



The prediction of English proficiency of teaching candidates at Montana State College  
by Robert Norman Noyes

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of  
DOCTOR OF EDUCATION

Montana State University

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Abstract:

The purpose of this investigation was to develop a method of predicting the English proficiency of teaching candidates at Montana State College. The sample population was 142 student teachers of the 1959-1960 school year at Montana State College; of these, complete data were gathered on 92 subjects. The procedure consisted of four steps: (1) review of the literature on English proficiency, (2) selection of a criterion of English proficiency, (3) selection of factors to predict English proficiency and statistical treatment of them to determine their predictive value, and (4) a validation study of the method of prediction using the autumn 1960 student teachers at Montana State College.

The success criterion of English proficiency selected was a composite of three scores: (1) freshman English grade-point average, (2) Hew Purdue Placement Test in English score, and (3) supervising teacher's rating of student teacher's English proficiency. Nine factors from the high school and college records of the subjects were selected and programmed for a computer to obtain a multiple regression equation which would predict English proficiency of future students. Multiple regression equations for predicting the composite score and the Purdue Test score had correlations of .717 and .696, respectively. Four of the nine factors selected to predict English proficiency met tests of significance more often than the other factors: (1) high school English mark, (2) mathematics test score, (3) college freshman year grade-point average, and (4) ACE total score. In the validation study using 58 autumn 1960 student teachers, the predicted composite and Purdue Test scores correlated with the actual scores .795 and .783, respectively.

The main conclusion based on the findings of this study was that the English proficiency of teaching candidates can be predicted. A second conclusion was that the Hew Purdue Placement Test in English can be used to determine the English proficiency of a student if a single instrument is desired.

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CANDIDATES AT MONTANA STATE COLLEGE

by

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A thesis submitted to the Graduate Faculty in partial  
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R.N.N.

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## ABSTRACT

The purpose of this investigation was to develop a method of predicting the English proficiency of teaching candidates at Montana State College. The sample population was 142 student teachers of the 1959-1960 school year at Montana State College; of these, complete data were gathered on 92 subjects. The procedure consisted of four steps: (1) review of the literature on English proficiency, (2) selection of a criterion of English proficiency, (3) selection of factors to predict English proficiency and statistical treatment of them to determine their predictive value, and (4) a validation study of the method of prediction using the autumn 1960 student teachers at Montana State College.

The success criterion of English proficiency selected was a composite of three scores: (1) freshman English grade-point average, (2) New Purdue Placement Test in English score, and (3) supervising teacher's rating of student teacher's English proficiency. Nine factors from the high school and college records of the subjects were selected and programmed for a computer to obtain a multiple regression equation which would predict English proficiency of future students. Multiple regression equations for predicting the composite score and the Purdue Test score had correlations of .717 and .696, respectively. Four of the nine factors selected to predict English proficiency met tests of significance more often than the other factors: (1) high school English mark, (2) mathematics test score, (3) college freshman year grade-point average, and (4) ACE total score. In the validation study using 58 autumn 1960 student teachers, the predicted composite and Purdue Test scores correlated with the actual scores .795 and .783, respectively.

The main conclusion based on the findings of this study was that the English proficiency of teaching candidates can be predicted. A second conclusion was that the New Purdue Placement Test in English can be used to determine the English proficiency of a student if a single instrument is desired.

CHAPTER I  
INTRODUCTION

The importance of effective communication is such a well-known fact that quoting authorities to support it would be laboring the point. The main obligation of school systems should be to teach effective use of the language to the pupils. The importance of language in schools can be realized by noting that in addition to being the content of courses offered in the curriculum, it is the medium through which much knowledge is dispensed. If the schools fail in the area of the language arts, they ultimately fail in many areas. A committee of the Commission on Secondary School Curriculum substantiated the importance of English in the schools by stating: "Language is the instrument above all others by which most persons are enabled at once to develop and participate in their own culture."<sup>1</sup>

If it is accepted that proficiency in the use of language is the most important duty of schools, it follows that developing proficiency in English becomes the duty of all teachers in all areas. It follows further that people entering the teaching profession should have a good command of the language in order to develop proficiency in the pupils. This need is gaining official notice as shown by the following excerpt from the Great Falls Tribune concerning state board action:

Informal discussion Monday brought suggestions that teachers, regardless of what fields they major in, should use good English and

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<sup>1</sup>The Committee on the Function of English in General Education for the Commission on Secondary School Curriculum, Language in General Education, p. 3.

this deserves consideration when applications for certification are presented by graduates of colleges and universities.<sup>2</sup>

The English proficiency of candidates for teaching certificates at Montana State College has been determined in the past by the rating scale which the supervising teacher fills out after the student teacher has completed his assignment. This one to five rating scale has some shortcomings. The one and two ratings, which are the lowest, are rarely used, thus resulting in a three-point scale which fails to discriminate in English proficiency among the candidates to a satisfactory degree. Furthermore, the rating is made at an advanced stage in the student's education, usually the senior year, when it is too late to provide remedial work. The grades in English courses are also available, but there has been no systematic or statistical study to find predictive criteria of English proficiency. It was hoped that this type of study would provide information that would be helpful in advising students in the teacher preparatory curriculum and also in improving the English proficiency of Montana State College student teachers.

The national prominence given to English proficiency and the importance placed on English proficiency in the classroom by state authorities led to the desire to investigate the problem of early identification of English proficiency of candidates for teaching certificates at Montana State College.

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<sup>2</sup>"Board of Education Serious About Better English," Great Falls Tribune, December 13, 1955, p. 1.

### The Problem

The problem was to investigate English proficiency of teaching candidates by looking at errors made while student teaching, while taking objective tests and to examine the high school and college freshman records to see if there were any factors related to proficiency in English. The problem involved statistical treatment of the data to derive the predictive value of these factors and a multiple regression equation for the actual prediction of a student's proficiency in English. The methods used in this study are listed in the next section.

### The Procedures

The first step in the investigation was to review the literature on English proficiency to furnish information for the next procedure--determining the success criteria or measurement of English proficiency for the sample population of the study. Three factors were selected as success criteria: the New Purdue Placement Test in English,<sup>3</sup> an objective, machine-scored examination; grades obtained in college freshman English; and a questionnaire filled out by the supervising teachers and validated by interviews.

The third step was to select factors which could be used for predictive criteria to predetermine English proficiency. The following nine

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<sup>3</sup>Wykoff, G. F.; McKee, J. H.; and Remmers, H. H., The New Purdue Placement Test in English, New York: Houghton Mifflin Company, 1955. In future references this test will be referred to as the Purdue Test.

factors were chosen on the bases of availability and relation to English proficiency:

1. High school English mark
2. High school mark in field of major interest
3. American Council on Education Psychological Examination for College Freshmen quantitative score<sup>4</sup>
4. ACE language score
5. ACE total score
6. Freshmen Week mathematics test score
7. College freshmen year grade-point average
8. College grade-point average in field of major interest
9. College grade-point average in field of minor interest

Next, the predictive criteria and success criteria were programmed on a computer in order to determine the predictive value of each of the nine factors and also to determine a multiple regression equation for prediction of each individual student's English proficiency. The sample population used in this study was 142 student teachers at Montana State College during the 1959-1960 school year. Complete data were gathered on 92 (64.8%) of the 142 subjects.

The final step involved the validation of the method by predicting the English proficiency of 58 autumn 1960 Montana State College student teachers by means of a multiple regression equation and then comparing

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<sup>4</sup>The abbreviation ACE will be used for the American Council on Education Psychological Examination for College Freshmen in subsequent references.

the results with the actual score of each student teacher as determined from the three success criteria named above.

Chapter 2 contains the review of the literature, the first step in the investigation.

## CHAPTER II

### REVIEW OF THE LITERATURE ON ENGLISH PROFICIENCY

Because this study was concerned with the English proficiency of candidates for teaching certificates, a review of the literature on English proficiency was made to determine what authorities have had to say about proficiency in English. The importance of the problem, already stressed in the first chapter, is re-emphasized in the following statement from a survey on teacher training: "Certainly no school board should employ any teacher who cannot speak clearly, agreeably, and fluently."<sup>1</sup> In this chapter different views on proficiency in English are discussed, followed by a section on English proficiency tests for teachers.

#### Views on Proficiency in English

With the advent of study and interest in linguistics in the twentieth century, a major controversy about the standards of English usage developed. On the one hand, traditionalists defended the rules devised by eighteenth century grammarians such as Lowth and Murray as standards to determine whether construction and usage were correct or incorrect. Thus any particular usage could be declared right or wrong by referring to rules. On the other hand, linguists studying language and language change stated that change was, is, and will always be inherent in language, and

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<sup>1</sup>Report of a Joint Committee of the Faculty of Harvard College and of the Graduate School of Education, The Training of Secondary School Teachers, p. 65.

the current usage of any society determines the acceptability. "Right" and "wrong" cannot be applied to usage; instead, "acceptable," "preferred," or "poor" are to be used. Social setting determines acceptability: a specific usage such as ain't may be poor in one setting, acceptable in another. Most people are at neither extreme, but critics and teachers tend to lean toward one or the other extreme. The traditional and linguistic approaches are treated in the following sections.

The traditional approach. The traditional approach to English proficiency is that there are certain standards or minimum essentials that can and should be taught through the medium of rules. This approach is opposed to the linguistic approach which is based on usage and spontaneity. The following passage states the danger of the latter view:

On the one hand, the demand is universal that high school graduates shall be trained to write "grammatically" and clearly in the popular sense of "grammar" and an acceptable sense of "clarity." To write correctly does not in itself imply the acquisition of "literary" virtues. On the other hand, a large and articulate body of educational theorists and of high school English teachers seems to be of the opinion that the primary purpose of "writing" is the release of "creative activity," arguing that training in correctness follows upon the release of this activity, and not the other way around. This theory has a certain value, but its supporters sometimes appear so convinced of the value of creative activity per se that they grow impatient with the dull drill of syntax, "grammar," punctuation, mastery of paragraph structure and the like.<sup>2</sup>

A more forceful defending statement is made by Ward:

All teachers still value spontaneity, and we secure quite a bit of it; but we have learned that it is not a curriculum subject,

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<sup>2</sup>Ibid., pp. 22-23.

that we cannot require it. What we can require, what it is honest not to require, is accuracy. It is wrong to leave pupils so ignorant of mechanics that their letters prove them to be uneducated.<sup>3</sup>

He continues by stating that "With one common judgment the world insists on at least a modicum of ability to make clear sentences."<sup>4</sup>

A method frequently employed by defenders of the traditional approach is illustrated in the following excerpt from Clapp. He lists examples of usage which are now accepted by some authority but which grate the ear. The following are selected examples he uses from a handbook printed by the Iowa Department of Public Instruction:

- 7. Have father or Jim called me?
- 9. A great heap of books are on my table.
- 13. These kind of letters are scarce.
- 20. Having looked at our watches, no time was lost . . .
- 30. The reason we moved is because we were annoyed.
- 33. Due to the flood they moved in a hurry.<sup>5</sup>

These are constructions that the booklet tells teachers of English IX-X not to correct as they are considered acceptable.

An excellent defense of the traditional view is offered by Bloomfield.<sup>6</sup> He compares the idea that since all language changes, we should

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<sup>3</sup>Ward, C. H., What Is English? p. 25.

<sup>4</sup>Ibid., p. 28.

<sup>5</sup>Clapp, H. S., "The Prose That Depresses," Journal of Higher Education 26:433-435, November, 1955.

<sup>6</sup>Bloomfield, M. W., "The Problem of Fact and Value in the Teaching of English," College English 15:33-37, October, 1953.

not stop it, to the thought that since we all die, we should not utilize doctors. The change in language should be slowed down by prescriptive grammar for four reasons:

1. Social utility--there is a belief in our culture that a correct grammar exists; therefore it is the duty of English teachers to teach it.
2. An aid to understanding the past--if language changes too rapidly, ability to comprehend the language of the past decreases.
3. Aesthetics--sloppy language leads to a loss in the beauty of the language.
4. Intellectual breadth--sloppy language limits the vocabulary which is important to the broad understanding of things.

He maintains that usage is important and the study of linguistics is important but reasons that man determines usage and therefore can control it.

A survey by Pooley<sup>7</sup> led him to conclude that the majority of high school English teachers taught formal, traditional English, the state courses of study expected considerable analytical and structural grammar in the grades, and textbooks dwelt on formal aspects of structural grammar. Evidence of Pooley's conclusion is found in the following statement:

Evidence from several contributing sources supports the conclusion that faith in the efficacy of formal grammar to develop successful writers and speakers is held by a very large number, perhaps the majority, of current teachers of English.

Thus, command of formal rules is held to be English proficiency by many experts in the field.

<sup>7</sup>Pooley, R. C., Teaching English Grammar, pp. 34-51.

<sup>8</sup>Ibid., p. 34.

The traditionalists include supporters of minimum essentials in English as is seen in the following statement in which an argument for the teaching of essentials revealed by research in spoken and written errors is presented:

Because research has shown which essentials are causing the greatest number of errors in speech and in writing, pupils and teachers are armed with the technique for mastering these essentials through habit forming practice at the specific point where the individual pupil's<sup>9</sup> language falls below the level of acceptable colloquial English.

Mirrielees, too, advocates the stressing of minimum essentials as shown in her statement:

After years of blundering, one of the most sensible conclusions reached is this: In each term there should be a few decencies in form and written expression that must be acquired by every pupil before he can be passed to a higher grade. These decencies in form and written expression have been termed "The Minimum Essentials in the Mechanics of Composition." A belief in the establishment of such a minimum requirement grew out of the discovery that on the whole boys and girls will do what they have to do.<sup>10</sup>

The defenders of traditional usage as proficiency in English are numerous and influential. Their arguments as listed are solid; however, their stand is being attacked by supporters of the linguistic approach as described in the following section.

The linguistic approach. The extreme linguist would say that if the verbal sounds communicate, they are acceptable; however, the more careful

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<sup>9</sup>Broening, A. M., and others, Conducting Experiences in English, p. 344.

<sup>10</sup>Mirrielees, L. B., Teaching Composition and Literature, p. 62.

and studious linguists examine the way in which language changes and attempt to bring the standards of acceptability in line with this change.

The following statement from an accepted college handbook of English presents the linguistic argument that right and wrong are not applicable to good English; instead a value judgment of effectiveness in communication should be used:

Good English is something more than writing "complete" sentences, using certain verb forms, making verbs agree with their subjects, and pronouns match their antecedents. Good English is language that is effective and appropriate for its specific purpose. . . . It is not so much a question of "right or wrong" as of "more or less effective." It is, therefore, a matter of selection and judgment more than of rules.<sup>11</sup>

The chapter continues with the statement that there are different levels of usage and that some statements not acceptable at a formal level are acceptable as good English at other levels.

The Commission on the English Curriculum of the National Council of Teachers of English in commenting on standards in English states that "minimum essentials, objective standards, . . . imply a uniformity of ability and attainment which does not exist among human beings."<sup>12</sup> As a result, "Efforts to set a floor, a ceiling, or a norm for a class are as futile as they are injurious to the individual learner."<sup>13</sup>

<sup>11</sup>Perrin, P. G., and Smith, G. H., The Perrin-Smith Handbook of English, p. 20.

<sup>12</sup>The Commission on the English Curriculum of the National Council of Teachers of English, The English Language Arts, p. 189.

<sup>13</sup>Ibid., p. 190.

Hill<sup>14</sup> attacks the logic of formal grammar with examples similar to the following: I see him involves no action; therefore the objective case is not logical. He states that any form is correct if it is current in dialect. By analyzing the reasons for the change from correct forms of formal grammar, he justifies such usages as "He couldn't of had . . . ," "Rooms for tourist," and "Youse had better." The article concludes with the advice that teachers should find and teach the facts rather than rely on myth.

Another attacker<sup>15</sup> of the fundamentals set up by grammarians says that skills cannot be isolated as they are interdependent. Many of the skills are also merely conventions. What the English teachers should concentrate on is the thinking and habits, not the skills. The difference between habits and skills is not made clear in this article.

A typical statement of the linguists about standards is as follows: "The standards of correct English in America shall be determined by the usage of the best speakers and writers of the current generation."<sup>16</sup> This quote and others similar to it by supporters of the linguistic approach do not answer crucial questions concerning the selection of the best speakers and writers, the standards to be taught, the duration that the standards shall remain valid, and so on.

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<sup>14</sup>Hill, Archibald A., "Correctness and Style in English Composition," College English 12:280-285, February, 1951.

<sup>15</sup>Osenburg, F. C., "'Tests' of 'English Fundamentals,'" College English 11:277-281, February, 1950.

<sup>16</sup>"The Responsibility for Language Usage," Journal of Higher Education 23:154, March, 1952.

However, some of the attackers of the formal grammatical approach to English proficiency who defend the linguistic approach stress the point that mastery of grammar is nonetheless extremely important. Parker takes this stand in the following statement:

Yet every teacher of English knows that tests of ability to spell and to write grammatical, properly punctuated sentences do not test the ability to engage successfully in expressional activities. The mastery of the elements of expression is essential, but their mastery does not assure effective communication.<sup>17</sup>

The Committee on the Function of English in General Education for the Commission on Secondary School Curriculum states that the grammar and rhetoric once valuable as a basis for classical study are now empty shells.<sup>18</sup> The report continues by saying that "Correctness in grammar must be judged by spoken practice not merely by formal rules derived from literary texts."<sup>19</sup> The student should work from the facts of language to the general, an inductive rather than deductive approach, but this should be done under the guidance of a teacher thoroughly grounded in grammar.<sup>20</sup>

The linguists have contributed much information about language and the process of language change; however, in doing this they have attacked

<sup>17</sup>Parker, Roscoe E., The Principles and Practices of Teaching English, p. 217.

<sup>18</sup>The Committee on the Function of English in General Education for the Commission on Secondary School Curriculum, Language in General Education, pp. 65-66.

<sup>19</sup>Ibid., p. 81.

<sup>20</sup>Ibid., p. 82.

the standards of English proficiency set up by traditional grammarians and have offered no substitute standards to replace them. In deriving a measure of English proficiency, the findings of the linguists must be weighed and synthesized with the minimum essentials of the older grammarians. In Chapter 3 this was attempted in the formation of criteria of English proficiency for candidates for teaching certificates.

Proficiency Tests in English for Credentials  
Candidates Used in Colleges

In order to sample what was being done in colleges to test the English proficiency of teaching candidates, the investigator asked the National Council of Teachers of English for information. In response, the Council provided information on colleges and universities experimenting with English proficiency tests for teaching candidates.<sup>21</sup> The Council also stated that the college level tests being widely used were the Cooperative English Test, the New Purdue Placement Test in English, the Essentials of English Tests, the Sequential Tests of Educational Progress-Writing, and the Cooperative Literary Comprehension and Appreciation Test.

Three return letters were received from requests sent out to colleges experimenting in English proficiency tests. The Test Officer of San Jose State College, San Jose, California, reported that no test was actually being used although it was being considered and that teaching candidates, along with the rest of the entering freshmen, were placed according

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<sup>21</sup>Letter from the National Council of Teachers of English dated October 28, 1959.

to the verbal part of the College Qualification Test, the Cooperative Reading Examination, and a 90 minute essay examination. The Education Division of San Jose State College is considering the use of an English proficiency examination for students before they go into practice teaching. One test discussed was the Teacher Education Program administered by the Educational Testing Office.<sup>22</sup>

The Dean of Graduate Studies at Fresno State College, Fresno, California, stated that the college is using the American Council on Education Mechanics of Expression Test for screening teaching candidates. The cutting point is the 50th percentile for sophomores in liberal arts colleges. As the result of an informal study conducted at the college in 1949 it was found that a marked degree of consistency between performance in writing and the Mechanics of Expression Test existed, and as a result, the composition was dropped. Fresno State College is not certain the composition should have been dropped, but it has not been reinstated because of the correcting time involved. The college indicated that it was not thoroughly satisfied with the instrument now being used for two reasons. First, ability to pass the test apparently does not ensure the use of Standard English in the classroom. Furthermore, it was felt that the tests included some items that scholars in linguistics would dispute. It is the Dean's belief that work needs to be done on item analysis of the test and correlation between use of English in the classroom and test performance.

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<sup>22</sup>Letter from John C. Woodward, Test Office at San Jose State College, San Jose, California, dated November 6, 1959.

A subcommittee of the California Council on Teacher Education, of which the Dean is a member, is consulting with the Educational Testing Service to develop a special test for the screening of teacher candidates.<sup>23</sup>

The School of Education at the University of Kansas, Lawrence, Kansas, sent a copy of the English Proficiency Examination given to all candidates for degrees in the College and in the Schools of Education, Journalism, Fine Arts, and Medicine. It may be taken during the junior or senior year, and if it is failed twice, the student enters a special composition course and attempts the examination again after completing the course. The examination is a composition written on topics on which university juniors and seniors should be able to write. It is graded on content, organization, paragraph and sentence structure, grammar, punctuation, and spelling. The test is to indicate mastery rather than be used for placement.<sup>24</sup>

#### Summary

A review of literature on English proficiency and a limited investigation of English Proficiency tests for teaching candidates in colleges were undertaken in order to gain a better understanding of what authorities had to say about English proficiency and to see what was being done with

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<sup>23</sup>Letter from Phyllis W. Watts, Dean of Graduate Studies at Fresno State College, Fresno, California, dated November 30, 1959.

<sup>24</sup>Letter from Oscar M. Haugh, Professor of Education at the University of Kansas, Lawrence, Kansas, dated October 21, 1959.

the English proficiency of teaching candidates.

The literature on English proficiency fell into two main groups: the traditionalist and the linguistic. The traditional approach is that there are fixed standards of correct grammar which can be identified as minimum essentials and that these standards should be taught. On the other hand, the linguistic approach is that standards of proficiency in English change as language is a changing thing. Thus, the student of language should describe this change in terms of what language is actually being used by people to communicate rather than prescribe fixed standards.

Letters from selected colleges using and experimenting with English proficiency tests for teaching candidates indicated that there is concern and substantial interest in tests of this sort. The information received from these colleges and the review of the literature were helpful in selecting criteria of English proficiency used in this study and described in detail in Chapter 3.

### CHAPTER III

#### DEVELOPMENT OF A COMPOSITE SCORE OF ENGLISH PROFICIENCY

A criterion of English proficiency in teaching was devised after consulting with faculty members of Montana State College and giving the question of proficiency much consideration. The review of the literature was helpful in the selection of the criterion used, a composite of three scores:

1. Freshman English grade-point average
2. Total score on the New Purdue Placement Test in English
3. Score derived from supervising teacher's rating of student teacher's English proficiency

It was felt that a composite of these three factors would be more accurate than any single one because each represents a score that is derived differently from the others. The grade-point average in freshman English is given by an instructor professionally educated in English and is based on written and oral work. The Purdue Test is an objective test in English mechanics that renders a score free from many of the subjective influences that may effect the evaluation of the English instructor or the supervising teacher. The questionnaire was scored by the supervising teacher who had a chance to observe the student before a class as a prospective teacher. Chapter 3 deals with these three factors as measurements of English proficiency in teaching and concludes with a subsection on the composite of these scores.

Achievement in Freshman English as a  
Criterion of English Proficiency

One of the factors used in determining English proficiency of the 142 student teachers used in this study was the grade-point average of the first year<sup>2</sup> sequence in basic English. The freshman grade-point average in English was figured from the permanent records in the Registrar's Office of Montana State College. It was based on the three-quarter sequence of English taken in the freshman year of college. Letter grades were converted to numerical values to figure grade-point average as follows: four points for an A, three points for a B, two points for a C, and one point for a D. In the majority of cases the freshman sequence was either English 101-102-103 or English 111-112-113 at Montana State College.

English 101-102-103 is a nine credit sequence entitled English Composition and bears the following catalogue description:

A writing course giving special attention to the elements of effective modern style; including organization of ideas into sentences, paragraphs and longer units, and current usage in grammar and phrasing. Wide reading in contemporary prose, and constant emphasis on improvement in vocabulary and spelling.<sup>1</sup>

English 111-112-113 is a twelve credit sequence called Oral and Written Communication. It is described as follows: "A course in writing, reading, speaking, and listening aimed at developing recognition of the principles and skill in the techniques which apply to all communication situations."<sup>2</sup>

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<sup>1</sup>Montana State College Bulletin, XIII, 3, March, 1958, p. 245.

<sup>2</sup>Ibid.

In the case of students who transferred to Montana State College from other institutions, the grades obtained in the freshman course at that particular institution were used.

The grade-point average in freshman English is important in determining the proficiency score in English as it is based on the opinion of an instructor professionally educated in English. The grade-point average is based on a year's observation by members of the English Department faculty of work in class and written work out of class. This was considered a valuable complement to the other two factors, one of which, the Purdue Test, is discussed next.

#### The New Purdue Placement Test in English as a Criterion of English Proficiency

The Purdue Test is an objective test of 65 minutes duration which critics feel is a measure of English proficiency through its measure of the following: recognition of grammatical errors, punctuation, sentence clearness and effectiveness, reading, vocabulary, and spelling. In the examiner's manual, the authors of the test state the primary purpose of it is "to sample the knowledge possessed by high school seniors or college freshman of what is called 'good English.'"<sup>3</sup> They add, however, that the test may be used for higher and lower levels and has been used with university graduate students. The authors of the test clarify what they mean by

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<sup>3</sup>Wykoff, G. S.; McKee, J. H.; and Remmers, H. H., Examiner's Manual; The New Purdue Placement Test in English, p. 5.

"good English" in the following words:

In relation to what "good English" is, the writers hope and feel that they are not too doctrinaire in attitude, that they are neither too liberal nor too conservative. They have tried to avoid using questions concerning which dispute might arise between the "schools."<sup>4</sup>

The authors also state that although it was not devised as a predictive device, it has been found to be useful in the predicting of grade-point averages for freshmen at Purdue.<sup>5</sup>

The Purdue Test was selected as a criterion of English proficiency because the items in the test are relatively free from controversy and the test has been successfully used as a predictive instrument. The following reviews by Wantman and Lannholm substantiate these views:

The New Purdue Placement Test in English is a good test for measuring the "fundamentals of English." Even though there are still a few items for which the answers are probably controversial, the authors seem to have succeeded in not being "too doctrinaire in attitude, neither too liberal nor too conservative." The evidence for validity for English placement and for predicting success in first year performance at Purdue is strong enough to warrant universities' using this test for these purposes at their institutions provided they establish their own norms and determine evidence of validity based on their own students.<sup>6</sup>

The evidence presented indicates that the test has a high degree of effectiveness for the placement of college Freshmen in

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<sup>4</sup>Ibid.

<sup>5</sup>Ibid.

<sup>6</sup>Wantman, M. J., reviewer, in The Fifth Mental Measurements Year-book, p. 200.

English courses.<sup>7</sup>

The Purdue Test score was included in the composite score of English proficiency because it is a more objective measure of the student's proficiency in English than the evaluations by the college instructor and the supervising teacher.

Only the total score on the Purdue Test was used in this study. The results from testing the candidates for teaching certificates at Montana State College yielded a score range of 81 to 196, a mean of 138.82, and a standard deviation of 21.3. Although national norms for the Purdue Test are being devised, there are relatively few as yet. The Examiner's Manual gives norms for 2744 students in the first year of college. The mean is 127.50 and the standard deviation is 28.51 for this group.

In addition to the freshman English grade-point average and the Purdue Test score, a score derived from a questionnaire on English proficiency filled out by the supervising teacher of each student teacher was used in the composite score of English proficiency. A copy of the questionnaire is in Appendix A.

Questionnaire Results of Supervising Teacher's  
Rating of Student Teacher as a Criterion  
of English Proficiency

It was felt by the investigator that the opinion of the supervising

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<sup>7</sup>Lannholm, G. W., reviewer, in The Fifth Mental Measurements Yearbook, pp. 199-200.

teacher on the use of English by the student in the practice teaching situation would be a valuable contribution in an evaluation of English proficiency in teaching. The freshman grade-point average is based on the proficiency of the individual as a student judged by an expert in the field, and the objective test renders a score based on the individual's ability to read, analyze, and indicate correct usage on an answer sheet. The supervising teacher, however, has an opportunity to see the individual perform in front of a class and apply his English ability in a teaching situation. Questionnaires on student teachers' English proficiency were sent to the supervising teachers of all of the 1959-1960 student teachers in both the secondary and elementary levels. Of the 224 questionnaires sent out, 161 (72%) were returned. The construction of the questionnaire, the scoring, the results, and the interview used to validate it are discussed in the following sections.

Construction of the questionnaire on English proficiency. The questionnaire consisted of two parts. The first section contained 20 statements about English proficiency selected from a list which the investigator compiled from experience in the teaching of English. It was criticized and amended by selected faculty members of Montana State College. The second section requested opinions on the advisability of an additional formal English course and the content of the course. Spaces were left for remarks under each part, and many helpful suggestions and comments were supplied by the supervising teachers.

Statements 1 through 20 in the first part of the questionnaire are a mixture of positive and negative statements concerning English proficiency. Numbers 1, 2, 5, 6, 7, 8, 9, 10, 13, 15, 16, 18, and 19 are negative, and the remaining seven are positive. Some of the items such as 2 "Speaks in a monotone often" pertain to speech, and others such as 1 "Uses pronouns incorrectly" are concerned with grammatical errors. Items such as 17 "Pupils are attentive and seem interested" were devised to determine if the student teacher could organize material clearly and logically and present it coherently.

Scoring the questionnaires on English proficiency. The questionnaires were scored by giving one point for each positive item checked and subtracting one point for each negative item checked. This method is a standard one in scoring questionnaires of this type and was chosen after consultation with two experts on statistics. If questionnaires were returned by more than one supervising teacher for any one student, the scores were averaged. The scores ranged from -6 to +7 with a mean of 1.84 and a standard deviation of 2.86.

The second part of the questionnaire was added to obtain the supervising teachers' opinion on the advisability of an additional English course. If an additional course in English was indicated as desirable, the teacher was asked to check the type of course thought to be most advantageous to remedy the lack of proficiency.

The interview for validation of the questionnaire results. Interviews were conducted with the student teachers by the investigator to

determine the validity of the questionnaire returns. The interview served two purposes: it was scored by the investigator in order to validate the questionnaire, and questions about the background of the students were asked in order to determine the difference, if any, between students rated high in English proficiency and students rated low. The first part of this section contains a discussion of the limitations of the questionnaire which led to the validation study. The procedures used in the interview and in the validation of the questionnaire by the interview are next. A discussion of the responses of the students about their backgrounds concludes the section.

English grammar itself is not subject to absolute standards. Some traditional grammarians insist upon right or wrong usage while many modern linguists allow various levels of usage and tend to label whatever becomes common usage "acceptable." Thus there is a conservative-liberal stratum of grammatical usage. This is a serious problem in the construction of any English grammar test. The answers which are wrong to one person are acceptable to another. Thus in interpreting the items on the questionnaire, the supervising teacher might not consider some negative points important enough to check while others might feel strongly about standards and check every applicable negative item.

Another problem is the English proficiency of the supervising teacher. It is possible that a teacher with a liberal linguistic background may not be aware of some usages condemned by more traditional grammarians. This may explain the fact that only two checks were made on

item 6 "Uses infirm reference."

The subjectivity in judging the English proficiency of the student teachers can be determined to a degree by examining the results where two or more questionnaires were returned by different supervising teachers on the same student teacher. Generally the results were similar, but in some cases there was a great difference.

Forty-six of the 92 students for which complete data were gathered were interviewed. The interviews lasted from 20 to 30 minutes and were conducted according to a definite plan. A copy of the interview form may be found in Appendix B. In addition to recording answers to questions, the investigator noted the speech, grammar, diction, and organization of the responses. Immediately after the interview each of these points was scored on a five point basis with five being the highest rating and one the lowest. An average of the four ratings was used as an English proficiency rating by the investigator and was compared to the questionnaire score. The correlation between the questionnaire ratings and the interview ratings was .843. Most authorities would consider this a high correlation which indicates a strong relationship.<sup>8</sup>

In order to further utilize the interview, a related and interesting study was made of the relationship between English proficiency and the background of the students interviewed. The 46 student interview forms were divided into three divisions according to total scores on the

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<sup>8</sup>For example, in Warters, Jane, Techniques of Counseling, p. 31, a correlation of .80 and up is labelled a very high correlation for two sets of data similar to those under discussion.

Purdue Test. The dividing points were arbitrarily selected to divide the results into three groups--upper, middle, and lower. The middle group consisted of those students scoring between 130 and 149, about half a standard deviation above and below the mean of 138.82. The upper and lower groups were those scoring above and below these limits respectively.

The frequencies of students' responses in each of the three categories to various questions about their home background are contained in Table I. It is interesting to note that about 50 percent of upper and middle division students come from towns above 5,000 population and 50 percent from below 5,000 population. There is also a marked distinction between these groups on the location of the home in the community. Over 70 percent of the upper and middle division students stated that they lived in town as opposed to on a farm; while the proportions were practically opposite with the lower group.

The upper group has slightly more college educated parents (43%) than the middle group (29%), but there is a sharp drop with the lower group (10%). The two higher divisions of students reported a similar pattern of parental employment with about 55 percent in the farmer-skilled labor class and 45 percent in the white collar-professional class; the upper division reported slightly more in the professions. The percentages for the lower divisions are 80 percent and 20 percent respectively. In the higher divisions, fewer siblings were found, with the sharpest division again between the middle group and the lower group.

In response to questioning on the number of periodicals taken in the

TABLE I. RELATION OF ENGLISH PROFICIENCY OF TEACHING CANDIDATES TO FACTORS IN THE HOME BACKGROUND

Interview item	Responses by English proficiency group					
	Upper		Middle		Lower	
	Freq.	%	Freq.	%	Freq.	%
Population of town:						
Below 2,500	5	33	5	24	6	60
2,500-5,000	2	13	6	29	3	30
5,000-10,000	4	27	0		1	10
Above 10,000	4	27	10	48	0	
Location of home:						
Farm	4	27	4	19	7	70
Town	11	73	17	81	3	30
Education of parents:						
High school	16	53	29	69	18	90
One year college	1	3	2	5	0	
Two years college	6	20	4	10	1	5
College degree	5	17	6	14	1	5
Graduate work	1	3	0		0	
Employment of parents:						
Farming	4	27	5	24	6	60
Skilled labor	4	27	7	33	2	20
White collar	5	33	8	38	2	20
Professional	2	13	1	5	0	
Average number of siblings:	2.13		2.67		3.80	
Number of magazines in home:						
None	0		1	5	1	10
One	1	7	1	5	0	
Two	1	7	3	14	1	10
Three	2	13	7	33	4	40
Four	3	20	3	14	4	40
Five or more	8	53	6	29	0	
Foreign language spoken in home:						
Yes	3	20	6	29	5	50
No	12	80	15	71	5	50

home, no lower division student reported five or more; 29 percent of the middle group and 53 percent of the upper group did. The tabulation of homes in which a foreign language is spoken continues the pattern of upper and middle division similarity with a marked difference in the lower group. About four-fifths of the former division reported no foreign language spoken in the home as opposed to one-half of the lower group.

The interviewee's responses to questions about his activities and attitudes are found in Table II. The extracurricular activities reported in the three divisions fail to reveal any marked difference. More participation on the school paper was found in the higher groups. The fact that the lower group indicated more participation in dramatics than the others may be explained by the fact that the lower group attended smaller schools. However, this should also mean a higher participation in music which is not the case. The upper group reported less participation in sports, but this is probably not significant as the next item on the table shows that there are more girls in that group. In response to a query as to whether they considered themselves above-average, average, or below-average readers, the subjects responded as one would expect; that is, more responses in the below-average category occurred in the lower groups. It is interesting to note, however, that a higher percentage (38%) of the middle group indicated above average ability in reading than in the upper group (33%). None of the lower group responded in this category. The higher groups indicated more periodicals read and greater variety of periodicals read. The higher the group, the more favorable and less

TABLE II. RELATION OF ENGLISH PROFICIENCY OF TEACHING CANDIDATES TO  
SELECTED FACTORS

Interview item	Responses by English proficiency group					
	Upper		Middle		Lower	
	Freq.	%	Freq.	%	Freq.	%
<b>Activities:</b>						
Extracurricula activity						
School paper	8	53	6	29	2	20
Dramatics	9	60	11	52	8	80
Music	8	53	8	38	2	20
Sports	4	27	13	62	6	60
Amount of reading						
Below average	1	7	4	19	6	60
Average	9	60	9	43	4	40
Above average	5	33	8	38	0	
Number of different magazines mentioned						
	19		16		9	
Average number of magazines read						
	3.33		2.67		1.60	
<b>Attitudes:</b>						
Attitude toward high school						
English						
Poor	0		11	52	7	70
Neutral	8	53	2	10	1	10
Good	7	47	8	38	2	20
Attitude toward college						
English						
Poor	1	7	4	19	4	40
Neutral	6	40	10	48	4	40
Good	8	53	7	33	2	20
<b>Sex:</b>						
Male	7	47	16	76	6	60
Female	8	53	5	24	4	40

unfavorable responses to attitude toward English courses in high school and college were given.

The interview results when divided into three groups on the basis of the Purdue Test indicated that there is a marked difference in types of responses between the lower groups and the two higher groups. The differences between the middle and upper groups are evident in a few categories, but for the most part the two groups responded similarly.

Supervising teachers' rating of student teachers' English proficiency by the checking of questionnaire items. The results of the supervising teachers' rating of the student teachers' English proficiency by checking questionnaire items were divided into four groups: grammar, speech, organization, and general. This division was made to make the discussion of the results clearer.

Nine items (1, 3, 5, 6, 10, 13, 15, 16, and 19) on the questionnaire pertained to grammar. In general, these were the least checked items by the supervising teachers. This could be explained in a number of ways: (1) the grammar of the student teachers was less objectionable than speech and organization, (2) the grammatical errors of the student teachers were not noticed and checked by the supervising teachers for some reason, or (3) the fact that eight of the nine items on grammar were phrased negatively. The latter was not done by design but probably because grammatical errors are usually discussed in a negative fashion. Nevertheless, it is human nature to check positive items over negative items in an evaluation.

The responses of the supervising teachers to the items on grammar

are found in Table III. Items 1, 6, 13, 15, and 16 were checked on less than 10 percent of the questionnaire.

TABLE III. SUPERVISING TEACHERS' RATINGS ON QUESTIONNAIRE ITEMS: GRAMMAR

Grammatical constructions	Supervising teachers checking item	
	Frequency	Percent
1. Uses pronouns incorrectly (Fred and me did it)	10	6
3. Avoids using unnecessary words (Where is it at?)	58	36
5. Uses incorrect verb forms (I seen)	19	12
6. Uses infirm reference (Sam and John took his (?) car home)	2	1
10. Misspells words on blackboard occasionally.	43	27
13. Uses double subjects occa- sionally (The man he . . . )	12	7
15. Uses expressions not acceptable in proper speech (ain't)	1	1
16. Uses double negatives (haven't no)	7	4
19. Does not always make his verbs agree with his subjects	18	11

Misspelling, in addition to receiving the most checks (27%) of the negative items, was mentioned as a special weakness in eight remarks. The two items on verbs, 5 and 19, received checks on 12 percent and 11 percent respectively of the returns and were the subject of remarks. One supervising teacher said that as a teacher he was guilty of not making verbs agree with subjects, and another said that he knew of teachers who used expressions such as "I seen,"

Errors in grammar, although checked less than errors in speech and organization, were evidently noticeable as almost a third of the supervising teachers indicated that a course in the review of fundamentals in grammar would help the student teacher.

The items on speech received many checks as shown in Table IV. This is probably due to the fact that errors in speech are more noticeable than errors in grammar to most people. In the cases of latency between observation and filling out the questionnaire, the speech habits would be more easily recalled than grammatical errors.

TABLE IV. SUPERVISING TEACHERS' RATINGS ON QUESTIONNAIRE ITEMS: SPEECH

Speech situations	Supervising teachers checking item	
	Frequency	Percent
2. Speaks in a monotone often	40	25
7. Is sloppy in speech (runnin', ya)	24	15
8. Mispronounces words occasionally	56	35
9. Repeats expressions like <u>OK</u> and <u>all right</u> frequently	79	49
11. Has no distracting habits while speaking (looks away from pupils)	61	38
20. Seems at ease when speaking impromptu	86	53

Most of the remarks on the students' vocal expression were that their speech was either a monotone or lacked modulation. A number of

remarks pointed to sloppiness in speech, specifically O.K., doin', you'se, jist and slang or trite phrasing. Repetition of expressions and mispronunciation were also remarked on.

The student teachers' problems in speech were indicated on many of the blanks. As this is an important tool in teaching effectively, identifying the students with problems and guiding them into speech courses before student teaching would be a great help to the student.

Items 4, 12, 14, and 17 had to do with organization and presentation of material in a coherent manner. The items were all stated positively and were checked frequently by the supervising teachers as shown in Table V. A supervising teacher remarked that these items involved teaching methods as well as English proficiency, no doubt true, but incoherent organization of material would cause each item to suffer.

TABLE V. SUPERVISING TEACHERS' RATINGS ON QUESTIONNAIRE ITEMS: ORGANIZATION AND PRESENTATION OF MATERIAL IN A COHERENT MANNER

Items on organization and presentation	Supervising teachers checking item	
	Frequency	Percent
4. Knows and uses the terms particular to his subject area	94	58
12. Prepares pupils for new concepts with explanations	99	61
14. Can explain concepts in other words if questions arise	85	53
17. Pupils are attentive and seem interested	104	65

Several remarks pointed to difficulties with organization. Among them were "doesn't explain directions clearly," "talks over students' heads," "fails to formulate good questions," and "resorts to analogy too quickly rather than being specific."

It is a hypothesis of the investigator that a proficient writer who organizes his material well will be able to transfer this ability to the teaching situation.

Item 18 "Accepts sloppy work from pupils" was checked on 11 percent of the questionnaires. Although not directly related to the English proficiency, this item was included on the assumption that a person who would accept sloppy work is not contributing to the improvement of the pupils' writing.

Supervising teachers' responses to advisability of an additional English course. There were responses to the part of the questionnaire on the advisability of an additional English course on 126 returns. Of these, 83 (66%) indicated that an additional formal English course would help the student teacher, and 43 (34%) did not believe it would be of any help.

Three types of courses and a space for the filling in of a course not listed were checked or filled in by those checking "yes" to the first question. The three listed courses and the percentage checking each are shown in Table VI.

Many of the remarks supplemented or restated the type of courses listed in Table VI; eleven remarks called for a course on the review of basic fundamentals. Two remarks were to the effect that the student

teacher expressed a desire for a course of this type. Three remarks were in favor of more speech classes. One supervising teacher who checked "Other" said that individual work was needed more than course work. The elementary supervising teachers made four requests for blackboard writing techniques, three for techniques in reading stories, and two for phonics.

TABLE VI. SUPERVISING TEACHERS' RESPONSES TO QUESTIONNAIRE ITEMS:  
DESIRABILITY OF AN ADDITIONAL ENGLISH COURSE FOR TEACHING CANDIDATES

Item on the desirability of an additional English course	Supervising teachers checking item	
	Frequency	Percent
Do you think an additional formal course in English would help your student teacher?		
Yes	83	66
No	43	34
If yes, what course?		
Review of fundamentals of grammar	48	38
Basic skills in speech	37	29
Communication skills	40	32

Several remarks were more basic and considered English proficiency outside of the English class setting. Two people expressed the ideas that usage was a long-time acquired habit formed from family and social pressure. Two more believed that English proficiency could best be gained by emphasis in all classes. It was believed that more effort or higher standards be pursued in the English courses taken.

About two-thirds of the supervising teachers indicated that an additional course in English would help the student teacher. No type of course had a sizeable preference. This opinion would indicate that in general all of the communication skills need development. One solution would be to examine the deficiency, if any, of each individual and have him take additional instruction in that area. Another solution would be the offering of a review course in the fundamentals of all the English communication skills.

The scores from the marks in freshman English, the Purdue Test, and the questionnaire were used to assign a score for English proficiency in teaching for each student. This composite score is discussed in the following section.

#### Computation of Composite Score of English Proficiency

The investigator figured a composite score of English proficiency by converting each of the three scores which were used as the criteria of English proficiency--the freshman English grade-point average, the Purdue Test Score, and the supervising teacher rating score--into standard scores. These scores were then summed. The conversion was necessary as the freshman English grade-point averages, the Purdue Test scores, and the questionnaire scores had resultant means of 2.43, 138.82, and 7.84, respectively. A summation of these scores would weigh them unevenly in favor of the scores with the higher means. The particular standard score

formula used was

$$\text{Standard Score} = \frac{X - \bar{X}}{s} (10) + 50^1$$

The standard deviation in the formula assures that variant scores from the mean are also weighed equally.

This summation was used as the measurement of English proficiency in teaching for the student teachers. Scores in all three of the categories were acquired for 92 of the candidates for teaching certificates. At the beginning of the study, 142 subjects were selected for investigation. This means that complete data were compiled for 64.8 percent of those selected.

#### Summary

The selection of a criterion of English proficiency followed the review of the literature. The criterion selected was a composite of three scores:

1. Freshman English grade-point average
2. Total score on the New Purdue Placement Test in English
3. Score derived from supervising teacher's rating of student teacher's English proficiency

The freshman English grade-point average is a score given by an

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<sup>1</sup>In this formula, X equals the raw score of the student,  $\bar{X}$  equals the group mean of that score, and  $s$  equals the standard deviation of the scores. This means that a student scoring on the mean in any of the three categories would receive a standard score of 50, thus weighing the scores equally.

instructor professionally trained in English. The Purdue Test score is based on an objective examination. The rating of the supervising teacher is made by a professional person who has the opportunity to observe the student teacher's performance before a class.

Because the supervising teachers were from all fields of secondary school teaching, it was felt necessary to validate the questionnaire results by interviewing the student teachers. The scores derived from the questionnaire returns correlated .843 with the scores of the interviews. This was considered substantial enough to validate the supervising teachers' ratings.

Both the responses of the supervising teachers to the questionnaire and of the student teachers to the interview provided valuable information about English proficiency of the subjects and the background of the subjects. These responses were tabulated.

In order to arrive at a composite score which could be used in the statistical computations in the next chapter, each of the three scores used as a criterion of English proficiency was converted into a standard score, and the three standard scores were summed.

The next step after the measure of English proficiency was selected was to find factors which might be used to predict English proficiency and to test these factors by using statistical tools. The factors selected to predict English proficiency, the statistical tools employed to test the predictive value of the factors, and the statistical results are presented in Chapter 4.

## CHAPTER IV

### PREDICTIVE VALUE OF FACTORS SELECTED TO INDICATE ENGLISH PROFICIENCY

The third major step in the study was to select factors which could be used to predict the measure of English proficiency decided on in Chapter 3--the composite score of English proficiency. In this chapter the selected factors, the statistical tools used to test the effectiveness of the selected factors, and the statistical results are discussed. As an aid in understanding the statistics, a section containing the definition of terms precedes the discussion of the statistical tools.

#### Selected Factors Used as Predictive Criteria of English Proficiency

Nine factors were used as predictive criteria of English proficiency in teaching. They are as follows:

1. High school English mark
2. High school mark in field of major interest
3. ACE quantitative score
4. ACE language score
5. ACE total score
6. Mathematics test score from Freshman Week testing
7. College freshman year grade-point average
8. College grade-point average in field of major interest
9. College grade-point average in field of minor interest

Each of these factors is discussed in this section.

High school English marks. The high school English marks of each student were procured from the transcripts in the Registrar's Office of Montana State College. These marks were converted to a grade-point average by giving four points for an A, three for a B, two for a C, and one for a D. The average of the marks was used in the statistical computations.

High school marks in field of major interest. The marks of each student in his field of major interest were also taken from the high school transcript. The field of major interest was determined by the college teaching major. This may not be accurate in all cases, but even in instances where a college student may have changed his major interest from his high school days, it is assumed that his final choice would be reflected in his high school work. On many of the applications for admission to Montana State College, the applicant indicated a field of major interest. This coincided with the teaching major in most cases. The average was figured in the same manner as the average mark in English.

ACE linguistic, quantitative, and total scores. The American Council on Education Psychological Examination for College Freshman scores were the third, fourth, and fifth predictive criteria. This examination is given during Freshman Week to entering freshmen at Montana State College. The Testing and Counseling Department made the scores available to the investigator for this study. This examination contains

six tests:

1. Arithmetical reasoning, 20 items
2. Figure analogies, 30 items
3. Number series, 30 items
4. Same-opposite, 50 items
5. Completion (vocabulary), 30 items
6. Verbal analysis, 40 items

The first three tests yield a Q or quantitative score; the last three tests yield a V or verbal score. The two scores combined give a T or total score. The administering time for the ACE examination is 65 minutes. This test is advertised as primarily a test of mental abilities, not school-learned abilities. It is quoted by one authority as being "one of the oldest and most respected psychological instruments on the market."<sup>1</sup> This critic continues by saying that the national norms, reliability estimates, and validity estimates are weaknesses in that they are not well established; but he concedes that it is useful in a college that establishes local norms and has evidence of reliability and validity.<sup>2</sup> Another reviewer substantiates these views with a specific criticism that a .54 correlation between the Q and L scores indicates that they overlap and are far from pure. He concludes by stating that the ACE is "a reliable and serviceable instrument upon which many meaningful nominative data

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<sup>1</sup>Fowler, H. M., reviewer, in The Fifth Mental Measurements Yearbook, p. 427.

<sup>2</sup>Ibid., pp. 427-428.

have been collected."<sup>3</sup> The ACE scores are reported in stanines, and these were used in the statistical computations. A stanine is a standard score with a mean of five and a standard deviation of two. This means that a stanine score of five is the average raw score in the group, and 68 percent of all raw scores fall between three and seven.

Mathematics test score. The mathematics test score used was obtained from Freshman Week testing results. The test was constructed by the Montana State College Mathematics Department and consists of two parts: arithmetic and algebra. The scores of the two parts were combined to give the mathematics test score.

College freshman year grade-point achievement average. The seventh predictive criterion was the grade-point achievement average compiled by the students during their freshman year of college. The average is based upon four points for an A, three for a B, two for a C, and one for a D in subjects taken. The information was taken from the permanent record cards in the Registrar's Office at Montana State College with the permission of the Registrar. The number used in the computations of the regression equation was the average determined by dividing the total number of grade points by the number of credits.

College grade-point average in the field of major interest. The grade-point achievement average in the field of major interest in college was also used. The field of major interest was the teaching major listed

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<sup>3</sup>Michael, W. B., reviewer, in The Fifth Mental Measurements Yearbook, pp. 429-430.

by the respective student on his application for student teaching. The average was figured in the same way as the freshman year grade-point average; however the grades in this case were those in the major field subjects. The permanent record cards were the source.

College grade-point average in the field of minor interest. The last predictive criterion was the grade-point average in the field of minor interest. The field of minor interest is the minor listed by the candidates for teaching certificates on their applications for student teaching. The procedure and source were similar to those used in the field of major interest as explained in the preceding section.

These nine predictive criteria were selected by the investigator on the bases of availability and relation to the composite score for English proficiency in teaching. The computation of the multiple regression equation as described later in this chapter contains results which indicate the relationship of each criterion to the criteria taken as a group. In order to explain this satisfactorily, the statistical instruments used in this study are explained first.

Definition of Statistical Instruments Used  
to Determine Predictive Value of the  
Criteria of English Proficiency

Several statistical terms used in the remainder of this chapter are in need of explanation. An attempt has been made to phrase the explanations in simple wording without omitting any of the details necessary to an understanding of the procedure and results of this study.

Multiple regression equation. The multiple regression equation contains a number of factors called independent variables which predict a single factor, the dependent variable. Each of the independent variables has a numerical weight, the partial regression coefficient, by which the independent variable is multiplied. The sum of the products of the independent variables multiplied by their respective partial regression coefficients is added to a constant number to yield the dependent variable. In this study the independent variables are the nine predictive criteria, and the dependent variable is the composite score of English proficiency.

The multiple regression equation does not usually yield the actual score of the dependent variable but generally a score closer to the mean, or average. This explains the term regression as the equation gives a score nearer the mean, a regressed or cut-back score.

It should be noted that the multiple regression equation is a functional relation, not a causal one. It is useful in predicting a result on the basis of information related to the result, but it does not attempt to suggest a cause-and-effect relationship. In this investigation, scores on various tests and in various subjects are used to predict English proficiency in teaching, but it is not the contention of the writer that the variables cause the scores.

t-scores. The t-scores are used to test the significance of the data resulting from the computations. In this study they were used with the partial regression coefficients to determine whether the relationships between the respective variables and the dependent variable are the result of chance or whether they are significant. These values of t enabled the

investigator to determine the significance of the variables used in the multiple regression equation.

Multiple correlation coefficient. The multiple correlation coefficient indicates the correlation between the dependent variables and all the independent variables. This is higher than any partial correlation coefficient as more predictive information is utilized in the multiple correlation than in the partial correlation.

F-score. The F-score is similar to the t-score in that it tests the significance of the relationships. In the computations to be discussed, it is used to test the significance of the multiple regression equation.

Standard error of estimate. The standard error of estimate is an indication of the reliability of the statistic. It represents the limits within which the results of the multiple regression equation will vary. The smaller the standard error of estimate in terms of the units of measurement, the more accurate the statistic.

#### Computation of Multiple Regression Equation to Predict English Proficiency

The data on the 92 candidates for teaching certificates was programmed for the computer in the Montana State College Statistical Laboratory. In the programming, the predictive criteria were used to obtain a multiple regression equation for the prediction of the composite score of English proficiency in teaching and of each of the three scores used to determine

the composite. Thus four multiple regression equations were obtained. In each case partial regression coefficients, constant terms in the multiple regression equations, partial correlation coefficients, t-scores for the partial regression coefficients, standard errors of estimate, multiple correlation coefficients, and F-scores were computed.

The computer enabled the investigator to obtain results of complex computations that would be virtually impossible to get by hand or even by the use of a smaller computer. The formulae for determining multiple regression equations are intricate and are discussed in most texts on statistics.

The results of the computation are reported and discussed in the following section.

Results of the Computation of the Multiple  
Regression Equation to Predict  
English Proficiency

The results of the computation are shown in Table VII. The results for the composite score, the Purdue Test score, the freshman English grade, and the questionnaire score are discussed in this section.

Although the composite score was the one used for a measure of English proficiency in teaching, the other three scores were used to determine the composite, and an analysis of the results of the computations concerning them is important. The section ends with an overall comparison of the results of the four multiple regression equations.

The composite score. The first column of figures in Table VII

contains the statistics for the composite score. They will be treated in order of presentation.

The partial correlation coefficients indicate that four of the scores used as predictive criteria have a negative correlation with the composite score when isolated from effects of the other predictive criteria scores. Three of these--the high school major average, the ACE quantitative score, and the college major average--have a very small correlation which indicates very little relationship. The fourth, the mathematics test score, has a correlation which is one of the larger correlations and indicates that the scores on this test relate negatively to the composite scores. The remaining five scores are positively correlated, although the ACE linguistic score and the college minor average have a correlation so low (.002) that no relation is indicated. The high school English mark, the college freshman grade-point average, and the ACE total score have relatively high positive correlations. The significance of these correlations is statistically shown by the values of  $t$ .

The  $t$ -test is a test of significance. With the sample used in this investigation, a  $t$  of 1.99 is significant at the .05 level, and a  $t$  of 1.66 is significant at the .10 level. Thus a  $t$  of 1.99 means that the statistic is not the result of chance in .95 of the cases; a  $t$  of 1.66 is not the result of chance in .90 of the cases. The high school English mark, the mathematics test score, and the freshman average are significant at the .05 level, and the ACE total at the .10 level. The other predictive criteria are not significant at these levels and could be the result of chance. The other predictive criteria listed in order of values of  $t$

TABLE VII. RESULTS OF THE COMPUTATION OF MULTIPLE REGRESSION EQUATIONS

Statistic	Success criteria			
	Composite score	New Purdue Test	Freshman English	Questionnaire
Partial correlation coefficients				
High school English	.269*	.159	.320	.119
High school major	-.091	-.099	-.088	-.014
ACE quantitative	-.088	-.100	-.008	-.073
ACE linguistic	.002	.065	.076	-.114
ACE total	.192	.190	.034	.168
Mathematics score	-.249	-.137	-.217	-.172
Freshman average	.263	.163	.323	.087
Major average	-.057	-.102	.069	-.042
Minor average	.002	.029	.078	-.040
Computed t-distribution				
High school English	2.531	1.459	3.056	1.089
High school major	-.827	-.902	-.800	-.129
ACE quantitative	-.796	-.909	-.077	-.660
ACE linguistic	.021	.586	.691	-1.040
ACE total	1.767	1.755	.304	1.543
Mathematics score	-2.332	-1.252	-2.016	-1.577
Freshman average	2.467	1.497	3.095	.794
Major average	-.518	-.930	.623	-.377
Minor average	.021	.260	.711	-.364
Partial regression coefficients				
High school English	8.312	4.801	.280	.625
High school major	-2.843	-3.107	-.077	-.077
ACE quantitative	-1.914	-2.191	-.005	-.277
ACE linguistic	.065	1.787	.059	-.553
ACE total	7.435	7.398	.036	1.134
Mathematics score	-2.424	-1.304	-.058	-.286
Freshman average	13.462	8.187	.471	.757
Major average	-2.299	-4.137	.077	-.292
Minor average	.075	.930	.071	-.227
Constant term of regression equation	88.156	91.717	.086	5.450

TABLE VII (Continued)

Statistic	Success criteria			
	Composite Score	New Purdue Test	Freshman English	Questionnaire
Unbiased standard error of estimate	16.091	16.124	.449	2.811
Multiple correlation coefficient	.717	.696	.737	.360
Computed F-distribution	9.656	8.538	10.813	1.358

\* Negative correlation indicates score is to be subtracted in working the regression equation.

from highest to lowest are as follows: high school major average, ACE quantitative score, college major average, ACE linguistic score, and college minor average. The results of the t-test imply that the four predictive criteria of most significance are as follows: high school English average, college freshman average, mathematics test score, and ACE total score. Of these four scores the mathematics test score correlates negatively, and the others positively.

The partial regression coefficients are the numbers by which the students' scores in the respective categories are to be multiplied and added or subtracted, as indicated by sign, to the constant term of the multiple regression equation to predict the composite score of English proficiency in teaching. Table VIII shows the prediction process using

actual scores from a student in the sample.

TABLE VIII. EXAMPLE OF THE DERIVATION OF A STUDENT'S COMPOSITE SCORE OF ENGLISH PROFICIENCY

Predictive criteria	Student's scores	Partial regression coefficients	Products
High school English	3.62	8.312	30.089
High school major	3.83	-2.843	-10.889
ACE quantitative	5	-1.914	-9.570
ACE linguistic	7	.065	.455
ACE total	6	7.435	44.610
Mathematics	9	-2.424	-21.816
College freshman average	3.21	13.462	43.213
College major average	3.44	-2.299	-7.909
College minor average	3.91	.075	.293
Summation of products			68.476
Constant term of multiple regression equation			88.156
Predicted composite score			156.632

The standard error of estimate for this regression equation is 16.091 which indicates that the predicted score would fall within this distance of the actual score in the majority of cases.

The multiple correlation coefficient is .717 which is a fairly high positive correlation and indicates that the relationship of the predictive criteria taken as a group with the composite score is fairly high. The F-score confirms the significance of the multiple regression equation. In order for the results to be significant beyond the level of chance, an

F-score of 2.71 is needed with the sample and variables used. This is significant at the .01 level.

The multiple regression formula for the composite score has a satisfactory correlation and F-score. Of the nine predictive criteria, four--high school English mark, college freshman grade-point average, mathematics test score, and the ACE total score--are significant at a low level. The effectiveness of the multiple regression equation in predicting composite scores measuring English proficiency in teaching of the autumn quarter 1960 student teachers is treated in Chapter 5.

The New Purdue Placement Test in English score. The second column of Table VII shows the results of the computation of the multiple regression equation for predicting the scores of the Purdue Test. Although this is but one score of the three-score composite, it is of interest to analyze the results and compare them to the results of the composite.

The partial correlation coefficients are similar to those of the composite. The same four--mathematic test score, college major grade-point average, ACE quantitative score, and high school major average--are negative. These negative correlations are all quite low. The predictive criteria correlating positively are from the highest to the lowest: ACE total score, freshman grade-point average, high school English mark, ACE linguistic score, and college minor average. The higher correlating scores do not have as high correlations as the corresponding higher correlating scores of the composite results.

Only the ACE total score falls within the .10 significance level of

1.66. The freshman grade-point average and the high school English average are within the .20 significance level of 1.29 and the mathematics test score is close. The other scores in order of value of  $t$  from highest to lowest are the college major average, ACE quantitative score, high school major score, ACE linguistic score, and college minor average. The pattern is similar to the composite results, but the factors do not meet the low levels of significance found in the composite results.

The partial regression coefficients and constant term of the multiple regression coefficient could be used in the same way as those of the composite results in Table VIII. In this case, however, the predicted score would be the Purdue Test score.

The standard error of estimate is 16.124 and is similar to that of the composite multiple regression equation inasmuch as the means of the respective scores are similar. The multiple correlation coefficient is a fairly high .696. The  $F$ -score is 8.538 which is well within the .01 significance level.

The multiple correlation coefficient for the multiple regression equation for predicting the Purdue Test score is satisfactory and very close to that of the composite. It is noteworthy that although the significant predictive criteria scores did not correlate as strongly as those of the composite, the non-significant ones had higher correlations. Thus the stronger contribution of the lower correlating scores tended to keep the level of significance of the whole equation the same as that of the composite score.

The freshman English achievement. The third column of figures in Table VII displays the statistics for the multiple regression equation to predict the freshman English achievement.

Only three of the partial correlation coefficients are negative-- mathematics test score, high school major average, and ACE quantitative score in order of highest negative correlation to lowest. These were also negative in the composite and Purdue Test statistics, but the college major average which was negative in those cases is positive with the freshman English mark. The positive partial correlation coefficients from highest to lowest are college freshman grade-point average, high school English mark, college minor average, ACE linguistic score, college major average, and ACE total. The three highest partial correlation coefficients are college freshman grade-point average, high school English achievement, and mathematics test score with correlations of .323, .320, and -.217 respectively. The first two correlations are higher than any correlations in either the composite or the Purdue Test statistics. This may be explained by the fact that the freshman English mark is a part of the freshman grade-point average and that there is a similarity between the high school teacher-pupil relationship and the college instructor-student relationship. The six other partial correlation coefficients are low and indicate a weak relationship to the freshman English grade.

The t-scores support the preceding correlations. The t-scores of the college freshman grade-point average, the high school English mark, and the mathematics test score are all significant at the .05 level of

1.99, and the first two scores are significant at the .01 level of 2.63. The other scores are not significant at a low level and indicate that the partial correlation may be due to chance. In order of value of  $t$  from highest to lowest they rank as follows: high school major average, college minor average, ACE linguistic score, college major average, ACE total score, and ACE quantitative score.

The partial regression coefficients and constant term of the multiple regression equation may be used in the same way as those of the composite score, as indicated in Table VIII, to predict the college freshman English grade. The standard error of estimate is .449, much smaller than that of the composite or the Purdue Test as expected, for the mean and units are smaller. The multiple correlation coefficient is the highest in any column, .737. This may be attributed to the high correlations of the college freshman grade-point average, the high school English mark, and the mathematics test score. The  $F$ -score of 10.813 is well within the .01 significance level.

The multiple regression equation for predicting the college freshman English grade seems quite satisfactory as indicated by the multiple regression coefficient and  $F$ -score. Part of this is accounted for by the high partial correlations of three predictive criteria.

The questionnaire score. The results of the multiple regression equation for the predictions of the questionnaire scores are shown in the fourth column of Table VII.

Two-thirds of the partial correlation coefficients are negative.

In order of correlation from highest to lowest they are mathematics test score, ACE linguistic score, ACE quantitative score, college major average, college minor average, and high school major average. The ACE linguistic score and the college minor average were positive in the other three columns but the positive correlations were small. The remaining three predictive criteria are positive, and listed from highest to lowest correlation, they are ACE total, high school English mark, and college freshman grade-point average. None of the correlations is over .20, and only two, the mathematics test score and the ACE total score, are over .15. These low correlations indicate that the relationships between each of the predictive criteria and the questionnaire are weak.

The t-scores support the last statement. None of the t-scores is significant at the .10 level of 1.66, and only two are significant at the .20 level of 1.29. These are the mathematics test score and the ACE total score. The other criteria in order of value of t from highest to lowest are as follows: high school English mark, ACE linguistic score, college freshman grade-point average, ACE quantitative score, college major average, college minor average, and high school major average.

The multiple regression coefficients and constant term of the multiple regression equation may be used in the same way as those of the composite score, as demonstrated in Table VIII, to predict the questionnaire score. The standard error of estimate is 2.811, which is fairly high for the size of the mean and units of measurement. The multiple correlation coefficient is .360 which is very low compared with those of

the other three scores. The F-score of 1.358 is not significant at the .01 or .05 level.

The multiple regression equation for the questionnaire score is not a significant statistic as indicated by the non-significance of the partial correlation coefficients, the low multiple regression correlation coefficient, and the low F-score. This indicates that the questionnaire score is the weakest part of the composite score for English proficiency in teaching.

#### Comparison of the Four Multiple Regression Equations

An examination of the data in Table VII reveals that the most meaningful success criteria are the college freshman English grade, the composite score, and the Purdue Test score. Each of these criteria is significant at the .01 level and shows comparatively high multiple correlation coefficients (college freshman English grade, .737; composite score, .717; and Purdue Test score, .696). The questionnaire score does not serve as an adequate single success criterion inasmuch as it was not significant at the .01 or .05 levels and had a multiple correlation coefficient of .360.

Of the predictive factors for English proficiency, four were most meaningful: high school English mark, mathematics test score, college freshman grade-point average, and ACE total. These factors were significant at low levels more often than any of the others and had the highest partial correlation coefficients. These four scores seem to have a high

relationship with English proficiency in teaching and could be used to secure an indication of the candidate's ability in this matter. The fact that the ACE linguistic score has a low positive correlation in three columns and a negative correlation in the remainder is a warning that this score should be used with caution in predicting success or failure in English proficiency in teaching in spite of its related connotation.

The similarity between the composite score results and those of the Purdue Test is striking. The same partial correlation coefficients are negative and the four factors with the highest partial correlations are identical. The standard errors, multiple correlation coefficients, and F-scores are similar. This is important as the scores of the Purdue Test are relatively easy to obtain compared to the composite scores. The test may be administered in 65 minutes and may be machine scored. To obtain the composite, the Purdue Test must be administered and scored, freshman English grades must be secured, and questionnaires must be sent, returned, and scored. These three groups of scores must be standardized and added before the composite score is found. In order to pursue this similarity further, the investigator has run a validation of it as well as the composite using the student teachers of the autumn 1960 quarter. The results of this investigation are contained in the following chapter.

#### Summary

The selection of factors to predict the English proficiency measure of Chapter 3 and the testing of the predictive value of these factors

was the third step in the investigation. The nine factors selected on the bases of availability and relationship to English proficiency were as follows:

1. High school English marks
2. High school marks in field of major interest
3. ACE quantitative score
4. ACE language score
5. ACE total score
6. Mathematics test score from Freshman Week testing
7. College freshman year grade-point average
8. College grade-point average in field of major interest
9. College grade-point average in field of minor interest

The data on these nine factors were programmed for the computer to obtain multiple regression equations to predict the composite score and each of its three parts.

The multiple regression equations for the freshman English grade-point average, the composite score, and the Purdue test score were significant at the .01 level. The predictive factors meeting a satisfactory level of significance most often were the high school English mark, the mathematics test score, the college freshman grade-point average, and the ACE total score.

The fact that the composite score and the Purdue Test score had similar multiple regression equations and satisfactory levels of significance was important in that the Purdue Test score is more easily

obtained as a measure of English proficiency than the composite score. This similarity indicates that the Purdue Test could be substituted in place of the composite score as a measure of English proficiency in teaching.

In order to validate the method used in this study, the multiple regression equations for the prediction of the composite score and the Purdue Test score were applied to data from 58 autumn 1960 student teachers at Montana State College.

## CHAPTER V

### VALIDATION OF THE REGRESSION EQUATIONS FOR PREDICTION OF ENGLISH PROFICIENCY

In order to determine the effectiveness of the methods used in this study, a validation study was made using 58 of the 1960 Autumn Quarter student teachers at Montana State College. This validation study consisted of predicting the English proficiency of these student teachers by using the multiple regression equation with the nine predictive criteria and figuring the composite English proficiency score for each of the 58 student teachers. The second step was to figure the actual composite English proficiency score from the freshman grade-point average in English, the Purdue Test score, and the supervising teacher rating. This second step was done after the student teaching was completed. The final step in the validation procedure was to correlate the composite English proficiency scores predicted by the multiple regression equation with the actual composite English proficiency scores figured from the success criteria: the freshman English grade-point average, the Purdue Test score, and the supervising teacher rating. A high correlation would indicate that the procedures in this study were valid; whereas a low correlation would make the procedures questionable.

In addition to validating the multiple regression equation composite English proficiency score, the same procedure was carried out for the Purdue Test score. That is, the multiple regression equation for predicting the Purdue Test score was used with predictive criteria for each of 58 student teachers to predict the Purdue Test score. Secondly, the actual

Purdue Test score was obtained from the student teachers, and lastly the predicted scores were correlated with the actual scores.

The reason for validating the multiple regression equation for the Purdue Test score as well as for the composite score of English proficiency was that since the Purdue Test score is much easier to obtain than the composite score, it would be helpful to see if the validation study would vindicate the substituting of it for the composite score.

The remainder of this chapter consists of the procedures involved in the validation study, the results of the validation study, and the summary.

#### Procedures Used in the Validation of the Multiple Regression Equations Using 1960 Autumn Quarter Student Teachers

Fifty-eight 1960 Autumn Quarter student teachers were used in the validation study. The first step was to obtain two predicted scores for each subject by using the multiple regression equations from Chapter 4 for predicting the composite score in English proficiency and the Purdue Test score.

The predicted scores were determined first by collecting the nine predictive factors used with the 1959-1960 student teachers:

1. High school English marks
2. High school marks in field of major interest
3. ACE quantitative score
4. ACE language score

5. ACE total score
6. Mathematics test score from Freshman Week testing
7. College freshman year grade-point average
8. College grade-point average in field of major interest
9. College grade-point average in field of minor interest

Next these scores were placed in the multiple regression equations for each student, and the predicted score was thus procured. The multiple regression equation from Chapter 4 used to predict the English proficiency composite score was as follows:

$$Y = 88.156 + 8.312a - 2.843b - 1.914c + .065d + 7.435e - 2.424f + 13.462g - 2.299h + .075i$$

In this equation,  $\underline{Y}$  is the predicted score, 88.156 is the constant term, the other numbers are the partial regression coefficients, and letters  $\underline{a}$  through  $\underline{i}$  represent the nine factors listed in this paragraph respectively. Determination of  $\underline{Y}$  was done rapidly on an electric calculator.

The multiple regression equation for predicting the score on the Purdue Test used was as follows:

$$Y = 91.717 + 4.801a - 3.107b - 2.191c + 1.787d + 7.398e - 1.304f + 8.187g - 4.137h + .930i$$

The symbols are the same as those in the equation for the English proficiency score except that the numerical value of the constants differs.

The actual scores of the Purdue Test were taken from test results. The actual composite score of English proficiency was obtained the same way as it was with the 1959-1960 student teachers. The freshman English grades were taken from the Registrar's records, questionnaires were sent

to the supervising teachers, and the Purdue Test was administered. Each of the three scores was standardized and summed for a composite score. The statistical instruments used in this process were the same as those described in Chapter 4.

The final step was to correlate the predicted and actual scores of composite English proficiency and the Purdue Test to determine the accuracy of the multiple regression equations' predictions. The following machine formula for computing  $r$  from raw scores was used.

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{[\sum X^2 - (\sum X)^2][\sum Y^2 - (\sum Y)^2]}$$

In this formula,  $r$  is the coefficient of correlation,  $N$  is the number in the population used,  $\sum$  means summation,  $X$  represents the actual scores, and  $Y$  represents the predicted scores. A high coefficient of correlation would indicate that the predictive values calculated in Chapter 4 of the various factors have validity. On the other hand, a low coefficient of correlation would indicate that either the statistical calculations in Chapter 4 were not valid or that some aspect of the procedure in the study was faulty. The results are treated in the next section of this chapter.

#### Results of the Validation Procedures

The coefficient of correlation for the predicted and actual composite score in English proficiency was .795. Most authorities would consider this a satisfactorily high correlation which indicates a strong

relationship.<sup>1</sup> The coefficient of correlation for the predicted and actual scores of the Purdue Test was .783. This was similar to that of the composite score of English proficiency and the same remarks are pertinent.

The positive correlations of .795 for composite English proficiency scores and .783 for Purdue Test scores indicate that the collection of data and computations with the data in this study have validity. Furthermore, these correlations demonstrate that the predictive value of the nine factors used to predict English proficiency is fairly accurate and that these factors can be used with a reasonable expectation of success with future candidates for teaching certificates to predict English proficiency.

The fact that the correlations for both the composite English proficiency score and the Purdue Test score were similar and satisfactory strengthens the preceding statements about the validity of the predictive values of the nine factors. In addition, if the Purdue Test score is substituted for the composite score as suggested in Chapter 4, it is helpful to know that the values of the predictive criteria of the two scores are similar.

To further the argument for using the Purdue Test score in place of the composite English proficiency score, a correlation between the two actual scores for the validation group of 58 student teachers was figured.

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<sup>1</sup>For example, in Warters, Jane, Techniques of Counseling, p. 31, a correlation of .50 to .80 is considered substantial.

The  $r$  was .848 which is high, positive and similar to the .827 correlation of the two scores for the original group of 1959-1960 student teachers.

#### Summary

A validation study was made to determine whether the statistics in Chapter 4 could prove useful in actually predicting English proficiency. The subjects of this validation study were 58 student teachers in the 1960 Autumn Quarter at Montana State College. The procedure was to predict the composite English proficiency score and the Purdue Test score by using the respective multiple regression equations from Chapter 4. These predicted scores were then correlated with the actual scores obtained from the 58 student teachers.

The results of the validation study were as follows:

1. The correlation of the predicted composite English proficiency score with the actual composite English proficiency score was .795.
2. The correlation of the predicted Purdue Test score with the actual Purdue Test score was .783.
3. The correlation between the actual composite score and Purdue Test Score for the validation group of 58 was .848 which compared favorably with the correlation of .827 for the same scores of the original group of 1959-1960 student teachers.

These results are an indication that the multiple regression equations to predict the composite English proficiency score and the Purdue Test score can be used with confidence, and further, that the more easily obtained Purdue Test score can be substituted for the composite score.

## CHAPTER VI

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem in this investigation was to find factors in the high school and college records of candidates for teaching certificates at Montana State College that would be useful in predicting the English proficiency of the candidates. The sample population was 142 student teachers of the 1959-1960 school year. Of the 142 subjects, complete data were gathered on 92. The study consisted of four main steps:

1. Review of the literature on English proficiency
2. Selection of criterion of English proficiency to be used in this study
3. Selection of predictive factors for the criterion of English proficiency and statistical treatment of them to determine the predictive value
4. A validation study of the method using autumn 1960 student teachers

#### Summary

The review of the literature on English proficiency provided a clearer understanding of the term English proficiency and was helpful in selecting a criterion of English proficiency for this study. The literature was divided into two groups: the traditionalist and the linguistic. The former group of writers felt that there are fixed standards of proficiency in English which can and should be taught. The linguistic approach is that language is not fixed but is a changing medium of communication.

Thus, to be proficient in English, one must observe the changing standards and accept them. In the selection of a criterion of English proficiency, both positions were considered.

The second step, selection of a criterion of English proficiency, resulted in the choosing of a composite measure based on three component scores:

1. Freshman English grade-point average
2. New Purdue Placement Test in English score
3. Supervising teacher's rating of student teachers' English proficiency

The three scores were selected because each contributed a different point of view to the criterion of English proficiency. The Freshman English grade-point average is a score based on a year's observation of the subject by a person professionally educated in English. The Purdue Test score is an objective measure of English proficiency. The supervising teacher's rating provides a measure by a professional teacher who has had the opportunity to observe the subject teaching. Each of the three scores was standardized, and the three were summed to provide a score of proficiency in English to be used in the statistical computations of the next step.

Following the selection of a criterion of English proficiency, factors from the subject's high school and college records were selected which might be of use to predict the measure of English proficiency. Then, the predictive value of each factor was tested statistically. The nine factors selected were as follows:

1. High school English marks

2. High school marks in field of major interest
3. ACE quantitative score
4. ACE language score
5. ACE total score
6. Mathematics test score from Freshman Week testing
7. College freshman year grade-point average
8. College grade-point average in field of major interest
9. College grade-point average in field of minor interest

The data on the nine factors were procured for 92 subjects and programmed for the computer in the Montana State College Statistical Laboratory to obtain multiple regression equations to predict the composite score of English proficiency and the score of each of the criteria that make up the composite score: the freshman English grade-point average, the Purdue Test score, and the supervising teacher rating. By substituting the data on the nine factors for any teaching candidate, the measure of English proficiency may be predicted. In addition to the multiple regression equations, the computer yielded statistical information on significance and reliability of the predictive factors and the multiple regression equations.

The multiple regression equations to predict the composite score, the freshman English grade-point average, and the Purdue Test score were significant at the .01 level. The predictive value of the various factors was highest for four:

1. High school English mark
2. Mathematics test score

3. College freshman year grade-point average
4. ACE total score

The level of significance and predictive value of the nine factors were similar for the Purdue Test multiple regression equation and the composite score multiple regression equation.

The final step in the study was to validate the methods of the study. The sample population was 58 autumn 1960 student teachers at Montana State College. The data for the nine predictive factors for each subject were gathered and substituted into the multiple regression equations for the composite score and the Purdue Test score. Two sets of predicted scores for the sample population were thus procured. Following the completion of the student teaching, the three components of the criterion of English proficiency--freshman English grade-point average, Purdue Test score, supervising teacher rating--were secured and the actual composite measure was calculated. Correlations between the actual and predicted scores for the composite measure and also for the Purdue Test score were .795 and .783, respectively. These correlations were considered substantial enough to validate the multiple regression equations.

### Conclusions

The main conclusion drawn from the findings is that English proficiency of candidates for teaching certificates can be predicted by substituting information from their records into a multiple regression equation. This conclusion is based on the high correlation coefficient of the

multiple regression equation and the subsequent successful validation study.

A second conclusion is that the Purdue Test can be used with confidence for a single measure of English proficiency or for a student whose record is incomplete or missing. The Purdue Test scores correlated .827 with the composite scores for the 1959-1960 student teachers and .848 for the autumn 1960 student teachers. Also, the regression equations for the Purdue Test score and the composite score are significant at the .01 level.

#### Recommendations

From the findings and conclusions in this study, the investigator has three recommendations to make.

The first recommendation concerns the use of the study with future candidates for teaching certificates at Montana State College. The findings may be used in two ways with either the future teaching candidates as a group or with candidates whose English proficiency is questionable. First the data on the nine predictive factors may be gathered and substituted into the multiple regression equation to gain a predicted score of English proficiency which then may be compared to the mean score of the subjects in this study. Secondly, if a quicker and easier estimate of English proficiency is desired, the Purdue Test may be administered and the score used as an indicator of English proficiency. This method is possible as the findings of the statistical computations revealed that the Purdue Test score was similar to the composite score and may be substituted for

the latter. Either method of predicting English proficiency would enable an adviser to encourage a candidate whose English proficiency is low to take additional courses in English or to consider an occupation other than teaching.

The second recommendation is that any additional data gained by employing the multiple regression equations or administering the Purdue Test to student teachers be recorded and supplemented to the data in this study. The supplementary data would increase the significance of the data in this study as the number of subjects would be greater. Any further statistical treatment would be enriched.

The final recommendation is that if the study is found helpful in advising teaching candidates, it be reviewed and revised periodically as more data are collected and different data are made available by changes in Freshman Week testing or recording of permanent records.

APPENDIX

Appendix A

English Proficiency Questionnaire  
Sent to Supervising Teachers

English Proficiency Questionnaire  
Sent to Supervising Teachers

\_\_\_\_\_  
Name of student teacher

\_\_\_\_\_  
Name of supervising teacher

Please examine the following items carefully and check each one that applies to the student teacher whom you supervised. Some of the items are supplemented by examples in parentheses.

- \_\_\_ 1. Uses pronouns incorrectly (Fred and me did it).  
 \_\_\_ 2. Speaks in a monotone often.  
 \_\_\_ 3. Avoids using unnecessary words (Where is it at? killed him dead).  
 \_\_\_ 4. Knows and uses the terms particular to his subject field.  
 \_\_\_ 5. Uses incorrect verb forms (I seen).  
 \_\_\_ 6. Uses infirm reference (Sam and John took his (?) car home).  
 \_\_\_ 7. Is sloppy in speech (runnin' ya, etc.).  
 \_\_\_ 8. Mispronounces words occasionally.  
 \_\_\_ 9. Repeats expressions like "OK" and "all right" frequently.  
 \_\_\_ 10. Misspells words on blackboard occasionally.  
 \_\_\_ 11. Has no distracting habits while speaking (looks away from pupils, plays with objects, etc.).  
 \_\_\_ 12. Prepares pupils for new concepts with explanations.  
 \_\_\_ 13. Uses double subjects occasionally (The man he...).  
 \_\_\_ 14. Can explain concepts in other words if questions arise.  
 \_\_\_ 15. Uses expressions not acceptable in proper speech. (ain't).  
 \_\_\_ 16. Uses double negatives (can't hardly, haven't no).  
 \_\_\_ 17. Pupils are attentive and seem interested.  
 \_\_\_ 18. Accepts sloppy work from pupils.  
 \_\_\_ 19. Does not always make his verbs agree with his subjects (He and I was, Everyone were).  
 \_\_\_ 20. Seems at ease when speaking impromptu (when plan runs out before the period is over, on subject brought up that was not planned, etc.)

Remarks--please add comments to any of the above items or comment on any peculiarities in the communication skills you observed.

Do you think an additional formal course in English would help your student teachers? yes \_\_\_\_\_ no \_\_\_\_\_

If yes, what type of course?

\_\_\_\_\_ Review of the basic fundamentals in grammar, punctuation, spelling, and usage.

\_\_\_\_\_ Speech--study of basic skills.

\_\_\_\_\_ Communication skills--principles and techniques which apply to writing, speaking, reading, and listening.

\_\_\_\_\_ Other--please specify:

Thank you for your comments. Please return this form in the enclosed envelope as soon as possible.

Appendix B

Interview Form for Validation of the Questionnaire  
Results



LITERATURE CONSULTED

## LITERATURE CONSULTED

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<u>10-11-65</u>	S. [unclear]
<u>10-13-65</u>	B.
<u>10-25-66</u>	[unclear]
<u>6-27-66</u>	[unclear]
<u>L. [unclear]</u>	D378
<u>4-10</u>	N877
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