that instruction in English should be given to all secondary pupils, there is the question of whether it should be given in classes designed for what are considered the special needs of vocational pupils, or whether vocational pupils can profit from English classes of a general character.

The questions of whether vocational pupils are inferior mentally and of the assumed existence of a "mechanical type of mind", are serious ones. It is not too much to say that one of the causes of bringing vocational training into the schools was the belief that there are persons of certain mentalities or types of mentalities who might profit by vocational training, although they gained little from formal academic instruction.

With these large questions this study is not concerned. It can, however, show in a limited way how vocational pupils respond to formal instruction in a non-vocational subject, and the knowledge thus derived may prompt an examination of the larger questions.

CHAPTER II

OBJECTIVES IN THE TEACHING OF GRAMMAR

Attempts to define the English curriculum have been numerous in the last twenty or more years. The first important study to appear was that of Charters;¹ while one of the latest is Leonard's Current English Usage.² Between these two studies are found scores of investigations, large and small, by both individuals and organizations, covering in minute detail the complex problems of what to teach in our English courses.

It shall not be the purpose of this discussion to review and summarize all the investigations in this field. The publication of Lyman's monumental review in 1929³ makes it a task of supererogation to examine and summarize all of the investigations between 1917 and 1929. While some important studies have appeared since Lyman's work, it may be said that the attitudes of various writers have not greatly altered since that time nor have the questions involved reached their final answers.

Quite naturally most of the investigations in the teaching of English have concerned themselves with language rather than literature. The teaching of literature raises large problems of methods while in the teaching

¹Charters, W. W., Op. Cit.

²Leonard, Sterling Andrus, Current English Usage. Chicago: National Council of Teachers of English, 1935.

³Lyman, R. L., Summary of Investigations Relating to Grammar, Language, and Composition. Chicago: University of Chicago.

of language the heat of discussion has raged most fiercely around questions of subject matter. This is not to say that there are no problems of subject matter in literature nor that there are not vexatious questions of how to teach language. However, the questions of what to teach and how much of it bulk so large in the teaching of the English language that they obscure almost everything else.

The phenomenon of the survival of traditional grammar has engaged the attention of every investigation in the field. It is not too much to say that the English teachers themselves are more or less sharply divided into traditionalists and non-traditionalists. There is a small but rather sharply defined faction which still clings to the belief that the teaching of formal English grammar is the path to mastery of the language. This faction is opposed by a group who believe that formal grammar is of no more value to the student of English than is a course in mathematics.

There will be no attempt in this discussion to judge the merits of the controversy. Rather it shall be the aim of the writer to evaluate some of the more important findings and judgments from the point of view of the classroom English teacher who daily faces a condition and not a theory. For her nothing is quite so important as a ready answer to the question, "What shall I teach?" insofar as the various writers and investigators offer her practical aid with this question they are of value; otherwise they are not.

The Scientific Approach to the Problem

The most representative work setting forth the claims in opposition to the traditional view of grammar teaching is The Teaching of the English Language¹ by Fries. Fries begins with the statement in his preface that "This book is an effort to interpret the modern scientific view of language in a practical way for teachers." Had he kept the word practical uppermost in his mind Fries might have produced a work of greater value to the English teacher, but as matters stand his book is a stimulating and often baffling discussion of what he calls the scientific point of view; that is, the attitude opposed to traditional grammar teaching. Unfortunately, Fries has little to offer beyond a statement of this point of view, and while a point of view may be a directional guide it is not a tool in the hands of the teacher.

Consider this statement by Fries:

"The pupil must be led to understand that language is not, as it sometimes appears from the treatment in our grammars, a logical system of rules, not is it a mass of arbitrary and unrelated facts. He must come to know it as a growing and developing medium of expression that has had a long history."²

Or this:

".....there is reasonable hope of motivating the student to acquire

¹Fries, C. C., The Teaching of The English Language. New York: Thomas Nelson and Sons, 1927.

²Op. Cit., p. 154

whatever speech habits that are essential to adapting himself to the language of the socially accepted group."¹

And finally this:

Specifically we have urged (in this chapter):

- (1) that the desire and will to master particular speech habits must have its roots in an understanding of the life and growth of the language in a realization of the social meaning and effect of different sets of language patterns and forms;
- (2) that the desire for vigorous expression is already alive in most of our students but is thwarted by the usual procedure of language training which magnifies propriety and correctness;
- (3) that the sensitiveness to the particular demands of various situations necessitating communication can be developed best on the level at which the pupil now stands and in connection with the contacts now normal to him.²

While all this indicates in a general way Fries' belief that language teaching must be shaped to fit the needs of the pupil and his social contacts, it leaves one slightly bewildered as to the questions of what to teach and how to teach it. Indeed, Fries comes perilously close to saying that we should train potential shipping clerks in the sort of language acceptable to their class, presumably reserving a more literary type of language instruction for embryo doctors and lawyers.

Fries sheds but little light on the practical aspect of language teaching with his statements of what he calls the scientific and artistic views of the language. The scientific view, according to him, involves a

¹Op. Cit., p. 155.

²Op. Cit., p. 157.

knowledge of the growth and development of the English language as applied to the purposes of its use,¹ while the artistic view, which he says is the practical approach, regards language as a means to an end.² Good English, he says, is that which most fully realizes one's impressions and is adapted to the purposes of any particular communication. He further states that "The scientific study of language processes and laws therefore, provides the knowledge necessary to guide our practical procedures (sic) in the teaching of language."³

If this last statement has any meaning for the teacher it must mean that no one is qualified to decide the questions noticed at the beginning of this chapter except one who has made a very extensive study of linguistics. While this is undoubtedly true as a general proposition, it makes such books as Fries' of little value to the classroom teacher. It is not practicable for every teacher of English to equip herself with a thorough knowledge of linguistics. Rather she is forced to depend upon the studies and findings of persons who have such equipment of knowledge and can define the English curriculum by its light.

While Fries talks a great deal about training pupils in desirable speech habits, he remains obscure as to what those habits may be.

¹Op. Cit., pp. 111-112.

²Op. Cit., p. 120.

³Op. Cit., p. 121.

He suggests analysis of the pupils' acquired speech habits, but he does not indicate how such an analysis should be made or what might be done with it. He does, however, offer this conciliation to the traditional view of grammar:

From a practical education point of view there is nothing to be gained and much to be lost by a fanatical endorsement and advocacy of either the traditional or the scientific claims. The local conditions must always determine the details of a practical program by which the principles here advocated can guide teaching of the English language in the schools.¹

This might well be accepted by the classroom teacher as her attitude toward the conflict between the traditionalists and the non-traditionalists.

Traditional Grammar in the

Educational Thought of Today

No recent writings or investigations in the field of English teaching support unreservedly the traditional view of teaching grammar. It may indeed be said that the traditional attitude toward grammar teaching has virtually disappeared from the writings of those who are today considered authorities in the field. A monograph issued by the United States Bureau of Education in 1932 states quite flatly that there is no longer any authority for a belief that formal grammar functions in speech and writing.² Practically all the investigators in recent years have endeavored to

¹Op. Cit., p. 249.

²Smith, Dora V., Instruction in English, Bulletin 1932, No. 17, National Survey of Education, Monograph No. 20. Washington: U. S. Government Printing Office, 1932, p. 35.

define a functional process of grammar teaching. However, the traditional attitude possesses amazing vitality. There are apparently two reasons for this persistence of the traditional point of view. One is the inertia of teaching methods and the other is that the human mind does not readily give up standards to which it has long been accustomed. In fact, some of the investigations are based upon a tacit assumption that there are certain fixed, immutable rules of grammar. As Fries points out, this is true of Charters' study. It is also true, says Fries, of the work of Stormzand and O'Shea, although they did attempt to measure frequency of use as well as frequency of error.

There is certainly a considerable amount of evidence against an unqualified belief in the efficacy of formal grammar. Hoyt found little correlation between grammar and composition.¹ Briggs found that grammar has little disciplinary value,² a finding confirmed by Rapeer.³ Sigel and Barr also found little relationship between the study of grammar and the use of language.⁴ Asker reported a similar finding,⁵ while Boraas

¹Hoyt, Franklin S., "The Place of Grammar in the Elementary Curriculum." Teachers College Record, Vol. VII (Nov. 1906), pp. 467-500.

²Briggs, Thomas N., "Formal English Grammar as Discipline." Teachers College Record, Vol. XIV (Sept. 1913), pp. 251-343.

³Rapeer, Louis W., "The Problem of Formal Grammar in Elementary Education." Journal of Educational Psychology, Vol. IV (March 1913), pp. 125-137.

⁴Sigel, David, and Barr, Nora, "Relation of Achievement in Formal Grammar to Applied Grammar." Journal of Educational Research, Vol. XIV (May 1926), pp. 401-402.

⁵Asker, William, "Does Knowledge of Formal Grammar Function?" School and Society Vol. XVII (Feb. 1923), pp. 109-111.

found a closer relationship between grammar and other school subjects than between grammar and composition.¹

It is easy, however, to fall into the error of believing that because some six or eight studies show negative value in the teaching of grammar, we must conclude that grammar teaching fails to function. Certainly every one of the studies just cited is open to criticism. Most of them are too restricted to be conclusive. Pulliam offers a significant criticism: ".....the investigations have all been static rather than dynamic; they have measured the relation between existing knowledge in the two fields rather than the improvement effect of instruction in the one field upon skill in the other."²

The above criticism from Pulliam has a direct bearing upon the present study, which is, with due apologies for deficiencies in materials and methods, an attempt to measure the improvement value of grammar teaching in English composition.

Significant too is Lyman's statement:

"The vital fact too often ignored by 'error analysis', 'curriculum builders', 'minimal essentials seekers' is that any attack on verb error, for example, at all systematic or effective, involves nearly the whole range of grammar."³ Smith,⁴ citing Rivlin's study,⁵ makes the sweeping

¹Boraas, Julius, "Formal English Grammar and the Mastery of English." Doctor's Thesis, University of Minnesota. Minneapolis: 1917.

²Pulliam, Roscoe. "Should Formal Grammar Be Discarded?" English Journal, Vol. XX (Oct. 1931), pp. 654-661.

³Op. Cit., p. 131.

⁴Op. Cit., p. 36

⁵Rivlin, H. N., Functional Grammar. Teachers College Contribution

statement that nobody knows what grammar is functional.

Clearly the question of what to retain and what to reject in the teaching of grammar is still a long way from being answered.

Outlines of Study

With a temerity undaunted by the obscurity of the subject, many workers have attempted to outline courses of study determining the content of English language teaching. It is not pertinent to the present study to attempt to review all of these suggested courses. Such a review is a subject for a separate study in itself. However, some of these attempts to catalogue for the teacher the things that she should teach deserve examination.

Passing over the many city and state courses of study available, we may give our attention to some of the more authoritative outlines of English language teaching. One of the more recent of these is that of Shepherd and others, which gives the course of study of the University High School of the University of Chicago.¹ This course recommends the following essentials for the sub-freshman year:

- I How to recognize a sentence.
- II How to recognize the parts of speech.
- III How to use capitals.
- IV How to form and use possessives.

¹Shepherd, Edith E., and others. English Instruction in the University High School. Chicago: University of Chicago, 1933.

V How to use pronouns.

VI How to use tense forms of verbs.

For the freshman year the following essentials are recommended:

I Essential parts of the simple sentence.

II How simple sentences are combined and punctuated.

III Agreement in the sentence.

IV How transitive and linking verbs are completed.

V How pronouns and nouns change their forms to show case.

No more grammatical work is projected, but in the junior year, "Corrective English" is given to pupils whose habitual use is below standard. This is described as being "chiefly rhetorical", but it is difficult to see how rhetorical principles would greatly benefit a pupil whose English is poor.

While the authors of this course declare it to be "a scientific aspect of language training", there is at least a suspicion that the course, like all others, would tend to become more or less formalistic in the hands of the ordinary teacher.

Another outline is offered by the Essentials Committee of the National Council of Teachers of English, as reported by Camenisch in the English Journal.¹ The writer of this outline says of it, "It is believed that the chart embodies in condensed form all the best that has been dis-

¹Camenisch, Sophia C., "A Program of Mechanics in Written Composition" English Journal, Vol. XXI (Oct. 1932), pp. 618-624.

covered in the ~~vexing~~ field in the last twenty years." With such a whole-hearted recommendation the entire outline deserves reproduction:

JUNIOR HIGH SCHOOL

Sentence Recognition

Compound sentence: Eliminate run-on sentences, adjective and adverbial phrases.

Complex sentence: Adjective and adverbial clauses. Eliminate incomplete sentence (phrase or clause written as sentence).

Usage and Grammar

Their-there, to-too, whose, who's, there is-there are, your-you're.

Eliminate: our's, her's, their's, it's (for poss.), would of, you was, had ought, if I had have seen you, he says (for he said), attackted, drownded, didn't have no book, he come, he don't, to her and I, it was him, every girl did their best, off of, taller than me, those kind, in back of, invited you and I, all the farther, didn't speak distinct, the boy which went, awful good, sure (for surely), then (for than).

The irregular plurals of nouns.

Recognizing verbs and verb phrases.

Forms of verbs.

Principal parts of see, do, be, know, write, bring.

Past tense of ask, show, lead.

Present participle of lose, lie, lay.

Perfect participle of choose.

Change in verb in third person singular present.

Agreement: verb with there (simplest uses), you was; plural subject; compound subject; modifier between.

Personal pronoun; case forms mastered; whom in simplest cases; their.

Adjective and adverb distinguished; there, good-well.

SENIOR HIGH SCHOOL

Sentence Recognition

Compound-complex sentence.

Divided quotation.

Noun clause.

Shift in sentence plan.

Usage and Grammar

Lie-lay, most-almost, like-as, shall-will (only in simplest cases), in-into.

Eliminate: John and myself. Everyone did their best. I didn't scarcely know. If I was he, like for as, try and go.

Collective nouns.

Shift in person, number, tense.

Sequence of tenses.

Parallel structure.

Mastery of connections.

It will be noticed that Gamenisch's outline, although it deals with many specific usages, covers practically the entire range of English grammar. Unfortunately it gives no advice as to the methods of presenting this rather formidable grammar outline, and it is to be feared that the average

teacher would inevitably fall back upon grammar textbooks and rules.

A later report by the Curriculum Commission of the National Council of Teachers of English offers what it calls as "Experience Curriculum" in English.¹ In its essentials this course is a brief outline, as follows:

KINDERGARTEN TO GRADE SIX

- 1 Use of irregular verbs.
- 2 Verb number.
- 3 Use of pronouns.
- 4 Use of adverbs.
- 5 Use of adjectives.
- 6 Redundancies.
- 7 Diction.
- 8 Sentence unity.

GRADES SEVEN TO TWELVE

- 1 Verbs.
- 2 Pronouns.
- 3 Adjectives.
- 4 Adverbs.
- 5 Nouns.
- 6 Prepositions.
- 7 Conjunctions.

¹An Experience Curriculum in English. Report of the Curriculum Commission of the National Council of Teachers of English, W. Wilbur Hatfield, Chairman. New York: D. Appleton-Century Co., 1935.

8 Sentence sense.

9 Sentence structure.

Thus boldly stated this outline does no more than to tell the teacher that the entire range of English mechanics should be covered between the kindergarten and the twelfth grade. However, the discussion accompanying this outline is of greater value than the outline itself.

The report states the aim of language teaching thus: "

In the teaching of correct usage the aim is habit formation, not knowledge of correct forms... The study of grammar without application to writing and speaking leads merely to the knowledge of the correct form. This, however, is insufficient to ensure correct usage, which can be established only through practice.¹

In connection with this grammar course, the report states significantly:

Grammar is but an attempt to codify the phenomena of language. Its rules are but statements of apparent tendencies and facts; and whenever the rules do not accord with the facts, the rules need to be re-stated or the exceptions noted. Thus, whether "It is me" is or is not allowable cannot be decided by reference to a grammar "rule".....but by reference to present acceptable usage.²

An earlier attempt to outline what a language course should include

¹Op. Cit., p. 242.

²Op. Cit., p. 290.

is that of the Grammar Sub-committee of the National Council of Teachers of English in 1924.¹ This report offers an outline similar to those just mentioned. It also discusses the procedure to follow and seems to assume that there is a body of organized grammar which can be taught profitably, and also to assume that the study of correct forms will result in correct use. Such must be the interpretation of the committee's statement that the teacher should find out what present correct usage is, and then drill pointedly and persistently on such essential forms.

In passing, Charters' pioneer work in this field should be noted. While Charters' methods have been criticized, he does offer a curriculum which is definite and practical, and does attempt to fit grammar teaching to actual needs. The only important criticism that can be made of Charters' work is that some of his supposed errors are possibly not errors. This criticism, however, applies to any outline which deals with specific usages, and it is to be doubted whether any list of language errors could ever be drawn up without protest from some quarter.

The Search for Minimum Essentials

The outlines of study just noted may be considered a part of the tireless search for a minimum program in language teaching. In a certain

¹Report of Grammar Sub-committee, National Council of Teachers of English. "Purposes of Grammar Teaching." English Journal, Vol. XVII (March 1928), pp. 213-219.

sense it does not matter whether any program is considered a minimum or a maximum program. As Seeley¹ points out, most lists of minimum essentials, when put to use, become transformed into maximum achievement goals. Indeed, Seeley speaks very plainly concerning minimum essentials, calling them for the most part sheer guesswork. He says further, that the urge toward the statement of minima is part and parcel of the general tendency to mechanize education along with the rest of life.²

In fact the whole subject of objectives, aims, and subject matter, becomes a matter of wild confusion when some investigations are considered. Loomis, reporting on a program of curriculum made in Denver mentions that the committee found more than one thousand specific objectives in teaching English.³ Evidently much remains to be done before anyone can authoritatively say, "This much shall we teach in our language courses." Perhaps it would be the better part of wisdom for the ordinary teacher to adapt as well as possible the available study outlines to the needs of her classes, without troubling herself too much as to whether her list of things contains items which might be discarded.

¹Seeley, Howard Francis. On Teaching English. New York: American Book Co., 1933.

²Op. Cit., p. 142

³Loomis, A. K., "Curriculum Research in English", English Journal Vol. XIX (May 1930), pp. 390-400.

Shall Formal Grammar Be Abandoned?

It has already been mentioned that no authorities of today support the teaching of formal grammar of the old Lindley Murray type. It has also been noticed that one can scarcely devise any program of language instruction which does not follow to some extent the ancient rules. To many teachers the problem seems to resolve itself into a dilemma, one horn of which is a seemingly anarchic rejection of all rules, and the other a continuance of the belief in established rules. As with most dilemmas the truth probably lies between the two alternatives. To the teacher who is bewildered and confused by the more or less extravagant claims of those who would give formal grammar its final quietus, a book such as Seeley's comes as a refreshing note of sanity and balance. Seeley quite calmly accepts the principle that we cannot profitably carry all controversial points of usage into the classroom. Seeley analyzes in penetrating fashion the causes of the failure of grammar teaching. He gives four causes of this failure:

- 1 Grammar has been taught as a general and abstract science.
- 2 We have not utilized thoroughly enough our knowledge of the power of habit and of the processes of habit formation.
- 3 We have tended to isolate conscious and organized language instruction too sharply in time and place.
- 4 In our teaching of the formal phases of usage we have devoted too much time and effort to certain elements because they

are intrinsically difficult or of a general factual value, and have given too little emphasis to the prevention or eradication of errors in elements commonly misused.¹

The attitude of practical teachers was well expressed by C. C. Rounds at the 1928 National Council of Teachers of English. Rounds said:

What, then, should be its (grammar's) subject matter? Certainly the practical problems of case, and number, all the tense forms of a dozen or so of our most common irregular verbs demand early attention, for it is in these areas that most children's errors occur.....Grammar ought to contribute to our sense of the boundaries of word groups. It will not do so until we quit wasting our time on things that can't be done in grammar and approach the problem of the orderly, discriminating recognition of phrases and clauses. Then, too, we should emphasize the agreement of the verb with the subject, and the pronoun with the antecedent. Finally grammar should be so taught as to beget a spirit of inquiry and challenge with respect to the student's own writing and that of others.²

Another indication of the attitude of teachers is cited by Thomas. A questionnaire circulated among English teachers in New York City produced a negative vote on the value of the study of formal grammar, and an affirmative vote on the value of a carefully planned course in English usage. Commenting on this vote the committee reported that the evidence seems to favor the abandonment of formal grammar and the substitution of a course in English usage, largely a drill subject. The committee further

¹Op. Cit., pp. 20-34

²Report of the 1928 National Council of Teachers of English, English Journal, Vol. XVIII (Jan. 1929), pp. 61-87.

called upon teachers to devote their efforts to increased practice and habit formation.¹

To be regarded as a curiosity, perhaps, is another report quoted by Thomas. This was a report of the committee of the New England Council of Teachers of English in 1924 which found that the graduates of secondary schools were practically unanimous in their endorsement of the study of technical grammar. However, this endorsement was probably due to the immaturity of minds and the lack of understanding of the problems involved of the members of the group.²

Evidence that the study of formal grammar is today almost universally disfavored was seen as early as 1914. In that year the Committee on Articulation of Elementary and High School Courses in English stated in a report to the National Council of Teachers of English:

The time-devouring demands of formal English grammar are outrageous; the results on language interpretation and use are practically nil. The elementary school should sharply delimit the term "grammar" as applying to analytic formal grammar—the grammar that encumbers absorptive little minds with useless terminology—and emphasize grammar in the sense of correct use, the facts to be drilled on as use and not to be terminologized.³

¹Thomas, Charles Swain, The Teaching of English in the Secondary School. Boston: Houghton Mifflin Co., 1927.

²Op. Cit., p. 94.

³Quoted by Thomas, Op. Cit., p. 88.

Attitudes and Aims in the
General Language Course

As stated elsewhere in this chapter the most pressing need of the English teacher is a definite, workable program of language instruction. But as has been seen, most outlines prepared by research workers cannot be used ready-made, but require adaptation. Consequently every teacher, in the final analysis, becomes her own curriculum maker. It is not enough to bring to this task of curriculum making an equipment of thorough educational training, subject knowledge, and good sense. One needs to know what attitudes to take toward the problems mentioned in this chapter and what aims to strive for in one's instruction. While discernment and understanding will help one to determine the correct attitudes and aims, it is well to know what the majority of teachers and educational authorities recommend as attitudes and aims in language instruction.

Quite suggestive are the objectives outlined by Seeley:

- 1 To foster the development by our pupils of a progressively increasing desire to express themselves effectively in language.
- 2 To bring pupils to recognize that effectiveness of expression depends in no small part upon the employment of the various language symbols according to accepted standards.
- 3 To establish the fact that language is at once the tool of thought and its mirror; and that both thinking itself and the expression of thought are only as accurate and meaningful as the language employed in its kindred processes.
- 4 To assist pupils to eradicate from their usage the most flagrant and destructive errors to

which their expression is individually subject.

- 5 To make as certain as possible that the major principles of usage are so completely understood and mastered by pupils that they will function automatically.
- 6 To promote among pupils the habit of seeking the aid offered them by various sources in solving the language problems with which they will continuously be confronted.¹

Seeley also suggests three necessary changes in the attitudes of teachers:

- 1 Grammar must be regarded as remedial and must be adapted to the needs of the pupils.
- 2 Language habits conforming to the standards of accepted usage must be consciously fostered.
- 3 The effort to create good language habits must be continuous and shared by all teachers.²

The report of the Curriculum Commission of the National Council of Teachers of English offered these criteria of correct English:

- 1 Correct usage must find its authority in the living language of today.
- 2 It must recognize dialect and geographical variations.
- 3 It must judge the appropriateness of the expression to the purpose intended.
- 4 It must recognize social levels of speech.

¹Op. Cit., pp. 6-17.

²Op. Cit., pp. 34-42.

- 5 It must take into account the historical development of the language.¹

No doubt the application of these criteria would help the teacher decide what elements to retain in her program of instruction and what items to omit.

This report also stresses habit formation and practice in the use of correct forms.

Pendleton lists ten aims or objects in the teaching of language, based upon the questioning of eighty teachers. These ten aims are:

- 1 The ability to speak in conversation, in complete sentences not in broken phrasing.
- 2 The ability to write—in ordinary writing situations and without great concentration of attention—English which is grammatically correct.
- 3 The attitude of prompt, effective abolishment of any error in one's written English as soon as it is called to one's attention once.
- 4 The ability to capitalize speedily and accurately in one's writing.
- 5 The ability to use in conversation only forms of expression which are grammatically correct.
- 6 The ability to punctuate speedily and accurately in one's writing.
- 7 The attitude of expecting one's self without hesitation or doubt to write good English.
- 8 The ability to write one's thoughts fluently in acceptable sentences.

¹Op. Cit., pp. 241-242.

- 9 The ability to grasp quickly an author's point of view and central theme.
- 10 The ability to speak—in ordinary conversational and public-speaking situations, and without great concentration of attention—English which is grammatically correct.¹

It is obvious that not all of Pendleton's ten aims are of equal importance, but it will be noticed that they also emphasize habit formation and the ability to make proper use of the English language.

Lyman also stresses the fostering of habits and skills. However, Lyman speaks of reducing the course to "bedrock minimal essentials", a procedure, as has been noted, likely to result in becoming a program of maximum achievement. Clearly there is always a danger in attempting to reduce the program of instruction to its barest essentials. This statement of Lyman is rather surprising in view of his criticism of minimum essentials cited elsewhere in this chapter. From the foregoing quotations, it will be seen that while there are certain points of agreement among the authorities, one must exercise a degree of judgment in deciding what the objectives of a language course shall be, but it is apparent that the consensus strongly favors the study of grammar and language in close relationship to uses and needs, rather than as a detached subject. Unfortunately as Lyman and others point out, there are not yet enough studies available to determine what part of grammar is actually functional.

¹Pendleton, Charles S. The Social Objectives of School English. Nashville, Tenn.: Charles S. Pendleton, George Peabody College for Teachers, 1924.

What is Current Usage?

Among the many vexatious problems that beset the English teacher none is more troublesome than questions of usage. Shall pupils be permitted to say, "It is me."? Shall the splitting of infinitives be absolutely prohibited? Shall we abandon mood altogether? These, and a score of like problems, arise almost daily in the language class. It is not easy for the teacher to find the answers to these problems. To begin with, the question of authority alone is one that is quite obscure. Most teachers by this time know that neither the textbook nor the dictionary deserves complete reliance in questions of usage. Unfortunately, there are not many studies defining acceptable usage, but as ^{many as} there are may be used with profit by the teacher.

In 1927 there appeared Leonard and Moffatt's "Levels in English Usage"¹, an effort to determine the social acceptability of about a hundred expressions frequently condemned by teachers. This study, while it was of considerable value at the time, did not go far enough in either materials or methods to be conclusive.

In 1935 there appeared a revision in book form of Leonard's earlier study, entitled Current English Usage.² This is an attempt to define current English usage as it is found among educated people. A group of judges was chosen on the basis of their presumed familiarity with

¹Leonard and Moffatt. "Levels in English Usage". English Journal, Vol. XVI (May 1927), pp. 345-349.

²Leonard, S. A. Current English Usage. Chicago: National Council of Teachers of English, 1935.

acceptable usages. The study was divided in two parts: a study of English usage, and a study of punctuation. For the former 229 persons were selected as judges and for the latter 144 persons. The usage judges were well-known authors, editors, business men, linguists, and teachers in school and college, the teacher group heavily predominating. The punctuation judges were publishers, magazine editors, and newspaper men, the newspaper men forming by far the largest group.

While some persons may quarrel with this method of determining acceptable current usages, it may be said that no better one presents itself. The laws of English grammar, as most students now understand, do not proceed from any established authority, but rather are determined by the current practices of those who use the language. The laws of grammar, in this respect, are like international law, a body of laws without a lawgiver. While it cannot be said that Leonard's study established a legislature of usage, it does appear that it attempts to set up a supreme court of judgment. But this supreme court is a representative body—representative of those persons who are not only well educated but presumably capable of using the language with a high degree of discrimination and good sense. The chief defect of a jury selected on this basis is that its members are not all linguistic experts. However, the living language, as Fries points out, is not shaped by the dicta of so-called experts, but by the usages of those who are capable of using it well.

Leonard says:

There are three...tentative general revisions of the grammar of written and spoken English which this study seems to validate.

- 1 A number of usages entirely in accord with the present rules of formal grammar are apparently avoided by careful speakers and writers because they are regarded as finical or pedantic. Among these are the use of the article an with certain words (such as historical) beginning with h; the strained avoidance of the split infinitive; and insistence upon a formal sequence of ones in such a sentence as "One must mind one's manners." These expressions we should not forbid; but we certainly should not encourage their use by dogmatic requirement.
- 2 There are expressions which are condemned by most handbooks and which are listed among improper usages in the chapters on diction in many school rhetorics but which are nevertheless in frequent use by educated speakers. It might be wise not to assign such chapters to pupils until the acceptability of the expressions has been checked by the findings of this study.
- 3 Formal grammar is apparently at fault in setting up rigid rules for the case of personal pronouns after to be and of the interrogative pronoun who.¹

The bulk of Leonard's book consists of a report of the vote upon a large number of specific usages. According to the balloting, these usages are ranked as established, doubtful, and not in the language. As a handy guide to questions of usage the book should be of great value to the teacher who must determine quickly and with a minimum of effort whether

¹Op. Cit., pp. 189-190.

certain usages shall be insisted upon or not. But as Leonard pointed out in the passage just quoted some of the usages ranked as acceptable by the study should not be dogmatically insisted upon. That is, while "It is me" is ranked as acceptable, we should not necessarily insist that pupils abandon the grammatical form "It is I".

In addition to being a guide to current usage, Leonard's work also offers some penetrating observations concerning the present status of grammar, which are worthy of quotation:

If meaning is the midwife at the delivery of usage (of which grammar is only the codified description), should not meaning likewise be the governing principle in the teaching of formal grammar?

If it be that some study of grammatical laws is necessary to mature manipulation of language, the study should begin at the other end rather than that of analysis. The whole sentence should first command attention.....If the sentence must be cut up at all, let it be into big thought blocks.

There is undoubtedly a place in the curriculum for a thorough study of those grammatical principles which seem to govern all language because they also govern the logic of thought, and hence of its communication. But unless this study is a study of logic and not of formal rules; unless this study does keep pace with actual usage instead of insisting upon a petrification of principles which reduces the grammar to a volume of folk lore and curious myths, grammar study can neither change illiterate usage nor produce that mature power over the manipulation of language which a knowledge of fundamental principles gives the scientist or the artist over the manipulation of the materials of his science or his art.¹

¹Op. Cit., pp. 192-193.

Although Leonard's work is not only the best but practically the only thing of its kind, it is not above criticism. One point of criticism is that the method of selecting the jurors seems somewhat haphazard, especially in view of the fact that certain groups were allowed to predominate. Another point is that an analysis of the balloting indicates that many usages were voted acceptable only by narrow margins. Still another point is that the judges did not seem to be guided by any principles of philosophy of language but rather by their "feeling" for correctness. In spite of these criticisms the book indicates what might be done to determine acceptable usage.

English for Vocational and Technical Pupils

The urge to set up special courses in language and composition for technical and vocational pupils is no doubt inspired by a belief that the future language use of such pupils will be greatly different from those of academic pupils. Such reasoning is faulty. Many vocational and technical pupils after leaving the secondary school find their interests so changed that they decide to enter professional life. Even if this were not so, there would still remain the fact that good English is good English, whether one is writing a business letter, a technical report, or merely indulging in social correspondence. All such special courses for vocational and technical pupils inevitably degenerate into a laborious study of business forms.

Thomas devotes a whole chapter to the problem of adjusting the high

school English course to the demands of commercial, technical and vocational pupils.¹ As may be expected, his chapter deals almost entirely with matters of writing forms, and is in no sense a differentiation of language instruction.

A study of English instruction as given to trade school pupils is reported by Sawyer.² It is likewise almost entirely taken up with questions of writing form and methods of instruction, dismissing the language problem with the curt statement that mechanics will be taught as the need arises. The article does not indicate how often the need might arise, but judging by the usages prevalent among high school pupils one might expect it to be rather constant.

In short, the language needs of vocational and technical pupils are no different from those of other pupils. They may require a specialized instruction, but not a specialized subject matter.

Seeley sweepingly condemns specialized courses for vocational pupils.

He says:

There really is no such thing as business English. The English of trade is in no sense different from the English of the professions or the arts. To set up courses in business English is as preposterous as to set them up for incipient brick layers, engineers, doctors, lawyers or aviators. Into the courses in so-called business English we have conventionally sent boys and girls

¹Op. Cit., pp. 376-388.

²Sawyer, Marjorie. What Should Trade School English Be?" English Journal, Vol. XVII (June 1928), pp. 509-511.

who, we have decided, would not profit from our "academic" English. They probably would not have profited from this latter type. But neither, to any great extent, did those who "took" it.¹

Conclusions

As to the present status of the teaching of grammar, the foregoing studies seem to warrant the following conclusions:

- 1 The traditional attitude of regarding grammar as something to be taught as an abstract science, with fixed and permanent rules, is generally not in good repute at the present time.
- 2 It is generally recognized that current usage must be the criterion of good English.
- 3 It is generally accepted that the formation of proper language habits should be the goal of language instruction.
- 4 Practice in the use of correct language forms, rather than the study of rules, should be stressed in teaching.
- 5 The definition of functional grammar still waits upon further investigation in this field. A grammar based strictly upon use is not at present available.
- 6 Lists of minimum essentials and language outlines require adaptation in the hands of the teacher who must decide for herself what is to be taught.
- 7 Every teacher must decide for herself, with the aid of such authorities as can be found, whether or not certain usages are

¹Op. Cit., p. 297.

acceptable.

- 8 There seems to be no sound reason why language instruction should be differentiated for different types of pupils such as vocational students.

CHAPTER III

PRESENTATION OF THE FINDINGS OF THIS STUDY

Compilation and Computation of Data

As was explained in Chapter I, page 6, each of the 120 pupils used in this experiment was required to write four compositions during the month of September, and four in the month of January. The months of September and January were chosen as marking the beginning and end of a semester's instruction.

After the compositions were written as a part of the regular class work of the pupils, they were carefully checked for grammatical errors, under the following main classifications and sub-classifications:

A Mistakes in Sentence Structure

- 1 Misuse of when, where, and because clauses.
- 2 Split infinitive.
- 3 Doubtful meaning.

B Mistakes in Sentence Recognition

- 1 Run-on sentences.
- 2 Sentence fragments, subordinate clauses, verbal phrases, etc.
- 3 Shift of construction.
- 4 Unparallel structure.
- 5 Excessive use of and, then, and so.

C Mistakes in Use of Nouns

- 1 Wrong number of verb with expletive, there.

- 2 Confusion of singular and plural.
- 3 Omission of noun subject.
- 4 Wrong noun.
- 5 Wrong possessive form.

D Mistakes in Use of Pronouns

- 1 First person pronoun standing first in series.
- 2 Failure of pronoun to agree with its noun in number, person and gender.
- 3 Confusion of pronoun for demonstrative adjective.
- 4 Syntactical redundance.
- 5 No antecedent.
- 6 Indefinite antecedent.
- 7 Impersonal you.
- 8 Shifting of pronoun.
- 9 Omission of pronoun.
- 10 Self pronouns misused.
- 11 Subject of verb not in nominative case.
- 12 Predicate nominative not in nominative case.
- 13 Useless repetition of pronoun.
- 14 Object of verb not in objective case.
- 15 Object of preposition not in objective case.
- 16 Use of objective for possessive with gerund.
- 17 Who and whom--who and which confused.
- 18 Relative pronoun referring to a clause.

E Mistakes in Use of Adjectives and Adverbs

- 1 Superlative and comparative confused.
- 2 Confusion of adjective for another part of speech.
- 3 Confusion of adverb for another part of speech.
- 4 Use of most for almost.
- 5 Misplaced modifier only, just, also.
- 6 Incorrect comparison of adjective.
- 7 Dangling participle.
- 8 Participle introducing a sentence and not modifying the subject.
- 9 Misplaced adjective or adverb.
- 10 Omission of article.

F Mistakes in the Use of Verbs

- 1 Disagreement of verb and subject.
- 2 Change of tense in main clause.
- 3 Wrong past tense or past participle.
- 4 Wrong sequence.
- 5 Wrong verb.
- 6 Wrong tense form.
- 7 Mistakes in mode.
- 8 Omission of auxiliary verb.
- 9 Confusion of auxiliary verb.
- 10 Wrong separation of verb from auxiliary.
- 11 Wrong separation of verb from modifier.

- 12 Omission of verb.
- 13 Use of verb for noun.
- 14 And with infinitive.
- 15 Omission of participle.
- 16 Omission of expletive there and verb.

G Mistakes in Use of Preposition and Conjunction

- 1 Wrong preposition.
- 2 Misuse of preposition.
- 3 Omission of preposition.
- 4 Misplaced preposition.
- 5 Repetition of conjunction.
- 6 Omission of conjunction.
- 7 Superfluous conjunction.
- 8 Wrong conjunction.
- 9 Syntactical redundance.
- 10 And connecting a dependent and an independent clause.

H Phrases

- 1 Misplaced phrases.

I Clauses

- 1 Near wrong antecedent.
- 2 No antecedent.

J Mistaken Identities

- 1 then and than.

- 2 hence and before.
- 3 tiring and tiresome.
- 4 between and among.
- 5 fix and repair.
- 6 apt and likely.
- 7 in and into.
- 8 hung and hanged.

K Mistakes Due to Likeness of Sound.

- 1 to, two, too.
- 2 their, there.
- 3 new, knew.
- 4 hear, here.
- 5 our, are.
- 6 one, won.
- 7 threw, through.
- 8 no, know.
- 9 cause, because.
- 10 a, an.
- 11 they, the.
- 12 soul, sole.
- 13 have, of
- 14 principal, principle.

L Double negative

It will be noticed that this list is not a complete catalogue of all the language errors that can be found in written compositions. Errors of punctuation and capitalization are omitted, as are also errors of spelling, except insofar as the mistakes of Class K may be considered errors of spelling rather than errors of grammar. Furthermore, errors which are more of rhetorical significance, such as lack of unity and lack of coherence, were disregarded. These omissions were purposely made, in order to fit the study to the work of the first semester, in which the emphasis was mainly upon grammar.

When all the errors were checked and counted on the compositions, the compositions were separated into four lots:

- 1 Those written by the Technical group in September;
- 2 Those written by the Technical group in January;
- 3 Those written by the General Language group in September;
- 4 Those written by the General Language group in January.

A word count having been made on each composition at the time the errors were checked and counted, the next step was to tally the words and errors for each pupil. In this operation, the four compositions of each month were treated as a unit, as was explained in Chapter I, page 6. The results of this tally are presented in Tables I and II, in which the number of words and the number of errors for each pupil are shown, by groups and by months.

TABLE I
 Errors, Words, and Error Quotients of
 All Pupils in Technical Group
 in September and January

Pupil	September			January		
	Errors	Words	E. Q.	Errors	Words	E. Q.
1	15	783	.019	4	1529	.003
2	12	669	.017	39	1283	.023
3	21	574	.036	48	1234	.039
4	17	564	.030	34	1266	.027
5	17	541	.033	27	1195	.023
6	14	610	.023	9	1449	.006
7	12	479	.017	23	1596	.014
8	23	612	.038	21	940	.022
9	38	523	.072	51	1262	.040
10	18	1549	.012	12	724	.017
11	11	435	.025	12	946	.013
12	11	495	.022	12	1267	.009
13	23	562	.041	46	1119	.041
14	25	655	.038	18	1321	.014
15	5	457	.011	14	1551	.009
16	46	981	.047	42	1700	.025
17	10	437	.023	34	1129	.030
18	21	567	.037	28	1263	.022

Table I—Con.

Pupil	September			January		
	Errors	Words	E. Q.	Errors	Words	E. Q.
19	16	547	.029	23	1387	.017
20	14	489	.029	20	1478	.014
21	9	404	.022	24	1536	.016
22	30	729	.041	36	1738	.021
23	6	474	.013	16	1271	.013
24	6	429	.014	10	1414	.007
25	4	538	.007	7	1188	.006
26	32	597	.054	48	972	.048
27	14	491	.029	17	933	.018
28	35	526	.067	27	1178	.023
29	17	996	.017	26	1404	.019
30	10	530	.019	27	1448	.019
31	6	405	.014	26	1397	.019
32	32	628	.051	34	1250	.027
33	12	593	.020	22	1219	.018
34	24	624	.039	41	1613	.025
35	10	667	.015	13	1296	.010
36	22	784	.028	41	1389	.030
37	21	698	.030	11	371	.030
38	22	642	.034	12	777	.015
39	12	1043	.011	36	1712	.021

Table I—Con.

Pupil	September			January		
	Errors	Words	E. Q.	Errors	Words	E. Q.
40	11	982	.011	29	1421	.020
41	13	885	.015	28	1392	.020
42	29	804	.036	37	1295	.029
43	28	1519	.018	32	1638	.020
44	14	752	.018	54	1246	.043
45	24	844	.028	22	1277	.017
46	25	808	.031	18	1291	.015
47	6	693	.009	15	1379	.011
48	23	552	.042	26	1388	.019
49	18	564	.032	32	1574	.020
50	26	686	.038	29	925	.031
51	14	685	.020	28	1436	.019
52	13	800	.016	12	1352	.009
53	10	717	.014	22	1250	.018
54	11	534	.021	30	1401	.021
55	38	607	.063	47	1237	.038
56	11	808	.014	12	1919	.006
57	19	579	.033	31	1615	.019
58	7	391	.018	31	1182	.026
59	21	713	.029	21	1211	.017
60	22	732	.030	36	1411	.026
MEAN ERROR QUOTIENT..	September....	028	January.....	021	

TABLE II
 Errors, Words, and Error Quotients of
 All Pupils in General Language
 Group in September and January

Pupil	September			January		
	Errors	Words	E. Q.	Errors	Words	E. Q.
1	8	672	.012	26	1819	.014
2	11	937	.012	17	1246	.014
3	12	707	.017	9	1291	.007
4	17	918	.019	25	1137	.022
5	17	487	.035	55	1364	.040
6	10	601	.015	20	1691	.012
7	7	860	.008	12	1418	.008
8	10	1019	.010	35	1406	.025
9	7	668	.010	27	2006	.013
10	14	692	.020	25	1294	.020
11	6	687	.009	9	1923	.005
12	7	569	.012	12	1199	.010
13	12	676	.018	33	1163	.028
14	5	674	.007	24	1713	.014
15	15	724	.021	8	1341	.006
16	11	494	.022	25	1326	.019
17	7	821	.008	7	1566	.004
18	15	642	.023	25	1585	.016

Table II---Con.

Pupil	September			January		
	Errors	Words	E. Q.	Errors	Words	E. Q.
19	30	624	.048	15	1661	.009
20	14	937	.015	24	1356	.018
21	3	641	.005	27	1413	.019
22	5	1044	.005	16	1852	.009
23	41	1210	.034	32	1642	.019
24	13	1012	.013	21	1703	.012
25	2	560	.004	24	1838	.013
26	15	697	.023	17	1603	.011
27	18	596	.030	34	910	.037
28	15	865	.017	13	1433	.009
29	17	976	.018	33	1773	.019
30	10	778	.013	36	1278	.028
31	11	764	.015	24	1321	.018
32	10	355	.028	21	970	.022
33	6	634	.009	31	1873	.017
34	12	510	.024	62	1368	.045
35	6	495	.012	14	1097	.013
36	19	509	.037	23	1282	.018
37	25	601	.062	35	1454	.024
38	20	613	.033	17	1510	.011
39	22	753	.030	32	1330	.024
40	11	494	.022	29	1619	.018

Table II—Con.

Pupil	September			January			
	Errors	Words	E. Q.	Errors	Words	E. Q.	
41	8	749	.011	31	1643	.019	
42	6	913	.006	27	1398	.019	
43	7	336	.021	12	1215	.010	
44	7	773	.009	21	1540	.014	
45	9	603	.017	16	1650	.010	
46	12	714	.017	20	1494	.013	
47	11	846	.013	4	1245	.003	
48	18	747	.024	32	1598	.020	
49	8	511	.016	32	1424	.022	
50	26	926	.028	17	1732	.009	
51	30	903	.033	29	1613	.018	
52	16	568	.028	18	1183	.015	
53	6	579	.010	10	1295	.008	
54	27	723	.037	39	1342	.029	
55	8	747	.011	18	1460	.012	
56	23	842	.027	42	1229	.034	
57	21	583	.036	17	1366	.012	
58	30	914	.033	12	1190	.010	
59	11	599	.018	11	1458	.008	
60	15	791	.020	22	1681	.013	
MEAN ERROR QUOTIENT..September..			.020January016

The next step in the compilation was the handling of the scores on the Cross English tests, and the scores on the Otis Intelligence Test. As was stated in Chapter I, a Cross Diagnostic Test in English was given to all pupils in September, and another Cross test in January, to check upon and compare with the composition errors. The Otis Intelligence Test, of course, was given only once. Two Cross tests were used as samplings of the pupils' ability at the beginning and end of the semester, comparable to the composition units of those end periods.

As this study is not a comparison of intelligence with achievement, nothing was done with the scores on the Otis test, other than to arrange them in a frequency distribution, shown in Table VII. It is of some interest to note that the two groups of Technical and General Language pupils, although chosen upon a random basis, are not widely dissimilar in their intelligence test scores.

Since the individual scores on the Cross English test are of no consequence in the computations, they were arranged in two frequency distributions, one for both months in the Technical group, shown in Table III, and the other in the General Language group, shown in Table IV.

TABLE III
 Frequency Distribution of Cross English
 Test Scores in Both Months
 for Technical Group

September		January	
Class Interval	Frequency	Class Interval	Frequency
150-154	1	150-154	3
145-149	0	145-149	1
140-144	6	140-144	8
135-139	2	135-139	3
130-134	5	130-134	5
125-129	8	125-129	6
120-124	5	120-124	11
115-119	11	115-119	5
110-114	6	110-114	6
105-109	5	105-109	5
100-104	3	100-104	3
95- 99	0	95- 99	2
90- 94	2	90- 94	0
85-89	5	85- 89	1
80- 84	0	80- 84	2
75- 79	1	75- 79	0
70- 74	0	70- 74	0
65- 69	0	65- 69	0
60- 64	1	60- 64	0

TABLE IV
 Frequency Distribution of Cross English
 Test Scores in Both Months
 for General Language Group

September		January	
Class Interval	Frequency	Class Interval	Frequency
165-169	0	165-169	1
160-164	0	160-164	0
155-159	2	155-159	7
150-154	3	150-154	9
145-149	9	145-149	7
140-144	10	140-144	7
135-139	5	135-139	5
130-134	7	130-134	3
125-129	5	125-129	5
120-124	6	120-124	4
115-119	5	115-119	6
110-114	2	110-114	2
105-109	1	105-109	2
100-104	3	100-104	1
95- 99	1	95- 99	1
90- 94	2	90- 94	0

The first computation was that of error quotients on each set of four compositions written by each pupil in both months. These error quotients are fully discussed in Chapter I, pages 5-7. They were obtained by dividing the number of errors in each composition unit by the number of words, the quotients so obtained being regarded as scores. It would be well to caution the reader again that the smaller error quotients are the higher scores. The error quotients are presented along with the error and word counts in Tables I and II, pages 52-57.

The next step was to arrange the error quotients in frequency distributions, which are shown in Tables V and VI.

TABLE V
 Frequency Distribution of Error Quotients in
 Both Months for Technical Group

September		January	
Class Interval	Frequency	Class Interval	Frequency
.000-.004	0	.000-.004	1
.005-.009	2	.005-.009	7
.010-.014	9	.010-.014	7
.015-.019	10	.015-.019	16
.020-.024	7	.020-.024	12
.025-.029	7	.025-.029	6
.030-.034	9	.030-.034	4
.035-.039	7	.035-.039	3
.040-.044	3	.040-.044	3
.045-.049	1	.045-.049	1
.050-.054	2	.050-.054	0
.055-.059	0	.055-.059	0
.060-.064	1	.060-.064	0
.065-.069	1	.065-.069	0
.070-.074	1	.070-.074	0

TABLE VI
 Frequency Distribution of Error Quotients in
 Both Months for General Language Group

September		January	
Class Interval	Frequency	Class Interval	Frequency
.000-.004	1	.000-.004	2
.005-.009	9	.005-.009	10
.010-.014	12	.010-.014	19
.015-.019	12	.015-.019	14
.020-.024	10	.020-.024	7
.025-.029	4	.025-.029	4
.030-.034	6	.030-.034	1
.035-.039	4	.035-.039	1
.040-.044	0	.040-.044	1
.045-.049	1	.045-.049	1
.050-.054	0	.050-.054	0
.055-.059	0	.055-.059	0
.060-.064	1	.060-.064	0

TABLE VII
 Frequency Distribution of Scores on Otis
 Intelligence Test for Both Groups

Technical Group		General Language Group	
Class Interval	Frequency	Class Interval	Frequency
125-129	1	125-129	2
120-124	0	120-124	4
115-119	4	115-119	6
110-114	13	110-114	7
105-109	10	105-109	10
100-104	14	100-104	15
95- 99	9	95- 99	9
90- 94	3	90- 94	3
85- 89	5	85- 89	4

(Note: It is obvious, from a cursory examination of the above distribution, that the difference of central tendency and dispersion in the two groups is too slight to be statistically interesting.)

The computations which followed the completion of the frequency distributions are divided into two parts, one dealing with the composition error quotients, and the other with the Cross English test scores. Consequently, the ensuing series of computations will be described as one process, with the understanding that the process was applied first to the error quotients, and then repeated for the test scores.

The first operation was the computation of the arithmetical means of the scores. In every instance the mean score of the General Language group was larger than the mean score of the Technical group in the same period. Subtracting the mean score of the Technical group from the corresponding mean score of the General Language group gives the difference of the means.

The probable error of each mean score was calculated by the formula¹

$$P. E._{\text{mean}} = \frac{.6745 \sigma}{\sqrt{N}}$$

The standard deviation of scores in each period was calculated by class intervals according to the formula given by Thurstone² and Odell³;

$$\sigma = \sqrt{\frac{fd^2}{n} - c^2}$$

in which c^2 is a correction because of the assumed location of the mean.

¹Odell, C. W., Educational Statistics, New York, The Century Co., 1925, p. 223.

²Thurstone, L. L., The Fundamentals of Statistics, New York, The Macmillan Company, 1925, pp. 104-106.

³Op. Cit., pp. 132-133

The probable error of the difference of the means was calculated according to the familiar formula given by Otis and others:

$$P. E. \text{ diff.} = \sqrt{P. E. \text{ }_x^2 \text{ plus } P. E. \text{ }_y^2}$$

The standard deviation of the difference of the means was calculated by the formula given by Otis and others¹:

$$S. D. \text{ diff.} = \sqrt{ox^2 + oy^2}$$

When this series of computations had been applied to the composition error quotients, the entire process was repeated for the Cross English test scores.

Tables VIII and IX present the results of the computations. The results for the Cross English test scores are given first, as they are the less important of the two sets of scores. It should be emphasized that the Cross tests were given as a check upon the results discovered in the composition work; therefore, conclusions drawn from the Cross tests alone are not within the purpose of this study, which aims to compare the two groups of pupils in the elimination of composition errors.

TABLE VIII
 Comparison of Scores of Both Groups
 on Cross English Test

	<u>September</u>		<u>January</u>	
	Mean Score	P. E.	Mean Score	P. E.
Technical Group	117.42	1.57	122.50	1.48
General Language Group	128.75	1.41	134.67	1.44
	<u>Diff. of Means</u>	<u>P. E. of Diff. of Means</u>	<u>Standard Deviation of Diff. of Means</u>	
September	11.33	2.20	24.19	
January	12.17	2.11	23.65	
	<u>Standard Deviation of Scores</u>			
	<u>September</u>	<u>January</u>		
Technical Group	17.99	16.96		
General Language Group	16.17	16.51		
	<u>Difference of Means Divided by S. D. of Diff./Means</u>			
September	.468			
January	.515			

TABLE IX

Comparison of Scores of Both Groups

Composition Error Quotients

	<u>September</u>		<u>January</u>	
	<u>Mean Score</u>	<u>P. E.</u>	<u>Mean Score</u>	<u>P. E.</u>
Technical Group	.028	.0012	.021	.0009
General Language Group	.020	.0009	.016	.0007

	<u>Diff. of Means</u>	<u>P. E. of Diff. of Means</u>	<u>Standard Deviation of Diff. of Means</u>
September	.008	.0015	.018
January	.005	.0008	.011

	<u>Standard Deviation of Scores</u>	
	<u>September</u>	<u>January</u>
Technical Group	.014	.010
General Language Group	.011	.009

	<u>Difference of Means Divided by S.D. of Diff. of Means</u>
September	.445
January	.455

Analysis and Interpretation of Results

Before the discussion of results is begun, it would be proper to review the circumstances of the study. The random selection of the groups should not be overlooked. Not only were the sixty Technical pupils chosen at random from classes containing both Technical and General Language pupils, but the inclusion of those pupils in the regular English classes of Roosevelt High School was itself a random selection from all the Technical pupils of the school, for these Technical pupils were assigned to mixed classes solely because their schedules of classes required that they be put into mixed classes. It is safe to say that the Technical pupils are probably an average selection of all the Technical pupils in the school.

Quite as significant as the random nature of the selection is the fact that these Technical pupils were found in mixed classes of Technical, General Language, and General Science pupils. If the study dealt with a group of pupils drawn from classes made up entirely of Technical pupils, comparing them with a group of pupils drawn from classes made up entirely of General Language pupils, one might feel that the factor of variation of instruction in the different classes would have weight. This is a factor not always considered in studies of this character. That is why, perhaps, so many comparative studies deal with methods of instruction. But in this study methods of instruction were the same for both groups, and, consequently, it is possible to compare the pupils freely.

The study begins with the expectation that the performance of the Technical group will be found inferior to that of the General Language group. This assumption is confirmed by the results. An inspection of Table VIII shows that the Technical group has a lower mean score on the Cross English test in September than that of the General Language pupils. In January, the mean score of the Technical group again is found to be lower than the mean of General Language. An inspection of Table IX reveals that the differences again are in favor of the General Language pupils both in September and January.

Further inspection of the differences, however, indicates that possibly the results are not so much in favor of the General Language group. Table VIII shows that the difference of the means on the Cross tests was larger in January than in September. Table IX shows that this is not true of the composition errors.

It would be a hasty conclusion to assert that the decrease of the difference of the means in grammar errors indicates greater progress on the part of the Technical group than that of the General Language group.

When the differences of the means are examined more closely, it will be noted that they are not large. On the Cross English test the difference of the means in September was 11.33, in January the difference was 12.17. This seems to indicate a net loss of .84 for the Technical group. This is certainly a small loss, whether considered in relation to the mean scores themselves, or in relation to the differences of the means. However, in composition error quotients the gain of the Technical

group is more significant. In error quotients the difference of the means was .008 in September and .005 in January, a net gain of .003 for the Technical group. This is fairly large in relation to the means themselves or the differences of the means.

Regardless of what the other measures show, this net gain and loss of the Technical group must be judged with some care. The gain in error quotients points to a greater improvement on the part of the Technical group in a way that cannot be brushed aside. Even though the net loss on the Cross test is proportionately much smaller than the net gain on the composition errors, they do not negate each other. Insofar as they indicate anything at all, these differences may be said to indicate that the larger net gain on the composition errors is highly gratifying, as tending to show that the Technical group improved more rapidly under conditions of actual use of written English.

However, there is another angle to this matter of improvement, an angle discussed by Reed in his monograph on changes of variability in achievement.¹ There yet must be considered the question of the general significance of such gains when made by inferior subjects. Quoting himself from an earlier study, Reed said:

.....that correlation between initial and final performance could not be used as a measure of

¹Reed, Homer B., "The Influence of Training on Changes in Variability in Achievement", Psychological Monographs, XLI (1931), No. 2.

variability, for it was entirely possible for a bright pupil to gain relatively less than a dull one without changing his rank, just as a man with a million dollars earning 3 per cent is still richer at the end of a year than a man with a thousand dollars earning 100 per cent.²

It is possible that Reed's mathematics is better than his logic.

The man who doubles a capital of one thousand dollars in a year's time may have accomplished something more significant than the millionaire's earning of thirty thousand. Possibly the poor man's accretion represented great industry and application, while that of the rich man was what might be termed unearned increment. Likewise it is just as significant for a mediocre pupil to eliminate several of his errors as for a top-ranking pupil to eliminate a few. There are some things that cannot be reduced to mathematics, things which no table of scores can tell us. Who can say which pupil worked the harder for his improvement, or who can say which achievement will be the more lasting?

In fact, some of the faults of the mean as a measure crop out in these results without recourse to higher mathematics. A check of the individual scores on Tables I and II reveals that in the Technical group there were only 12 pupils who had a larger proportion of errors in January than in September, while in the General Language group there were 25 pupils who had a poorer error quotient in January than in September.

²Ibid., pp. 13-14.

This comparison stands on rather firm ground, as it was pointed out in Chapter I, page 8, that the error quotients have a potential range from a practically absolute zero to absolute perfection. Certainly there is a suspicion that the large number of General Language pupils who were poorer in their final than in their initial performance indicates that the group as a whole was not as diligent as it might have been.

Moreover, since means are being compared, rather than upper quartiles or percentiles, it is obvious that there is plenty of room at the top for both groups. None of the four means of the error quotients is so high as to indicate a markedly superior performance by the General Language pupils at any time.

However, it was thought best not to let the comparison rest upon means alone. The means were first checked by calculating their probable errors. The results were noteworthy. In all instances (See Tables VIII and IX) the probable errors are quite small. In every instance, however, the probable error of the mean is greater for the Technical group than for the General Language group. But here again the measures for the Technical group approach those of the General Language group more closely in January than in September.

With the calculation of the probable error of the difference of the means the comparison begins to assume greater significance. On the Cross test scores (Table VIII) this is not so apparent as it is on the error quotients (Table IX). But on the error quotients the probable error of the difference is reduced from .0015 in September to .0008 in January,

indicating that the factors of chance were considerably less influential in January than in September.

The computation of the standard deviations of the scores brings results similar in their trend. An examination of Table VIII shows but little change during the semester in the variability of the two groups, except for one rather startling point; the General Language group shows a greater variability in January than in September. This is the first mathematical evidence supporting the criticism of the General Language pupils' performance made before, on page 2 of this study. It is true that Reed strongly condemns comparisons on the basis of S. D.'s alone.¹ He says an S. D. has meaning only in relation to the average from which it is computed, but has no meaning in relation to another S. D. when the averages are disregarded. It is difficult to follow Reed's reasoning on this point. The S. D. is supposed to represent the range, on either side of the central measure, within which approximately two-thirds of the scores will fall. If this be true, it is safe to say the group with the large S. D. has the greater spread of most of its scores; i. e., the greater variability. One cannot say more than that--one cannot say that the performance is poorer because of the larger S. D.

However, there is a way of comparing the two groups on the basis of standard deviation, and that is to compute the standard deviation of the

¹Op. Cit., p. 19.

difference of the means. This measure is equivalent to comparing all the individual scores in the one group with the individual scores of the other group, averaging the differences so obtained, and then computing the standard deviation of the resulting distribution. The mean scores of the two groups, considered separately, are not factors in the standard deviation of the difference of the means.

Table VIII shows a smaller deviation of the difference in January than in September, which would seem to indicate that the two groups approached each other more closely in variability in January than in September. However, the difference between the September deviation of the difference and that of January is only .54, a statistically insignificant figure.

Table IX shows the standard deviation of the difference on error quotients to be .018 in September, and .011 in January. This finding is far more significant than the corresponding figures on the Cross English tests. It confirms previous statements as to the narrowing of the gap between the two groups.

Finally there is the critical ratio obtained by dividing the difference of the means by the standard deviation of the difference. This gives a summary idea of the gap between the groups. On the Cross test scores (Table VIII) this ratio was .468 in September and .515 in January. On the error quotients (Table IX) the critical ratio was .445 in September and .455 in January. The differences between these pairs of ratios is quite small: .047 on the Cross tests, and .01 on the composition

errors. It should be remembered that this comparison favors the General Language group in the Cross tests, and the Technical group in the composition errors. And while the differences in both instances are so small as to be relatively insignificant, they agree with the other measures in showing a better performance in the elimination of composition errors than in the Cross tests by the Technical group.

From this mass of comparative figures, two findings stand out clearly: first, that the differences between the groups are small; and second, that the Technical group approached the General Language group more closely in the elimination of errors than it did in the Cross tests.

But perhaps the most important finding is that there is no positive evidence in this study that the Technical pupils cannot profit equally well with the General Language pupils in the work of the regular English classes. Even though Reed's distinction between the gains of inferiors and superiors is followed, it cannot be said that the evidence indicates a failure to progress on the part of the Technical pupils. That is all that this study aimed to discover: whether or not the presence of Technical pupils in English classes of a conventional character is desirable. It did not aim to show that the one group or the other learned more rapidly to apply the rules of English grammar. Within the scope and understanding of its problem the study has fulfilled its purpose.

CHAPTER IV

SUMMARY AND CONCLUSIONS

On the basis of this study, and within its limitations, certain conclusions can be offered. The validity of these conclusions is, of course, subject to correction, both by further study and by improvement of the technique employed. In view of the smallness of the differences discovered, it may well be expected that continued study of this problem would reveal evidence controverting this study, or would result in similarly inconclusive findings. But upon the basis of the data gathered and the measurements used, it may be concluded:

- 1 There is relatively small difference between the progress of technical pupils and non-technical pupils in the elimination of grammatical errors in written compositions and in objective type English tests.
- 2 Such differences as could be measured indicate very little difference between the technical pupils and the non-technical pupils in objective type English tests, the difference on the tests being very slightly in favor of the non-technical pupils.
- 3 Such differences as could be measured indicate that the technical pupils approached the non-technical pupils more closely in the elimination of grammatical errors in January than they did in September.
- 4 If Reed's contention that a relatively small gain by superior

pupils is more significant than a somewhat larger gain by inferior pupils be true, the evidence indicates that the non-technical pupils did no more than might have been expected of them. But if it be accepted as true that equal or slightly more than equal gains by the inferior group are significant, then the evidence indicates that the technical pupils derive as much benefit from formal English instruction as do non-technical pupils.

5 Insofar as the grammatical errors in English compositions represent conditions of actual use of the language, the larger critical ratio in error quotients favoring the Technical group indicates that this group made greater progress during the semester in the writing of English. This may be taken to mean that greater practical benefit was derived from the semester's teaching received by the Technical group.

However, all conclusions must be modified by the statement that the measurements do not reveal differences large enough to be definitive.

General Conclusion

Under the same methods of instruction, and in the same classes, technical or vocational pupils profit as much or more than do non-vocational pupils in the study of grammar as applied to composition writing.

This conclusion should be modified by explication of the phrase, "profit as much or more", which is understood to mean that the measured

progress of the technical pupils in the elimination of grammatical errors is somewhat greater than that of the non-technical pupils.

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APPENDIX

A Further Note on Ezekiel's Formula

In a later article than the one cited in Chapter I, page 10, Ezekiel says, in reply to a criticism by Lindquist, that his formula can be used even when the pairs of pupils are not perfectly matched.¹ Even if this be true, the two formulas (Lindquist's and "Student's") seem to be a matter of some controversy. Consequently, it would seem the better part of wisdom for an unskilled worker, who is not competent to judge the mathematical reasons advanced for each method, to avoid "Student's" formula, especially in dealing with a random sampling.

¹ Ezekiel, Mordecai, "A Further Note on Student's Method of Computing the Significance of a Difference Between the Means", Journal of Educational Psychology, XXIV (April 1933), pp. 306-309.

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