

STYLE REQUIREMENTS EVALUATION

This is to certify that the project or thesis entitled
AN ANALYSIS OF THE UTILITY OF THIRTY-EIGHT PHONIC GENERALIZATIONS

submitted to the Graduate Studies Committee by

Bobbi Jean Hackett does x does not _____
(candidate's name)

meet the style requirements as specified by the School
of Education of the California State College, Bakersfield.

Ann D. W. Little
Chairman, Graduate Studies Committee
School of Education

6-29-76
Date

Analysis of 38 Phonic Generalizations

AN ANALYSIS OF THE UTILITY
OF THIRTY-EIGHT PHONIC GENERALIZATIONS

by

Bobbi Jean Hackett

A PROJECT

Submitted to the Graduate Studies Committee
of the School of Education of
California State College, Bakersfield
in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts in Education

June, 1976

APPROVAL FOR THE PROJECT
of
AN ANALYSIS OF THE UTILITY
OF THIRTY-EIGHT PHONIC GENERALIZATIONS
by
Bobbi Jean Hackett

The undersigned have examined the project and
find it adequate in terms of content, writing
style and format.

Raymond J. Suquette

Chairman

Louane S. Gustads

Committee Member

V. Jane Tanner

Committee Member

Jim D. Luttery

Coordinator of Graduate Studies

TABLE OF CONTENTS

Chapter

I.	THE PROBLEM AND DEFINITIONS OF TERMS	1
	Introduction	
	The Problem	
	Hypothesis Tested	
	Importance of the Study	
	Definitions of Terms	
	Delimitations and Assumptions	
II.	RELATED LITERATURE	7
	Utility of Phonic Generalizations	
	Summary	
III.	METHODS AND PROCEDURES	15
	The Corpus of Words Analyzed	
	Phonic Generalizations	
	Method of Analysis	
	Organization of the Remainder of the Study	
IV.	FINDINGS OF THE STUDY	21
	Null Hypothesis Restatement	
	Utility of Generalizations	
	Table	
	Summary	
V.	SUMMARY OF FINDINGS AND CONCLUSIONS (AND SUGGESTIONS FOR FURTHER RESEARCH)	44
	Summary of the Study	
	Findings	
	Conclusions	
	Suggestions for Further Research	
	BIBLIOGRAPHY	47
	APPENDIX	48

CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS

I. INTRODUCTION

The utility of phonic generalizations as applied to present-day American English is a topic of no apparent past studies. Therefore, it is appropriate to do this study looking at the utility of an acceptable list of phonic rules when applied to present-day American English.

II. THE PROBLEM

The purpose of this study is to establish whether recognized phonic rules are reliable when applied to a representative sample of present-day American English. Since this study is one of several dealing with the Kucera analysis of present-day American English, only words 1,001 to 2,000 are considered in this study.

III. HYPOTHESIS TESTED

NULL HYPOTHESIS

There will be no utility between a specific group of phonic generalizations when applied to the Kucera study of the second 1,000 commonly used words appearing in American publications.

IV. IMPORTANCE OF THE STUDY

The teaching of phonics has been a much debated topic in American teaching circles. Although this debate has never been resolved, phonics are once again being emphasized in American schools. Present concerns deal mainly with the utility of phonic rules rather than the value of teaching phonics. Noteworthy studies include those of Clymer (1963), Emans (1967), and Burmeister (1968).

Although these studies shed some light on the utility of phonic rules, they are of limited value due mainly to the limited corpus of "school" vocabulary used in the studies. This study, however, will use a more extensive vocabulary of present-day American English.

The Kucera corpus of words is huge, over one million words selected from five hundred American publications in fifteen categories. Previous phonic studies had a limited corpus of words from basal readers and were therefore limited. This study has a broad selection of words with their application to phonic generalizations to determine the utility of the phonic generalizations. This research will be only a small part, one-fifth, to be used in a large study now in progress. The results of this study may change phonic rules in the future.

V. DEFINITION OF TERMS

Terms used in this study which necessitate further clarification are as follows:

CORPUS

The corpus of this study is a select list of 1,014,232 words of natural-language text, coded for processing on IBM and other types of data processing equipment. All the samples are of continuous discourse.

The idea that governed the selection and preparation of the text making up the Corpus was that it should be synchronic, representative of a wide range of styles, and accurate. Synchronicity was assured by confining the data to text printed in the United States in the year 1961. To insure representativeness, the five hundred samples were distributed among fifteen categories, representing the full range of subject matter and prose styles, from the sports page of the newspaper to the scientific journal and from popular romantic fiction to abstruse philosophical discussion. The Corpus is further defined in Kucera and Francis (1967).

PHONIC GENERALIZATIONS

Phonic generalizations may be defined as visual and auditory clues used in word recognition. These generalizations are designed to provide inexperienced readers with a means of translating unfamiliar printed symbols into sounds that are recognizable as words in their spoken or listening vocabularies. In this study, a set of thirty-eight generalizations are used as deemed appropriate by Duquette and Veatch (1976).

UTILITY

The word utility is used as the application or exception of a certain phonic generalization as set in this study using a representative sample of words from the Kucera study.

SCHOOL VOCABULARY

School vocabulary is a term used for a corpus of words selected from a limited group of basal readers or spelling programs utilized within a school's functioning body.

VI. DELIMITATIONS AND ASSUMPTIONS

The corpus of words selected from the Kucera study of the language used in 1961 can be considered not to be that different from the language used today. The materials used in the corpus are samples which are representative of American readers today as they were in 1961. An entire population is served by these materials ranging from the sports page of the newspaper to the scientific journal and from popular romantic fiction to abstruse philosophical discussion. The idea that governed the selection and preparation of this word list was that it should be synchronic, representative of a wide range of styles, and accurate. Synchronicity was assured by confining the data to texts published in the year 1961. Further restrictions imposed were that the material should be printed in the United States, written so far as could be determined by American writers, in prose, with no more than fifty per cent of any selection in dialogue (this automatically

excluded drama as well as some fiction).

Therefore, the samples used are representative of present-day American readers. Phonic rules should be applicable through life and not just in the controlled environment of the classroom text. The outcome of this project would then be the same, using any group of selected materials.

The analysis of the second 1,000 words from the Kucera study may not be representative of all the words of the larger Corpus. However, the assumption is made that these second 1,000 words would be the same if the Kucera study were duplicated today. This assumption can be made because the corpus includes the use of such a large number of words and a variety of so many American publications at a wide frequency distribution throughout the Corpus.

VII. SUMMARY

This is a study which is unique because the utility of phonic generalizations as applied to present-day American English has never been researched before. The study is unlimited as far as direction because of the huge corpus of words in use. It is different from other studies of the utility of phonic generalizations because it includes American English and it is not just limited to vocabulary of the basal reader. The corpus is excellent because it is representative of the American population.

Chapter two will deal with a review of the literature, Chapter three with the methods and procedures. The findings

of the study are presented in Chapter four, while the conclusions are presented in Chapter five.

CHAPTER II

RELATED LITERATURE

I. THE UTILITY OF PHONIC GENERATIONS

Previous researchers of phonic generalizations in the primary grades have drawn words from, essentially, a "school" vocabulary. Studies of phonic generalizations when applied to vocabulary samples drawn from standard word lists have been presented by Clymer (1963), Emans (1967), and Burmeister (1968). Bailey (1965) involved a word list from basal readers, while Bukovec (1971) drew his list from trade books popular at the primary grade level. Other studies have examined the utility of phonic generalizations as applied to spelling programs, Davis (1972), teacher understanding, Fleming (1972), and linguistics, Wardhaugh (1971).

Clymer Study

Wide attention was given in 1963 to a study of the utility of phonic generalizations reported by Theodore Clymer in The Reading Teacher. Clymer based his research on an examination of the readers, teachers' manuals, and workbooks of four basal series used in the primary grades, plus the words appearing in the Gates Reading Vocabulary for the Primary Grades. His corpus of approximately 2,600 words and

the corresponding manuals provided a group of 121 generalizations from which forty-five were chosen for close scrutiny. All words were phonetically respelled and syllabicated according to Webster's New Collegiate Dictionary. Each generalization was checked against the words in the composite list to determine (a) the words which were pronounced as the generalization claimed, and (b) the words which were exceptions to the generalization. A "per cent of utility" was computed for each generalization by dividing the number of words pronounced as the generalization claimed by the total number of words to which the generalization could be expected to apply. The "per cent of utility" was seventy-five.

Clymer concluded that a group of generalizations is useful only after the pupil can pronounce the word in question. The usefulness of others depends upon regional pronunciation. Using his criteria for utility, only eighteen of the forty-five generalizations Clymer studied were found to be useful.

Emans Study

Robert Emans established his "usefulness" findings by sampling ten per cent of the words above the primary levels in Thorndike and Lorge's The Teacher's Word Book of 30,000 Words. The procedures for Eman's study were the same as those used by Clymer in his study. They included the selection of the vocabulary, the identification of the words which might apply to each generalization, and the testing of each

word against the generalization.

The spelling, phonetic respelling, and syllabic division of the words were recorded. Webster's New Collegiate Dictionary was used for this information, as it was in the Clymer study. A list of the words which adhered to each of the generalizations was prepared. The generalizations were then checked against the words to find which were applicable according to Clymer's criteria. Emans found sixteen useful generalizations above the primary level. Even though thirteen generalizations established usefulness in both Clymer's and Emans' studies, four or five of them proved useful on the primary level but failed in utility for words beyond the primary level. Emans' conclusion was that different generalizations may need to be learned at different levels of schooling.

Burmeister Study

Lou E. Burmeister, in an attempt to obtain an even spread of easy and difficult words, chose her sample words from the Teacher's Word Book of 30,000 Words, by Thorndike and Lorge, at different "frequency of occurrence" levels. With the use of The American Collegiate Dictionary (1961), Burmeister looked at generalizations which were frequently found at the fourth grade level and above, and also at generalizations which she had formulated through her own teaching experience.

Burmeister's study reported and compared findings of

seven recent studies which were designed to investigate scientifically the value of many commonly found phonic, structural analyses, and recent generalizations. The implications of this study indicate that further research is needed in vowel phoneme-grapheme relationships. Burmeister states,

It seems important when thinking of vowel sounds to differentiate between single vowels and double vowels. When two vowels are together, they ordinarily compose a phoneme. To lose sight of this causes a lack of clarity and a lessening of utility level of a possibly good generalization.

Bailey Study

Mildred Hart Bailey examined widely used basal series for grades one to six for her sample, which included words that appeared in at least two of the eight series. The forty-five phonic generalizations previously identified by Clymer were studied. Place names, proper names, and foreign words were excluded. A composite list of 5,773 words resulted. Bailey's computations found only six of the forty-five generalizations to be simple to understand and apply, applicable to large numbers of words, and to have few exceptions.

Bailey emphasized further research in several areas of phonic generalizations: (a) scientifically-involved criteria for judging usefulness of phonic generalizations, (b) the ability of elementary school children to apply phonic generalizations in reading, (c) phonic generalizations as applied to other materials such as children's trade books, magazines, and newspapers, (d) the utilization of the 1961

dictionary rather than a more recent edition, and (e) regional pronunciation of words.

Bukovec Study

Joseph A. Bukovec reports that the purpose of phonic generalizations is ultimately to determine word recognition. There is a necessity to equate utility for "accurate pronunciation" for achieving word recognition. This is necessary for teachers who must decide which pronunciation rules would best be incorporated in instructional programs.

Bukovec's formula evaluates a generalization's usefulness on the basis of its effectiveness in achieving precise pronunciation.

It would appear reasonable to estimate that inexperienced readers who apply phonic rules and obtain inaccurate pronunciations in actual reading situations will ultimately achieve word recognition in approximately fifty per cent of such instances.

In a study testing usefulness of phonic generalizations when applied to trade book vocabulary, Bukovec tested Clymer's forty-five generalizations to a carefully compiled sample of 2,248 different words drawn from trade books popular at primary grade level. The study indicated the phonic generalizations, when considered from the viewpoint of overall word recognition, enjoy a rate of estimated utility that is much higher than the utility level arrived at solely on the basis of accurate pronunciation.

Davis Study

Lillie Smith Davis designed her study to determine the applicability of phonic generalizations to selected spelling programs and to determine the extent of applicability to a composite vocabulary drawn from a selected spelling program. Six spelling programs were selected to analyze Theodore Clymer's list of forty-five phonic generalizations and his criteria set for determining the per cent of utility of each generalization.

Davis' study resulted in a conclusion that phonic generalizations related to single consonants, consonant elements, and pronunciation of vowels in accented syllables show acceptable percentages of applicability to spelling programs. Although applicability drops sharply when the phonic generalizations are applied to phonic elements in inner-syllables of multi-syllable words, Davis points out that a distinct need exists for identifying phonic generalizations that apply to phonic elements found in all parts of multi-syllable words.

Fleming Study

James T. Fleming's study was directed to look for possible relationships between the utility placed on phonic generalizations and teachers' understanding. Clymer's thirty-seven generalizations were presented to teachers who were asked to give a word which would illustrate the generalizations. The hypothesis suggested that the greater utility

value, the greater likelihood for obtaining accurate teacher selection. The results of Fleming's study supported the hypothesis.

Wardhaugh Study

Ronald Wardhaugh reports in his study that today's confronting problem is the question: Do we want current phonics?

Many investigators have found that phonic generalizations are quite deficient. Many of the generalizations are useless because they are inaccurate, unordered, or circular--they are based on a misunderstanding of the facts, or are randomly presented, or cannot be readily applied.

Wardhaugh feels the linguistic approach takes place in the manner where the child brings his ability to the task. Every child speaks the language (unless unusual pathologically), therefore, a child has been using an extremely sophisticated linguistic system for two or more years when confronted by the task of learning to read.

Wardhaugh states two approaches: (1) The child starts from his spoken language, his own linguistic system. Then he must discover how it is written. (2) This approach is one where the child figures out how certain written symbols may be pronounced.

Wardhaugh states that linguistic understandings are necessary for the best and most effective phonic approaches. Teachers must know differences between phonics, a way of

reading, phonetics, the study of speech production, and phonemics, the study of how sounds function to convey meaning differences.

II. SUMMARY

The review of the literature comprising authorities of the usefulness of phonic generalizations has been presented. The findings of the researchers led them to define a need for more research. The majority of these researchers has relied upon a "school" vocabulary, and yet some recommend further examination of other material. This study takes that one step beyond in using a media that has not as of this time been researched.

CHAPTER III

METHODS AND PROCEDURES

I. THE CORPUS OF WORDS ANALYZED

The corpus of words examined in this study is the selected second 1,000 words (beginning with the word "scene" and ending with the word "soldiers") that appear in the Computational Analysis of Present-Day American English by Henry Kucera and W. Nelson Francis (1967). This corpus has been chosen in an attempt to examine words that are representative of present-day American English.

The selection of the words appearing in Kucera was drawn by a method that makes it reasonably representative of current printed American English. The entire word list is a body of 1,014,232 words consisting of 500 samples of approximately 2,000 words each. The words are ranked on a frequency distribution scale with high-frequency words appearing first and low-frequency words last. In most cases the samples are from one continuous passage from a single source. In some categories, however, notably newspaper reportage, some samples consist of collections of shorter pieces, sometimes from different sources (Kucera and Francis, 1967).

The idea that governed the selection and preparation of this word list was that it should be synchronic, representative of a wide range of styles, and accurate. Synchronicity was assured by confining the data to texts published in the year 1961. Further restrictions imposed were that the material had to be printed in the United States, written so far as could be determined by American writers, in prose, with no more than fifty per cent of any selection in dialogue (this automatically excluded drama as well as some fiction). To insure representativeness, the five hundred samples were distributed among fifteen categories, representing the full range of subject matter and prose styles, from the sports page of the newspaper to the scientific journal and from popular romantic fiction to abstruse philosophical discussion. (Kucera and Francis, 1967.)

The purpose of the Kucera and Francis study was to compile a corpus of printed American English and present basic analysis of the data according to the following criteria: (1) Definite and specific delimitation of the language texts included, so that scholars using the corpus may have precise notion of the composition of the material. (2) Complete synchronicity; texts published in a single calendar year only are included. (3) A predetermined ratio of the various genres represented and a selection of individual samples through a random sampling procedure. (4) Accessibility of the corpus to automatic retrieval of all information contained in it which can be formally identified. (5) An accurate and complete description of the basic statistical properties of the corpus and of several subsets of the corpus with the possibility of expanding such analysis to other sections or properties of the corpus as may be required.

The preparation of the text is an expression of the

hope that the corpus, being a carefully selected and fully described body of natural-language texts, may serve as a standard of comparison for a variety of studies and analyses of present-day English.

This study has been conducted by five graduates who are teachers with a varied range of experience in teaching reading from elementary school through junior college. Each scholar participating in the study was responsible for the analysis of 1,000 words. In an attempt to analyze words that are representative of present-day American English, this study will use the first 5,000 words that appear in the Computational Analysis of Present-Day American English, combined in a large publication now in progress and to be completed in 1976, with this researcher responsible for the second 1,000 words.

II. PHONIC GENERALIZATIONS

The thirty-eight phonic generalizations used in this study were chosen by Duquette, who deemed these generalizations as appropriate for elementary level reading instruction and for use in elementary schools.

These generalizations are unpublished and may be made available from Dr. Duquette, California State College, Bakersfield. (See Bibliography for Unpublished Works.)

III. METHOD OF ANALYSIS

The thirty-eight generalizations used in this study have been applied to the vocabulary of the second 1,000 words selected from the Kucera study. The only eliminations from the corpus were abbreviations, place names, names of persons, numerical notations, and single letters. Derivations were included when they were uncommon, changed the pronunciation of the base form of the word, added a syllable to the base word, or were the only forms listed. Webster's New Students' Dictionary, 1961 edition, was used for pronunciation, syllabic division, and accentuation of each word in the corpus. The first phonetic transcription will be used unless it was considered other than common pronunciation.

Since phonic generalizations are designed to provide inexperienced readers with a means of translating unfamiliar printed symbols into sounds that are recognizable as words in their spoken or listening vocabularies, the determined utility of these generalizations was based upon whether or not a generalization, when applied, resulted in a precise or totally accurate pronunciation of the word element under analysis.

RELIABILITY

After the words were analyzed to determine applicability of each phonic generalization and the results were recorded on tally sheets, the sheets were exchanged among

the group members for a final test of reliability. (A sample sheet is located in the Appendix.) In order to obtain consistency and reliability in this study, each researcher rechecked two other researchers' lists of analyzed words. The method for the recheck was a type of circular rotation where each participating researcher checked every tenth word starting at the first word, and every tenth word starting at the fifth word of two different vocabulary lists.

LEVEL OF PER CENT OF UTILITY

To determine the per cent of utility of the words to the thirty-eight phonic generalizations of this study, Clymer's criteria were incorporated. The criteria were as follows: (1) The word list must contain a minimum of ten words to which the generalizations might apply. (2) The generalizations must have a per cent of utility of at least seventy-five per cent.

The criteria used for the utility percentages seemed very appropriate since these guidelines were used by many of the researchers mentioned in chapter two in this study. This consistency may be of great help to future researchers.

IV. ORGANIZATION OF THE REMAINDER OF THE STUDY

This chapter discusses the corpus of words analyzed, the thirty-eight phonic generalizations used in the analysis, the method of analysis, reliability, and level of per cent of utility.

The remainder of this study includes chapters four and five. In chapter four the findings of the study are presented along with graphs and a list of the thirty-eight phonic generalizations used. Chapter five contains a summary and conclusion of the findings and suggestions for further research.

CHAPTER IV

FINDINGS OF THE STUDY

The purpose of this study was to determine the utility of thirty-eight phonic generalizations designated appropriate by Duquette when applied to the second 1,000 words of Computational Analysis of Present-Day American English by Kucera. The reliability of these generalizations when applied to a representative sample of present-day American English would yield a significance of seventy-five per cent utility with a minimum of appearances in this study of at least one per cent of the time.

I. NULL HYPOTHESIS

There will be no utility between a specific group of phonic generalizations when applied to the Kucera study of the second 1,000 commonly used words appearing in American publications.

GENERALIZATION ONE

A one-syllable word ending with a single vowel usually ends with a long vowel sound (be, he, go), other than silent e.

The rule was considered for eighty-five words,

eighty-five of which conformed to the rule, yielding a utility of 100 per cent. Therefore, the null hypothesis was rejected with respect to this generalization. Refer to Table One, page 37.

GENERALIZATION TWO

When a one-syllable word ends with a consonant or consonant cluster and a y, the y is pronounced as a long i (my, cry).

The rule was considered for six words, six of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 37.

GENERALIZATION THREE

When a polysyllabic word ends with a consonant or consonant cluster followed by a y, the y is pronounced as a long e (baby, lady, dignity).

The rule was considered for seventy-one words, seventy-one of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 37.

GENERALIZATION FOUR

When y is the only vowel in a syllable and it is followed by a consonant or consonant cluster, it usually is pronounced as a short i (gym).

The rule was considered for two words, two of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 37.

GENERALIZATION FIVE

Y can be a vowel or a consonant. When it begins a syllable it is a consonant (you).

The rule was considered for five words, five of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 37.

GENERALIZATION SIX

The first vowel of the following vowel combinations is usually long while the second is silent: ai, ay, ea, ee, oa, ow (main, pay, eat, see, oat, sparrow). The combination ea may have a short e sound (bread), and ow may have an ou sound (how).

The rule was considered for 129 words, ninety-eight of which conformed to the rule, yielding a utility of 76 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, pages 37 and 38.

ai

The rule was considered for thirty words, twenty-six of which conformed to the rule, yielding a utility of 87 per

cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 38.

ay

The rule was considered for twelve words, seven of which conformed to the rule, yielding a utility of 58 per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 38.

ea

The rule was considered for fifty-two words, thirty-four of which conformed to the rule, yielding a utility of 66 per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 38.

ee

The rule was considered for sixteen words, sixteen of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 38.

oa

The rule was considered for six words, five of which conformed to the rule, yielding a utility of 83 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 38.

ow

The rule was considered for thirteen words, ten of

which conformed to the rule, yielding a utility of 75 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 38.

GENERALIZATION SEVEN

The following vowels usually combine together to make a new vowel sound: au, aw, ou, oi, oy, oo (which has two common sounds) and sometimes ow (auto, awful, houses, coin, boy, book, rooster, cow).

The rule was considered for fifty-nine words, forty-six of which conformed to the rule, yielding a utility of 78 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 38.

au

The rule was considered for eight words, four of which conformed to the rule, yielding a utility of 50 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 38.

aw

The rule was considered for five words, five of which conformed to the rule, yielding a 100 per cent utility. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 38.

ou

The rule was considered for twenty-one words, thirteen of which conformed to the rule, yielding a utility of 62 per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 38.

oi

The rule was considered for six words, five of which conformed to the rule, yielding a utility of 83 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 38.

oy

The rule was considered for one word, one of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 38.

oo

The rule was considered for eleven words, eleven of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 38.

ow

The rule was considered for seven words, seven of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 38.

GENERALIZATION EIGHT

A syllable when accented contains a vowel followed by a consonant, and the vowel usually has its short sound (ran, bet, sit, cup, cop).

The rule was considered for 525 words, 315 of which conformed to the rule, yielding a utility of 60 per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 38.

GENERALIZATION NINE

When the vowel i is followed by ld, nd, gn, gh, or ght, it usually has its long vowel sound (wild, find, sign, sigh, might).

The rule was considered for nine words, four of which conformed to the rule, yielding a utility of 44 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 39.

GENERALIZATION TEN

When the vowel o is followed by ld and lt, it usually has its long vowel sound (hold, colt).

The rule was considered for one word, one of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 39.

GENERALIZATION ELEVEN

The letter r affects the vowel preceding it, making it neither long nor short (car, fur, shirt).

The rule was considered for 225 words, 203 of which conformed to the rule, yielding a utility of 90 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 39.

GENERALIZATION TWELVE

When a is followed by ll, lk, or lt in the same syllable, the a usually has the same sound as aw or au (talk, tall, malt).

The rule was considered for three words, three of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 39.

GENERALIZATION THIRTEEN

The consonant cluster gh represents a hard g when beginning a word (ghost).

No words were found to consider this rule; therefore, this rule did not achieve applicability. Refer to Table One, page 39.

GENERALIZATION FOURTEEN

The consonant cluster gh represents an f when ending

a word (laugh).

No words were found to consider this rule; therefore, this rule did not achieve applicability. Refer to Table One, page 39.

GENERALIZATION FIFTEEN

The consonant cluster combination ght is pronounced as t (night).

The rule was considered for twelve words, twelve of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 39.

GENERALIZATION SIXTEEN

The consonant cluster ch is usually pronounced as it is in kitchen.

The rule was considered for thirty-one words, twenty-five of which conformed to the rule, yielding a utility of 81 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 39.

GENERALIZATION SEVENTEEN

The consonants c, t, or s followed by io or ia represent a consonant sound (delicious, martial, musician, division, motion).

The rule was considered for fifty-seven words, fifty-seven of which conformed to the rule, yielding a utility of

100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 39.

GENERALIZATION EIGHTEEN

The letter q is always followed by u. When que is at the end of a word, it is pronounced as a k (boutique); otherwise it is pronounced as though it were written as kw (quilt).

The rule was considered for twelve words, twelve of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 40.

GENERALIZATION NINETEEN

When c or g is soft, it is followed by the vowels e, i, or y (cent, city, cycle; age, agile, gyroscope). When c or g is hard, it is not followed by the vowels e, i, or y (attic, cat, cute; good, gave, gun).

The rule was considered for seventy-nine words, seventy-nine of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 40.

GENERALIZATION TWENTY

When a double consonant is in a word, usually only the one in the accented syllable is pronounced (dol'ʒar). If the double consonant is cc or gg and followed by e, i, or y, then both letters are pronounced (suggest, success). If

the double consonant is represented in two morphemes, then both letters are pronounced (midday).

The rule was considered for 131 words, 128 of which conformed to the rule, yielding a utility of 98 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 40.

GENERALIZATION TWENTY-ONE

K or g are silent when followed by n (knight, gnarl).

The rule was considered for one word, one of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 40.

GENERALIZATION TWENTY-TWO

W is silent when followed by r (write).

The rule was considered for three words, three of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 40.

GENERALIZATION TWENTY-THREE

H is silent when it follows r (rhyme).

The rule was considered for one word which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one

per cent of the time. Refer to Table One, page 40.

GENERALIZATION TWENTY-FOUR

B is silent when preceded by m (comb).

The rule was considered for three words, none of which conformed to the rule, yielding zero per cent utility. This rule does not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 40.

GENERALIZATION TWENTY-FIVE

C is silent when followed by k (clock, back).

The rule was considered for fourteen words, fourteen of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 41.

GENERALIZATION TWENTY-SIX

When ou is part of a suffix, it represents a schwa sound (dangerous, wondrous).

The rule was considered for three words, three of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 41.

GENERALIZATION TWENTY-SEVEN

A word is divided between a root word and its prefix.

The rule was considered for four words, four of which conformed to the rule, yielding a utility of 100 per cent. This rule did not achieve applicability because it did not appear one per cent of the time. Refer to Table One, page 41.

GENERALIZATION TWENTY-EIGHT

A word is divided usually between a root word and its suffix (re/do, kind/er; wondrous is an example of a suffix that is not a separate syllable).

The rule was considered for ninety-three words, eighty-six of which conformed to the rule, yielding a utility of 92 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 41.

GENERALIZATION TWENTY-NINE

When two vowel sounds are separated by two consonant sounds, divide between the consonant sound (en/thrall, kin/dle, con/struct).

The rule was considered for 121 words, 101 of which conformed to the rule, yielding a utility of 83 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 41.

GENERALIZATION THIRTY

When a consonant sound follows a long vowel sound, the consonant is part of the next syllable. If it follows a short vowel sound, it is part of the first syllable

(min/ute, mi/nute).

The rule was considered for 224 words, 170 of which conformed to the rule, yielding a utility of 76 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 41.

GENERALIZATION THIRTY-ONE

The inflectional ending ed forms a separate syllable when added to words ending in d or t (add/ed, wast/ed). When added to other words ed is pronounced as part of the last syllable of the root word (showed).

The rule was considered for forty-seven words, forty-six of which conformed to the rule, yielding a utility of 98 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 41.

GENERALIZATION THIRTY-TWO

In a word with a prefix or suffix attached, the accent is in the root word (un/loved', faith'ful).

The rule was considered for fifty-six words, fifty-six of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 42.

GENERALIZATION THIRTY-THREE

Two vowels in the last syllable of a word may suggest an accented syllable (re/peat', con/tain').

The rule was considered for fifty-eight words, fifty-four of which conformed to the rule, yielding a utility of 93 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 42.

GENERALIZATION THIRTY-FOUR

Usually accent the first syllable of a two-syllable word.

The rule was considered for 118 words, 114 of which conformed to the rule, yielding a utility of 97 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 42.

GENERALIZATION THIRTY-FIVE

When a word is used as a noun, accent the first syllable.

The rule was considered for 317 words, 227 of which conformed to the rule, yielding a utility of 71 per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 42.

GENERALIZATION THIRTY-SIX

The second syllable is accented when the word is used as a verb.

The rule was considered for 126 words, sixty-seven of which conformed to the rule, yielding a utility of 53 per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 42.

GENERALIZATION THIRTY-SEVEN

When a double consonant is found within a word, usually the syllable before the double consonant is accented (mit'ten).

The rule was considered for 169 words, six of which conformed to the rule, yielding a utility of four per cent. The null hypothesis was accepted for this generalization. Refer to Table One, page 42.

GENERALIZATION THIRTY-EIGHT

If a word ends in a silent e, the vowel coming before the silent e is usually long.

The rule was considered for 190 words, 190 of which conformed to the rule, yielding a utility of 100 per cent. The null hypothesis was rejected for this generalization. Refer to Table One, page 42.

TABLE ONE
FINDINGS OF THIRTY-EIGHT PHONIC GENERALIZATIONS

Generalization	Number of Incidents	Number of Words Conforming	Number of Exceptions	Per Cent of Utility
1) A one-syllable word ending with a single vowel usually ends with a long vowel sound (be, he, go), other than silent e.	85	85	0	100 *
2) When a one-syllable word ends with a consonant or consonant cluster and a y, the y is pronounced as a long i (my, cry).	6	6	0	a
3) When a polysyllabic word ends with a consonant or consonant cluster followed by a y, the y is pronounced as a long e (baby, lady, dignity).	71	71	0	100 *
4) When y is the only vowel in a syllable and it is followed by a consonant or consonant cluster, it usually is pronounced as a short i (gym).	2	2	0	a
5) Y can be a vowel in a syllable or a consonant. When it begins a syllable it is a consonant (you).	5	5	0	a
6) The first vowel of the following combinations is usually long, while the second is silent: ai, ay, ea, ee, oa, ow (main, pay, eat, see, oat, sparrow). The combination ea may have a short e sound (bread), and ow may have an ou sound (how).	129	98	31	76 *

TABLE ONE--Continued

Generalization	Number of Incidents	Number of Words Conforming	Number of Exceptions	Per Cent of Utility
6) Continued				
<u>ai</u>	30	26	4	87 *
<u>ay</u>	12	7	5	58
<u>ea</u>	52	34	18	75 *
<u>ee</u>	16	16	0	100 *
<u>oa</u>	6	5	1	a
<u>ow</u>	13	10	3	75 *
7) The following vowels usually combine together to make a new vowel sound: au, aw, ou, oi, oy, oo (which has two common sounds) and sometimes ow (auto, awful, house, coin, boy, book, rooster, cow).	59	46	13	78 *
<u>au</u>	8	4	4	a
<u>aw</u>	5	5	0	a
<u>ou</u>	21	13	8	62
<u>oi</u>	6	5	1	a
<u>oy</u>	1	1	0	a
<u>oo</u>	11	11	0	100 *
<u>ow</u>	7	7	0	a
8) A syllable when accented contains a vowel followed by a consonant sound, and the vowel usually has its short sound (ran, bet, sit, cup, cop).	525	315	210	60

TABLE ONE--Continued

Generalization	Number of Incidents	Number of Words Conforming	Number of Exceptions	Per Cent of Utility
9) When the vowel i is followed by ld, nd, gn, gh, or ght, it usually has its long vowel sound (wild, find, sign, sigh, might).	9	4	5	a
10) When the vowel o is followed by ld and lt, it usually has its long vowel sound (hold, colt).	1	1	0	a
11) The letter r affects the vowel preceding it, making it neither long nor short (car, fur, shirt).	225	203	22	89 *
12) When a is followed by ll, lk, or lt in the same syllable, the a usually has the same sound as aw or au (talk, tall, malt).	3	3	0	a
13) The consonant cluster gh represents a hard g when beginning a word (ghost).	0	0	0	a
14) The consonant cluster gh represents an f when ending a word (laugh).	0	0	0	a
15) The combination ght is pronounced t at the end of a word (night).	12	12	0	100 *
16) The consonant cluster ch is usually pronounced as it is in kitchen.	31	25	6	81 *
17) The consonants c, t, or s followed by io or ia represent a consonant sound (delicious, martial, musician, division, motion).	57	57	0	100 *

TABLE ONE--Continued

Generalization	Number of Incidents	Number of Words Conforming	Number of Exceptions	Per Cent of Utility
18) The letter q is always followed by a u. When que is at the end of a word it is pronounced as a k (boutique); otherwise it is pronounced as though it were written as kw (quilt).	12	12	0	100 *
19) When c or g is soft, it is followed by the vowels e, i, or y (cent, city, cycle; age, agile, gyroscope). When c or g is hard, it is not followed by the vowels e, i, or y (attic, cat, cute; good, gave, gun).	79	79	0	100 *
20) When a double consonant is in a word, usually only the one in the accented syllable is pronounced (dol'yar). If the double consonant is cc or gg and followed by e, i, or y, then both letters are pronounced (suggest, success). If the double consonant is represented in two morphemes, then both letters are pronounced (midday).	131	128	3	98 *
21) K or g are silent when followed by n (knight, gnarl).	1	1	0	a
22) W is silent when followed by r (write).	3	3	0	a
23) H is silent when it follows r (rhyme).	1	1	0	a
24) B is silent when preceded by m (comb).	3	0	3	a

TABLE ONE--Continued

Generalization	Number of Incidents	Number of Words Conforming	Number of Exceptions	Per Cent of Utility
25) C is silent when followed by k (clock, back).	14	14	0	100 *
26) When ou is part of a suffix, it represents a schwa sound (dangerous, wondrous).	3	3	0	a
27) A word is divided between a root word and its prefix.	4	4	0	a
28) A word is usually divided between its root word and its suffix (re/do, kind/er; wondrous is an example of a suffix that is not a separate syllable).	93	86	7	92 *
29) When two vowel sounds are separated by two consonant sounds, divide between the consonant sounds (en/thrall, kin/dle, con/struct).	121	101	20	83 *
30) When a consonant sound follows a long vowel sound, the consonant is part of the next syllable. If it follows a short vowel sound, it is part of the first syllable (min/ute, mi/nute).	224	170	54	76 *
31) The inflectional ending ed forms a separate syllable when added to words ending in d or t (add/ed, wast/ed). When added to other words ed is pronounced as part of the last syllable of the root word (showed).	47	46	1	98 *

TABLE ONE--Continued

	Number of Incidents	Number of Words Conforming	Number of Exceptions	Per Cent of Utility
32) In a word with a prefix attached, the accent is in the root word (un/loved', faith'ful).	56	56	0	100 *
33) Two vowels in the last syllable of a word may suggest an accented syllable (re/peat', con/tain').	58	54	4	93 *
34) Usually accent the first syllable of a two-syllable word.	118	114	4	97 *
35) When a word is used as a noun, accent the first syllable.	317	227	90	71
36) The second syllable is accented when the word is used as a verb.	126	67	59	53
37) When a double consonant is found within a word, usually the syllable before the double consonant is accented (mit'ten).	169	6	163	4
38) If a word ends in a silent e, the vowel coming before the silent e is usually long.	190	190	0	100 *

*Applicable 75% or more of the time and applied at least ten times, with the null hypothesis being rejected.

^aApplied less than ten times, therefore not tabulated.

II. CHAPTER SUMMARY

The analysis of the data described in Chapter Three resulted in eighteen of thirty-eight phonic statements appearing in less than one per cent of the words. Therefore, they were not tabulated. The null hypothesis was rejected twenty-five times and accepted seven times.

CHAPTER V

SUMMARY OF FINDINGS AND CONCLUSIONS (AND SUGGESTIONS FOR FURTHER RESEARCH)

I. SUMMARY OF THE STUDY

The purpose of this study was to establish whether recognized phonic rules were reliable when applied to a representative sample of present-day American English selected from a corpus of words compiled by Kucera. The study was not supportive of the null hypothesis that there would be no utility between a specific group of phonic generalizations when applied to the Kucera study of the most commonly used words appearing in American publications.

II. FINDINGS

The null hypothesis of this study was tested to determine the utility of thirty-eight phonic generalizations where seven generalizations were accepted and twenty-five were rejected according to the null hypothesis. To further categorize these findings of the phonic generalizations, the breakdown of the results of this study is as follows: Rules for vowels were considered in eleven generalizations where four were significant and showed proper utility to the cri-

teria. These are generalizations one, three, eleven, and thirty-eight. Generalizations for diagraphs numbered six, and were significant only for ai, ea, ee, and ow. Generalizations for diphthongs numbered seven, and were significant for oo only. Consonant generalizations considered numbered thirteen, but applicable generalizations were numbers fifteen, sixteen, seventeen, eighteen, nineteen, twenty, and twenty-five. Only six generalizations were considered for syllables where generalizations twenty-eight, twenty-nine, thirty, and thirty-one were applicable. Accent generalizations numbered six, where only generalizations thirty-two, thirty-three, and thirty-four were applicable to the criteria.

III. CONCLUSIONS

The null hypothesis was tested to determine the utility of thirty-eight phonic generalizations when applied to a corpus of words from the Kucera study of present-day American English. The null hypothesis was not supported, showing that phonic generalizations do not necessarily apply to a "school" vocabulary.

Therefore, some of the thirty-eight phonic generalizations deemed appropriate by Duquette are significant for primary level reading instruction in the school and helpful in reading in later life.

This study, along with four others using the first 5,000 words of Kucera, will be compiled for printing at a later date.

IV. SUGGESTIONS FOR FURTHER RESEARCH

Through review of this study, there are a few suggestions which may be possible for future research:

1. Similar research, using a different dictionary.
2. New generalizations built for those of no utility and then applied to the same words, using the same criteria.
3. Challenge the word list or corpus with words selected from different publications.
4. A rule for the vowel combination ie be adopted.
5. Analysis of a list of new syllable and accent generalizations of polysyllabic words.

SELECTED BIBLIOGRAPHY

- Bailey, Mildred H. "The Utility of Phonic Generalizations in Grades One Through Six," The Reading Teacher, XX (February, 1965), 413-18.
- Bukovec, Joseph A. "Usefulness of Phonic Generalizations: A New Formula." The Reading Teacher, XXVII (March, 1971), 271.
- Burmeister, Lou E. "Final Vowel-Consonant-E." The Reading Teacher, XXIV (May, 1968), 439-42.
- Clymer, Theodore, "The Utility of Phonic Generalizations in The Primary Grades." The Reading Teacher, XVI (January, 1963), 252-8.
- Davis, Lillie Smith. "The Applicability of Phonic Generalizations to Selected Spelling Programs." Elementary English, XLIX (May, 1972), 706-13.
- Emans, Robert. "The Usefulness of Phonic Generalizations Above the Primary Grades." The Reading Teacher, XX (February, 1967), 419-25.
- Fleming, James T. "Teacher's Understanding of Phonic Generalizations." The Reading Teacher, XXV (February, 1972), 400-04.
- Gates, A. I. Reading Vocabulary for the Primary Grades. New York: Bureau of Publications of Teachers College, Columbia University, 1953.
- Groff, Patrick. "Fifteen Flaws of Phonics." Elementary English, L (January, 1973), 35-40.
- Kucera, Henry, and Francis, W. Nelson. Computational Analysis of Present-Day American English. Brown University Press, 1967.
- Thorndike, Edward Lee, and Lorge, Irving. The Teacher's Word Book of 30,000 Words. New York: Teachers College, Columbia University.
- Wardhaugh, Ronald. "A Linguist Looks at Phonics." Elementary English, XLVIII (January, 1971), 61-6.
- Webster's New Collegiate Dictionary. New York: American Book Company [1961].

UNPUBLISHED MATERIAL

- Duquette, Raymond J., and Veatch, Jeannette. Phonics Said, Not Read. In progress, 1976.

APPENDIX

TALLY SHEET

	long v end of word other than silent e	Y as t	Y as s	Y as y	Y as consonant	DIAGRAPHS	DIPHTHONGS	short vowels i (id, nd, gn, gh) o (id)	vowel plus r	a plus ll or lk	silent e	CONSONANTS	SYLLABLES	ACCENTS	
												soft c soft g gh - hard g gh - f ght - t ch - church c, t, s, plus so or la q plus u	dbl consonant kn - n wr - r rh - r mb - m ct - k	ou suffix schwa root word + prefix root word + suffix ed suffix vc / cv v / cv, vc / v	root word dbl vowel 1st syll. of 2 syll. 1st syll. - noun 2nd syll - verb before dbl con.
drive driv												Y			
gas gās								Y				Y	Y		
scene sēn												Y	Y		
demand															
dī-mānd								Y						N	N NY
trees trēz						Y		N							
facilities															
fə-cīl-ət-ēs								Y				Y		Y	N N
marriage															
ˈmār-ij								Y				N	Y	Y	Y Y N
pass pās								Y					Y		
break bræk						Y									
bright brīt								N	Y						
spoke spōk												Y			
remains															
cī-māns						Y									Y Y
brief brēf															
buy bī	Y	Y													
arts ärts															
plants															
plānts								Y							
Senate															
ˈsen-ət								Y						Y	Y Y
goods gūds									Y						
Bought bōt									Y						Y