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AN APPLICATION TO THE TEACHING OF ORTHOGRAPHY BASED ON ELEMENTARY PRINCIPLES OF LINGUISTIC SCIENCE

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AN APPLICATION TO THE TEACHING OF ORTHOGRAPHY
BASED ON ELEMENTARY PRINCIPLES OF LINGUISTIC SCIENCE

By

Ellen Sharp Worsham

A thesis submitted to the Graduate Council of Longwood
College in partial fulfillment of the requirements for
the Degree of Master of Arts in Education.

August, 1968
Farmville, Virginia

Approved:

Paul F. Hughes
Chairman

Forster B. Gresham

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ACKNOWLEDGMENTS

This thesis has been prepared under the guidance of Professors PAUL BUGHES and FOSTER GRASHEA, Longwood College, Farmville, Virginia.

by

The author expresses her appreciation to Professors BUGHES and GRASHEA for their constructive criticism and cooperation. Tribute is paid to the late RONALD SIMON, Jr. for his inspiration in the early stages of the study.

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CHAPTER I

INTRODUCTION AND DEFINITIONS OF TERMS USED

In recent years, there has been much discussion of the teaching of orthography in the junior high schools of Prince William County. While previous orthography programs have provided techniques designed to aid the students in developing spelling skills, no teaching approach has adequately met the needs of the students in this part of the county.

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1. A Study of Error 27

an absence of sufficient instruction in the principles of linguistic history, especially the principles of orthography inconsistencies, idiolect, and dialect. This limitation has been pointed out by Edward Sauer; the teaching approach of orthography, he maintains, can be based on the history of the language.¹ Another limiting factor of former teaching approaches has been a lack of correlation between orthography and other language arts areas. In order to determine corrective measures to counteract the above deficiencies, the author, with the approval of the director of instruction and the English supervisor of this county, planned an in-service program to be conducted at Marshall Junior High School.

¹Edward H. Sauer, *English in the Secondary School* (New York, 1951), pp. 137-38.

CHAPTER I

INTRODUCTION AND DEFINITIONS OF TERMS USED

In recent years, there has been much discussion of the teaching of orthography in the junior high schools of Prince William County. While previous orthography programs have provided techniques designed to aid the students in developing spelling skills, no teaching approach has adequately met the needs of the students in this particular county. An important limitation of these programs has been an absence of sufficient instruction in the principles of linguistic history, especially the principles of orthography inconsistencies, idiolect, and dialect. This limitation has been pointed out by Edward Sauer; the teaching approach of orthography, he maintains, can be based on the history of the language.¹ Another limiting factor of former teaching approaches has been a lack of correlation between orthography and other language arts areas. In order to determine corrective measures to counteract the above criticism, the author, with the approval of the director of instruction and the English supervisor of this county, planned an in-service program to be conducted at Marsteller Junior High School.

¹Edward H. Sauer, English in the Secondary School (New York, 1961), pp. 137-38.

The purpose of this in-service study was to provide the teachers and students of Marsteller an opportunity (1) to learn more about the forces that influence orthography error; (2) to observe the lapse existing in the oral and written forms of the students' expressions; (3) to determine the causes of these errors; and (4) to propose suggestions for the teaching approach based on a knowledge of linguistic principles and the deficiencies of the students of this school.

In order to insure a meaningful analysis and discussion of the error, a number of linguistic terms have been employed in this study; however, only those terms basic to a general discussion of the problem have been defined and illustrated here:

Phoneme. The term "phoneme" has been defined as a significant linguistic unit of oral expression. Throughout the analysis and discussion, the phonemic descriptions of sounds have been transcribed between slant lines: /æ/, /hw/, /ʒ/.

Grapheme. In the report of this study, the term "grapheme" has been defined as a meaningful linguistic unit of written expression. The basic graphemic units of English orthography have been identified as the twenty-six letters of the Roman alphabet. The discussion has included both the simple and compound graphemes of English: b, a, t; and au, ei, cc, mm.

Morphemes. Morphemes have been interpreted as meaningful elements of grammatical and lexical word-bound forms. In the discussion, grammatical word-bound morphemes have been designated as affixes and have been shown by placing a hyphen before the affix within brackets (i.e., operate (base)+ {-ion} > operation, peace(base)+ {-ful} > peaceful. The lexical word-bound morphemes have been recognized as bases.

Idiolect. The term "idiolect" has been clarified as "the speech habits of an individual at a given point of his lifetime." The discussion has recognized the individual's use of language and his own speech habits as possible agents of his orthography mistakes.

Dialect. The term "dialect" has been interpreted as meaning the forms of American English spoken by the students of the diversified area of Manassas. Discussion has provided examples of variations from the standard language in the students' pronunciation and spelling. Furthermore, these illustrations have shown characteristics of the forms of language spoken by the children, who have come into this area, from the mountains of Virginia's border states, various sections of Virginia and Pennsylvania, Massachusetts, and Georgia.

In this chapter, I have given only a brief description of the problem and rather concise definitions of selected terms fundamental to an understanding of this study. A discussion of problems similar to the orthography problems of Prince William County has been provided in the literature which has been reviewed briefly in the chapter that follows.

CHAPTER II

REVIEW OF THE LITERATURE

Much literature is available regarding orthography reform, the spelling deficiencies of students, the inconsistencies of the system, and the approach necessary to the effective teaching of this subject; however, only a brief summary of selected work related to this problem is given here.

Abraham Tauber, in tracing George Bernard Shaw's interest in matters linguistic, has preserved much of this scholar's thinking regarding orthography reform, phonetic spelling, and the Shaw alphabet. He has given Shaw's opinion of the English spelling system:

The flagrant corruption of the sounds are directly due to the unphonetic spelling of our established orthography, and nothing but a thorough reform will avail. You must either let our spelling alone or else reform it phonetically.¹

Edward Sauer, in assessing the problems of English in the secondary schools, recognized that orthographic errors

¹George Bernard Shaw, On Language, ed. Abraham Tauber (London, 1965), p. 10. [Although selected literature of the twentieth century has been reviewed here, this is not meant to indicate that Shaw was the first to argue for phonetic spelling in American or abroad. As early as the sixteenth century, John Cheke (in a letter to Thomas Hoby) attempted reforms in spelling and argued for diction "using only native words," Norton Anthology, I, pp. 727-28.]

could be attributed to the inconsistencies of pronunciation and orthography in the English language. He designated various causes of our present day problems, and proposed a corrective approach. He concluded simply:

Students may see the evolutionary character of the language and the unpredictability of its change. If they do, the battle is half won.¹

Robert Hall, in observing the problems of teaching students to read in American schools, noted the inaccuracies of English orthography in its representation of the spoken forms of our language. He proposed linguistic units such as phonemes, graphemes, and morphemes to be used in the teaching of spelling.² In his concern for a teaching approach to meet the needs of the present age, he stated:

The only way to teach reading and spelling effectively is to do so on the basis of linguistic facts and to establish in the learner's mind a correlation between graphemes and phonemes³ to put it more simply, between letters and sounds.³

A marked degree of concern regarding the causes of orthography deficiencies was pointed out by John Algeo. His work dealt with linguistic facts which he considered to be basic elements in the teaching approach.⁴ In conclusion he remarks:

¹Sauer, p. 138.

²Robert A. Hall, Jr., Sounds and Spelling in English (New York, 1961), pp. 4-11.

³Ibid., p. 60.

⁴John Algeo, "Why Can't Johnny Spell", English Journal, LIV, (March, 1965), pp. 209-13.

It is apparent there are no panaceas for teaching Johnny to spell. But an awareness of what language is and how it is related to writing should suggest which approaches are likely to be the most fruitful. Above all the whole problem needs to be kept in perspective by recognizing that the cumbersome nature of English orthography rather than Johnny or his teacher is the chief reason he can't spell. The problem is basically a linguistic one and needs to be approached from a linguistic standpoint.¹

E. W. Dolch explored some of the methods of teaching spelling in American schools, and clarified various kinds of orthography knowledge such as hand-spelling, lip-spelling, ear-spelling (i.e., phonetic spelling), eye-spelling, and thought spelling. As a result of his research, Dolch suggested steps to be followed in the development of orthography skills.²

While the preceding observations have contributed much to a better understanding of the spelling inconsistencies and other orthography problems in the schools of Prince William County, it has been necessary to pursue other literature which has been provided by early pioneers researching similar problems. Albert Baugh, a valued source, has contributed detailed descriptions of the nature of our orthography system as well as the influencing forces on our language that have contributed to spelling confusion.³ Also, Leonard Bloomfield has provided valuable information about

¹Algeo, p. 213.

²E. W. Dolch, Better Spelling (Champaign, 1942), pp. 52-86.

³Albert Baugh, A History of the Language (New York, 1957), pp. 12-428.

the study of phonology and other factors of historical linguistics fundamental to an understanding of orthography problems.¹

I have chosen two outstanding authorities for my closing observations. Their work, too, has added much to this particular study. Henry Lee Smith, in his concern for language and the student, has discussed the intricacies of our language and the role of the individual student in the language arts program. Early in the discussion, he remarks:

Languages are different because cultures are different and understanding differences is the greatest task we have confronting us . . . Language has difficult pronunciation due to our inconsistent and incomplete spelling system.²

W. Nelson Francis, in his discussion of linguistics and the English teacher, recognized that there was no easy solution to teaching orthography. He states:

Linguistics can supply no easy solution to the problems of teaching spelling. It can, however, give some advice that may be of help . . . When the student begins to study foreign languages, especially French and Latin, his knowledge and interest may be turned to account by revealing to him the historical reasons for many apparently unreasonable spellings. The same may be done by teaching a little elementary historical and comparative linguistics.³

In the above observations, I have given only a very brief summation of selected works pertaining to this study.

¹Leonard Bloomfield, Language (New York, 1933), pp. 78-503.

²Henry Lee Smith, Jr., Linguistic Science and the Teaching of English (Cambridge, 1956), pp. 2-22.

³W. Nelson Francis, The Structure of American English, (New York, 1956), pp. 562-63.

Much more detailed information can be found in the material listed in the bibliography.

CHAPTER III

MATERIALS USED AND GROUP STUDIED

In order to promote a meaningful study of error, various reference and supplementary materials as well as audio-visual aids were made available to the participating members. The reference materials consisting of literature in bound volumes, paper editions, and pamphlets were studied by the teachers to further their knowledge of linguistic subjects such as (1) phonology, (2) English orthography inconsistencies, (3) morphology, (4) idiolect, (5) dialect, and (6) other topics of language history. The supplementary materials in the form of tables and exercises were used by the teachers to make the students aware of the basic sound structure and variant spellings of English.

Audio-visual aids such as tape recorders, record players, and various records were used to illustrate the speech habits of these particular students, the dialectal differences among the students and their peers, and the authors' use of dialect in literature. Throughout the in-service study, the television was used meaningfully as a medium of instruction. Each language arts teacher attended a series of weekly televised discussions of topics related to (1) English sounds, (2) English sounds in the classroom, (3) the styles of English usage, (4) discovering acceptable

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English usage, (5) the English teacher and the linguist, and (6) language and history.

The division of these materials into the reference, supplementary, and audio-visual aids areas was necessary in order to meet the needs of all the members of the group selected for the study.

The language arts teachers and student membership of Marsteller Junior High School, considered to be an ideal representation of other groups of this type in the junior high schools of Prince William County, were selected to participate in the in-service study. This integrated group of 852 members was composed of twenty teachers and 832 pre-teenage and teenage boys and girls. The number of participating language arts teachers, who had had little or no training in linguistics, included ten teachers of the sixth grades and ten teachers of the seventh and eighth grades. The student body was distributed rather evenly among the sixth, seventh, and eighth grades, and each grade level was composed of ten homogeneous groups of superior and above average, average, or below average students.

At the time of this study, the membership of each county school was determined by boundaries; therefore, the pupils of Marsteller came from (1) one-half of the town of Manassas, (2) rural Gainesville, Haymarket, and the northwest sector of Prince William County, and (3) the subdivisions of Sunnybrook and Westgate. Also, during this period of time, the highly transient yet rapidly growing population

of Manassas and its surrounding area was changing the once rural complex of this section to a semi-urban type area. Hence, this group was comprised of students from the original families of the area, various sections of Virginia, and other states along the Eastern Seaboard. Various professions and occupations such as law, medicine, and education; farming, carpentry, and plumbing were practiced by the parents of these students; therefore, the children were representatives of varied socio-economic levels.

In this short description of the materials used and the group studied, I have noted only those facts that have had a definite bearing on the discussion of the study of error.

order for the program was introduced as a study of error principles based on an exercise program by the late Joseph Wooding, Jr. (Appendix A) and illustrated by "The Alphabet Conspiracy" (Lm. Bell Telephone Service Laboratory). Classroom discussions of the principles of error analysis served as an effective means of motivation as indicated by the paper collecting activity.

In order to facilitate an accurate analysis of errors arising in the students' oral and written forms of expression, a study of the graphic representation of English grammar (Daniel) was necessary to aid the teachers and students in the identification of mispellings and in acquiring a meaningful understanding of the established form of the orthographic system.

CHAPTER IV

TECHNIQUE AND RESULTS OF THE STUDY

The procedure of the study based on a linguistic approach provided participants an opportunity to examine the orthography problems existing in the classrooms of this school and the author a basis for the thesis. In order for the examination of error to be executed meaningfully, it was necessary to establish an understanding of some basic principles of linguistics such as (1) the sound structure of English, (2) the variant spellings of English, (3) morphology, (4) idiolect, and (5) dialect. Thus, the program was introduced by a study of these principles based on an exercise prepared by the late Rinaldo Simonini, Jr. (Appendix A) and illustrated by "The Alphabet Conspiracy" film, Bell Telephone Science Laboratories. Classroom discussions of the principles of this exercise served as an effective means of stimulating an interest in the lapse collecting activity.

In order to facilitate an accurate analysis of errors existing in the students' oral and written forms of expression, a study of the graphemic representation of English phonemes (Tables) was necessary to aid the teachers and students in the identification of misspellings and in acquiring a meaningful understanding of the established form of our orthography system.

TABLE 1
PHONEMIC ALPHABET

Phoneme	Illustration	Phoneme	Illustration
/b/	-- b sound in back	/ŋ/	-- ng sound in bring
/p/	-- p sound in pack	/l/	-- l sound in lamp
/d/	-- d sound in down	/h/	-- h sound in harp
/t/	-- t sound in town	/r/	-- r sound in round
/g/	-- g sound in game	/w/	-- w sound in wasp
/k/	-- k sound in keep	/y/	-- y sound in yard
/tʃ/	-- ch sound in chest	/ə/ (schwa)	-- o sound in idol e sound in border i sound in visitor
/dʒ/	-- j sound in jest		
/f/	-- f sound in fast	/æ/	-- a sound in map
/v/	-- v sound in vast	/ɪ/	-- (barred i) i sound in an unstressed syllable as in oxen, children
/θ/	-- th sound in thistle, ether	/ɔ/	-- (open o) au sound in caught
/θ/	-- th sound in thin, moth		
/s/	-- s sound in song	/ɑ/	-- o sound in lot
/ʃ/	-- sh sound in ship	/e/	-- e sound in pen
/z/	-- z sound in zest	/ɪ/	-- i sound in pit
/z/	-- zh sound in azure	/o/	-- o sound in dome
/m/	-- m sound in mask	/u/	-- u sound in put
/n/	-- n sound in neither		

Notes: Selected phonemes were based on the Trager-Smith analysis; illustrations were given by author.

The students and teachers used this alphabet to study the sound structure of words.

TABLE 1--Continued

Selected Diphthongs

/ey/ -- a sound in gate

/iy/ -- e sound in meat

/ay/ -- i sound in fly

/ah/ -- palm

/aw/ -- mouse

/uw/ -- oo sound in glue

/oi/ -- enjoy, broil

TABLE 2--Continued

TABLE 2

Phoneme VARIANT SPELLINGS OF ENGLISH SOUNDS

Phoneme	Graphemes	Illustrations
/b/	b	broom, base, cherub
	bb	rubber
/p/	p	price, soap, praise, top
	pp	dipper, slipper
/d/	d	dragon, glad
	dd	madder
	ed	killed, billed
/t/	t	top, pot, train, roast
	tt	bottom, bottle, rattle
	tte	silhouette, settee
	ed	stopped
/g/	g	gone, dog, guess, brag
	gg	egg, drugged, struggle
	gue	rogue, tongue
/k/	k	king, seek, kettle, peak
	c	camp, cream, crab
	cc	accord, accent
	ch	chronic
	que	technique, brisque
	q	quiet, quail
	cq	acquaint, acqua
	ck	stack
/tʃ/	ch	cheek, touch, much
	tch	kitchen
	ti	question
	te	righteous
	tu	creature, feature
/dʒ/	j	jam
	dj	judgment
	dge	ridge, bridge
	g	gender
	gg	exaggerate
	du	graduation, gradual
	di	soldier

TABLE 2--Continued

Phoneme	Graphemes	Illustrations
/f/	f ff ph gh	farm, if, first stuff, muff, cliff saxophone, pamphlet rough, tough, cough
/v/	v vv f	vile, hive, void flivver of
/ð/	th the	then, heather breathe, wreathe
/θ/	th	thick, both
/s/	s ss sc c	same, soul, this boss, miss science ceiling, cell, celebrate
/ʃ/	sh ssi si ti ch ce ci ss se sci su	shaver, flash, clash fission, mission expansion, mansion ratio, ration, creation chute, brochure ocean fallacious, gracious issue, tissue nausea conscious sure, sugar
/z/	z zz s x ss	zinc, zeal, zero drizzle, puzzle does, please xylem scissors
/ʒ/	si s z g	collusion, delusion pleasure, treasure azure, azurite prestige
/m/	m mm mb	map, money swimming, command comb, plumber

TABLE 2--Continued

Phoneme	Graphemes	Illustrations
/n/	n gn nn	next, never, on gnat, gnaw, gnome fanning, manner, planning
/ŋ/	ng ngue n	sing, bring, thing tongue, meringue think, sink, brink
/l/	l ll	lone, love, belong ball, balloon, ballad
/h/	h wh	hat, harbor, haste who, whoop
/r/	r rr	run, roam hurry, furry
/w/	w u o	wet, water, wave quail, queen, quake choir
/y/	y i	yam, yesterday, yes symphony
/ə/	a u o ou oe oo	soda punch ton country does blood
/ɪ/	e i o ai eo ou ia oi	mitten, bitten satin button, mutton mountain sturgeon furious parliament tortoise
/ɔ/	au ou a aw o oa	taught, caught thought, wrought ball, stall lawn soften roar

TABLE 2--Continued

Phoneme	Graphemes	Illustrations
/a/	o	hot, cotton
	a	what
/e/	e	pen, fence
	ea	health, leather
	ai	said
	ei	heifer
	ie	friendship
	ay	says
	eo	leopard
/i/	ae	aesthetic
	i	pin, finch
	o	women
	u	business
	ui	guild, build
	y	symptom
	/ah/	ie
e		English
o		cone, tone
/o/	ow	sow
	ou	dough
	oa	coal, loan
	eau	manteau, beau
	ew	sew
	oe	toe
	oo	brooch
	/ey/	a
ai		plain
ay		play
au		gauge
ea		break
ei		seine, sleigh
ey		disobey
/iy/	et	croquet
	e	be
	ee	greet
	ei	deceive
	ie	relieve
	ea	flea, please
	ae	Caesar
ey	key	
oe	phoebe	

TABLE 2--Continued

Phoneme	Graphemes	Illustrations
/iy/	i	ski
	ay	quay
	y	soliloquy
/ay/	i	mice
	ie	die
	ei	sleight
	y	pry
	ai	kaiser
	ay	kayak
	uy	buy
	ye	dye
ey	eyelet	
/aw/	ou	house, mouse
	ow	plow
/ah/	a	psalm
	e	sergeant
	ea	hearth, hearty
/uw/	u	flute
	oo	broom
	ew	blew
	o	move
	ui	nuisance
	ue	glue
	ou	coupe
	eu	maneuver
	oe	canoe
iou	Sioux	

Notes: Selected phonemes were based on the Trager-Smith analysis; illustrations were given by author.

The students and teachers used this table to identify misspellings; to study inconsistencies of English spelling; and to study word origins.

The tables included phonemes based on the Trager-Smith analysis and the author's illustrations of variant spellings. During the study, the students continued to follow this practice of analyzing their mistakes. This work was supplemented by various exercises (Appendix A) pertaining to phonemic analysis and characteristics of variant spellings.

As the study progressed, additional agents (Table 3) were adopted to promote an accurate identification and classification of the students' errors. The table included simplified definitions of lapse based, to a degree, on the linguistic terminology found in Mario Pei.¹ Each agent was illustrated by appropriate examples of the students' mistakes in order to promote a meaningful understanding and application of this new terminology. This work was supplemented by oral exercises to illustrate the influences of the students' speech habits and dialect.

¹Mario Pei, Glossary of Linguistic Terminology (New York, 1966), pp. 1-162.

The occasional unpredictable tendency of a word or form to be pulled out of its natural orbit of development by the attraction of another word or form with which it has a real or fancied resemblance, the process of modifying words on the model of existing patterns or of creating new words on the basis of such patterns. (A child's use of dears as the plural of dear because beans is the plural of bean.)

Example: boring - bearing
dying - dieing
women - womans

Phonetic loss

A structural allophonic change which is

TABLE 3
CATEGORIES OF AGENTS EFFECTING ERROR

Category Number	Lapse, Definition, and Illustration
1	<p><u>Assimilation</u></p> <p>A phonetic process whereby two phonemes acquire common characteristics or become identical.</p> <p style="padding-left: 40px;">Example: ad + similo - assimilation</p>
2	<p><u>Dissimilation</u></p> <p>Sporadic sound change whereby there is the development of a dissimilarity between two identical or closely related phonemes; the loss of one of the two phonemes.</p> <p style="padding-left: 40px;">Example: in + nobilis - ignoble</p>
3	<p><u>Metathesis</u></p> <p>Sporadic sound change whereby there is a transposition of the order of sounds within a word or between words.</p> <p style="padding-left: 40px;">Example: asked - aksed bird - brid</p>
4	<p><u>Analogy</u></p> <p>The occasional unpredictable tendency of a word or form to be pulled out of its natural orbit of development by the attraction of another word or form with which it has a real or fancied resemblance; the process of modifying words on the model of existing patterns or of creating new words on the basis of such patterns. (A child's use of <u>deers</u> as the plural of <u>deer</u> because <u>beans</u> is the plural of <u>bean</u>.)</p> <p style="padding-left: 40px;">Example: boring - boaring dying - dieing women - womans</p>
5	<p><u>Phonemic loss</u></p> <p>A structural allophonic change which is</p>

TABLE 3--Continued

Category Number	Lapse, Definition, and Illustration
	<p>regular and conditioned in a given language; when the conditioning factor in the allophonic change merges with another sound and thus ceases to exist.</p> <p>A. <u>Haplology</u></p> <p>Sporadic sound change whereby there is an omission in speech of one of two consecutive, identical or similar sounds or group of sounds or syllables.</p> <p>Example: probably - prob'ly</p> <p>B. <u>Inflection</u></p> <p>The loss of certain endings of the base of a word to express grammatical relationship, function, and aspects.</p> <p>Example: treated - treat</p> <p>C. <u>Syncope</u></p> <p>The loss of a medial vowel, due generally to stress accent elsewhere in the word.</p> <p>Example: camera - cam'ra domina - dom'na</p>
6	<p><u>Phonemic gain</u></p> <p>The addition of certain endings to the base of a word (inflection) to express grammatical relationships, function, and aspects.</p> <p>Example: help - helped</p>
7	<p><u>Dialect</u></p> <p>A specific branch or form of a language spoken in a given geographical area differing sufficiently from the official standard or literary form of a language in one or all of the levels of the language (grammar, pronunciation, and vocabulary).</p>

TABLE 3--Continued

Category Number	Lapse, Definition, and Illustration
12	<p>Examples: Cuba - Cubar fighting - fighten going - go'en prize - prise</p>
8	<p><u>Idiolect</u></p> <p>The individual's use of language, with his own speech habits and choice of words; the individual's personal variety of the community language system; the speech habit of a single person at a given point of his lifetime.</p> <p>Examples: are not - ain't chair - chire doesn't - doen't said - says sneaked - snuk understood - understud</p>
9	<p><u>Carelessness</u></p> <p>Errors resulting from haste.</p> <p>Examples: animal - annmile they - the through - trough where - were wrong - wrongg</p>
10	<p><u>Defective hearing ability</u></p> <p>Inability of the ears to function properly.</p> <p>Examples: medium - millef paid - pants they - than</p>
11	<p><u>Phonemic-graphemic confusion</u></p> <p>The substitution of one grapheme for another because of phonemic-graphemic overlapping.</p> <p>Examples: described - discribed destined - distined steal - steel</p>

TABLE 3--Continued

Category Number	Lapse, Definition, and Illustration
12	<p><u>Grapheme loss and grapheme loss plus binding</u></p> <p>Grapheme loss within the grapheme word order; grapheme loss when two words existing side by side become one word.</p> <p>Examples: all right - alright allowed - allowed flourished - florished</p>
13	<p><u>Grapheme gain</u></p> <p>Grapheme gain and change in the order of sounds within a word.</p> <p>Examples: bulletin - bullitten chafing-- chaffing noun - nound</p>
14	<p><u>Grapheme metathesis</u></p> <p>A transportation of the order of graphemes within a word without altering the sound order.</p> <p>Examples: chief - cheif guess - geuss yield - yeild</p>
15	<p><u>Grapheme confusion</u></p> <p>The replacement of an existing grapheme by another grapheme of similar sound.</p> <p>Examples: ancestor - ansestor divorce - divorse</p>

Notes: The definitions of lapse were based to a degree on the terminology found in Mario Pei, pp. 1-162.

This table was used in the analysis and designation of error.

A final analysis of the data (Appendix B) was conducted by the author in order to determine the frequency of errors existing at the time of the study. The frequency of lapse and the characteristics of the students' mistakes are given in the short discussion of the results of the study.

The frequency of distribution (Table 4 and Figure 1) is based on the classification of approximately 370 errors of the students' oral and written expressions. An examination of the frequency of error showed that the greatest number of errors occurred in the categories related to the general area of phoneme-grapheme relationships. In this lapse area, the highest level of confusion resulted from grapheme loss in the spelling of words such as "commander - comander," "capturing - capuring," "fault - falt," and "knew - new." Another level of marked inconsistency in this area showed misspellings resulting from phonemic-graphemic overlapping, exemplified by deviation from the standard orthography of "enlisted - inlisted" and "expression - exprission." An additional category of lapse noted revealed mistakes of grapheme gain due to inaccuracies in the interpretation of the order of sound within words, clarified by "chafing - chaffing," and "noun - nound."

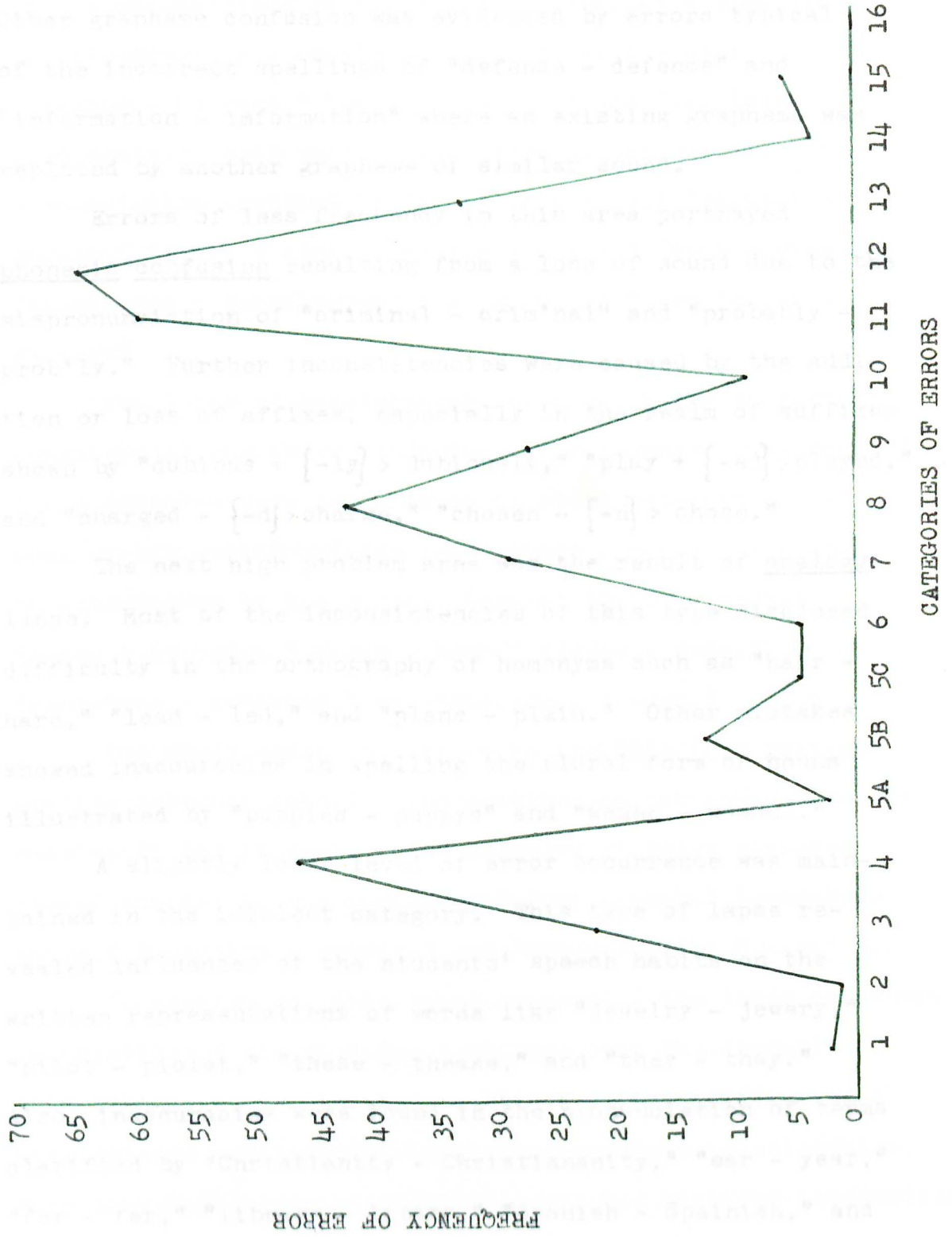
In the metathesis category, misspellings indicated a transposition of the order of sounds shown by the representations of "across - arcross," "enemy - emeny," and "from - form," while lapse of the grapheme metathesis category depicted a transposition of graphemes within a

TABLE 4

A FREQUENCY OF ERRORS

Category Number	Type of Error	Frequency
1	Assimilation	2
2	Dissimilation	1
3	Metathesis	22
4	Analogy	46
5	Phonemic Loss	
	a. Hapology	2
	b. Inflection	12
	c. Syncope	4
6	Phonemic Gain	4
7	Dialect	29
8	Idiolect	44
9	Carelessness	28
10	Defective Hearing Ability	9
11	Phonemic-Graphemic Confusion	60
12	Grapheme Loss and Grapheme Loss Plus Binding	65
13	Grapheme Gain	33
14	Grapheme Metathesis	3
15	Grapheme Confusion	6

Fig. 1.--A Study of Error, Marsteller Junior High School, 1966-67



word without changing the sound order, illustrated by "guess - geuss," "their - thier," and "thief - theif." Other grapheme confusion was evidenced by errors typical of the incorrect spellings of "defense - defence" and "information - imformation" where an existing grapheme was replaced by another grapheme of similar sound.

Errors of less frequency in this area portrayed phonemic confusion resulting from a loss of sound due to the mispronunciation of "criminal - crim'nal" and "probably - prob'ly." Further inconsistencies were caused by the addition or loss of affixes, especially in the realm of suffixes shown by "dubious + {-ly} > dubiously," "play + {-ed} > played," and "charged - {-d} > charge," "chosen - {-n} > chose."

The next high problem area was the result of analogy lapse. Most of the inconsistencies of this type disclosed difficulty in the orthography of homonyms such as "hair - hare," "lead - led," and "plane - plain." Other mistakes showed inaccuracies in spelling the plural form of nouns illustrated by "puppies - puppys" and "women - womans."

A slightly lower level of error occurrence was maintained in the idiolect category. This type of lapse revealed influences of the students' speech habits on the written representations of words like "jewelry - jewery," "pilot - piolet," "these - thease," and "they - thay." Also, inaccuracies were found in the pronunciation of terms clarified by "Christianity - Christiananity," "ear - year," "for - fer," "library - libary," "Spanish - Spainish," and "said - says."

Another area of difficulty was noted in the dialect category. Errors resulting from this influence were observed in the misspellings of words like "breakfast - breakfast," "Charlottesville - Charlettesville," "desk - dest," "husband - husbund," "onion - ounion," and "specimens - speciments." Oral expressions revealed irregularity in pronunciation typified by "at all - a tall," "bargain - boggan," "other - otha," "people - peppa," "warm - wamm," "Washington - Warshington" and "Washiton," and "water - warter." The lapse of carelessness occurred in the written expressions of the abler students. It was judged that most of these mistakes were the product of speed required to meet some of the demands of the accelerated program. This may be illustrated by the misspellings of "a lot - alot," "going - goinging," "huge - hugh," "judge - jude," "seventeen - sevevten," and "through - trough." The small number of errors in the defective hearing ability category revealed inconsistencies resulting from lip reading by the student. Some examples of these mistakes showed changes in the spelling of "car - year," "country - compy," "handling - handly," and "since - sevce." In conclusion, this brief account of the lapse and characteristics of the mistakes indicates that the students of this school, as in the past, continue to have difficulty with "sounds and letters" or phoneme-grapheme relationships. Even though a number of these students had received instruction

in the elementary phonics programs of the various schools, many of their errors showed confusion due to the inconsistencies of English orthography: the variant spellings of single sounds, homonyms--words with like sounds but different spellings, and inflection--the use of suffix morphemes to show the forms of nouns, verbs, and adverbs. Consequently, it seems apparent that there is a need for a clearer understanding of the phoneme-grapheme relationship skills: observing the spelling of words, listening to the sound structure of words, phonemic transcription, pronunciation of the pitch and stress patterns of words, generalization of irregularity, and the legible representation of oral language.

Furthermore, other inaccuracies in pronunciation, spelling, and English usage have pointed out a need for improvement to be made in the speech habits of a number of these students. Therefore, emphasis should be placed on motivating the students to improve their own use of acceptable English and their own spelling practices. Additional problems of pronunciation and spelling have indicated confusion resulting from the various forms of spoken English; hence, the students should be given opportunities to study the dialectal differences among their fellow classmates and peers. Also, the students should be made aware of the dialectal influences that effect their own forms of oral and written expression. An over-all examination of the pupils' problems has pointed out a need for the students (1) to acquire a better understanding of the irregularity of our

orthography system; (2) to discover acceptable English usage; (3) to develop a personal interest in improving their oral and written forms of expression; and (4) to learn more about the history of our language.

In this chapter, I have discussed briefly the method of the study, characteristics of the lapse, and the general needs of the students basic to a clear understanding of the conclusion which follows immediately.

because it is hoped that the teaching of these principles will be done inductively. Since emphasis is placed on the actual analysis of error existing in the student's oral and written forms of expression, this becomes a personal learning experience for him, and he becomes aware of his particular needs in the various linguistic areas. The study has shown that students who have acquired an understanding of the enclosed phonemic alphabet have evinced keen interest in trying to transcribe their own speech as well as the speech of their fellow classmates. In this method of study, the students seemed motivated to improve their use of acceptable English as well as their spelling practices.

Also, the author believes that this teaching approach can be reinforced easily by the use of exercises provided in the adopted Our Language Today and Basic Goals in Spelling. Furthermore, the author recommends that the linguistic principles of this study be applied to the vocabulary work in other subject matter areas such as reading, the social studies, art, music, mathematics, the sciences, health, and

CONCLUSION

This linguistic approach to the teaching of orthography based on the principles of (1) the sound structure of English, (2) the variant spellings of English, (3) morphology, (4) idiolect, and (5) dialect can be quite successful, because it is hoped that the teaching of these principles will be done inductively. Since emphasis is placed on the actual analysis of error existing in the student's oral and written forms of expression, this becomes a personal learning experience for him, and he becomes aware of his particular needs in the various linguistic areas. The study has shown that students who have acquired an understanding of the enclosed phonemic alphabet have evinced keen interest in trying to transcribe their own speech as well as the speech of their fellow classmates. In this method of study, the students seemed motivated to improve their use of acceptable English as well as their spelling practices.

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physical education in order to make the student aware of the importance of effective oral and written communication in all areas of his study.

The purpose of this study was to provide the language arts teachers and students of Marsteller Junior High School an opportunity (1) to learn more about the forces of our language that influence orthography error; (2) to observe the lapse existing in the students' oral and written forms of expression; (3) to determine the causes of these errors; and (4) to propose suggestions for the teaching approach based on a knowledge of linguistics and the deficiencies of the students of this school.

During the third six-weeks period of the 1966-67 school year, the author, who had previously pursued the study of linguistic science and the history of the English language, directed a simplified linguistic approach to the study of lapse existing in this school. In order to provide a meaningful learning experience for the teachers and students, the author selected a variety of materials to clarify the basic principles of linguistics: the sound structure of English, the variant spellings of English, idiolect, and dialect necessary to an accurate evaluation of the orthography problems of this school. Throughout the course of the study, the author conducted weekly discussions with the teachers regarding the students' mistakes and the television program of instruction. The genuine interest of the teachers and students and their active participation in the

study enabled the author to determine some of the causes of the students' orthography problems (and orthography in general) and to propose some suggestions for the teaching approach in this county.

The present author is aware of the magnitude of the problems of orthography, and realizes that this study is not a solution in itself to all of the spelling problems of the students in this school. The results of this study, however, should be an aid to the future development of a language arts curriculum which would be tailored to meet the needs of the students in the junior high schools of Prince William County.

APPENDICES

APPENDICES

EXERCISE 1

THE ALPHABET CONSPIRACY

Six basic principles of linguistic science are illustrated throughout this film. List as many illustrations as you can from this film.

Language is a purely human and non-instinctive method of communication.

Languages are genealogically related in families.

Language is basically speech which comes first in the life of the individual and in the history of the race.

Language is systematic, each language having its unique system of inflections, and syntactic relationships.

Language changes from time to time, from place to place, and from one individual user to another.

There is an intimate relationship between language, thought, and culture.

Notes: This exercise was based on the film "Alphabet Conspiracy" "Exploring the Science of Language" (Bell System Science Series, 1959). [This form was given to the writer by Dr. R. C. Simonini, deceased, English 505, Longwood College.]

The exercise was used to introduce the study of error to the student membership and staff members of Harstetter Junior High School.

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EXERCISE 2

SILENT CONSONANTS

Make a list of as many words as you can for each of the following consonant graphemes that are sometimes "silent" in our language, i.e., when the consonant graphemes do not represent phonemes in oral expression.

d -- wedge

g -- design

gh -- night

h -- gherkin

k -- knight

l -- balmy

m -- mnemonics

n -- hymn

p -- pneumonia

ph -- phthalein

Note: This exercise was used to reinforce the use of Tables 1 and 2.

Note: This exercise was used to illustrate phoneme-grapheme relationships in written expression and the sound structure of words in oral expression.

EXERCISE 3

VARIANT SPELLINGS

Be sure to have all students check the pronunciation of each word in their dictionaries to prevent nonstandard pronunciation. Variant spellings of other consonant as well as vowel phonemes can be developed by the teacher.

List ten words in which the /k/ sound is spelled with the grapheme c; with ck.

List five words in which the sound of /k/ is spelled with the grapheme k.

List ten words in which the /f/ sound is spelled with the grapheme f; with ff.

List ten words in which the /f/ sound is spelled with the compound grapheme ph; with gh.

List ten words in which the sound of /n/ is spelled with the compound grapheme kn.

List ten words in which the sound of /p/ is spelled with the grapheme p; with pp.

List ten words in which the sound of /t/ is spelled with the grapheme t; with tt.

List ten words in which the sound of /t/ is spelled with ed suffix morpheme.

List five words in which the sound of /t/ is spelled with the tte graphemes.

Note: This exercise was used to reinforce the use of Tables 1 and 2.

EXERCISE 4

PHONETIC SPELLINGS

English has many words with non-phonetic spellings. In such words, the graphemes do not accurately represent their sound structure (the standard pronunciation of the words). This can be illustrated by the spelling of t-h-r-o-u-g-h for through. The gh is silent in pronunciation and the ou has the sound of a long u.

In this exercise, mark P before the words which you think have phonetic spellings; mark NP for non-phonetic spellings. When you finish, check the NP words and suggest phonetic spellings, such as thru for through.

accent	gem
accomodation	ghost
boarder	memory
cistern	psalm
design	quay
doughnut	rouge
eighty	scout
enclose	soul
enough	they
envelop	tough
father	twice
game	two

Note: This exercise was used to reinforce the teaching of Tables 1 and 2.

TABLE 5
DATA OF THE STUDY

WRITER	CORRECT FORM	U - ORAL W - WRITTEN	NUMERICAL CATEGORY
...	a	W	4
...	a lot	W	9
...	accidence	W	9
...	accuse	W	12
...	across	W	3
...	advise	W	11
...	alright	W	13
...	allowed	W	12
...	amounted	W	13
...	and	W	4
...	ancestor	W	15
...	and	W	4
...	angel	W	3
...	anger	W	8
...	animals	W	9
...	answered	W	11
...	are not	W	8
...	arrive	W	12
...	arrived	W	12
...	at all	O	7
...	attack	W	11
...
...	argain	O	7

APPENDIX B

TABLE 5

DATA OF THE STUDY

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
an	a	W	4
alot	a lot	W	9
accidence	accident	W	9
cused	accused	W	12
arcoss	across	W	3
advise	advice	W	11
alright	all right	W	12
alowed	allowed	W	12
ammounted	amounted	W	13
and	an	W	4
ansestor	ancestor	W	15
an	and	W	4
angle	angel	W	3
angar	anger	W	8
anmiles	animals	W	9
ansered	answered	W	11
ain't	are not	W	8
arive	arrive	W	12
arived	arrived	W	12
a tall	at all	O	7
actact	attack	W	11
boggan	bargain	O	7

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
bran	barn	W	3
beautiful	beautiful	W	5C
behine	behind	W	11
beleif	belief	W	3
boaring	boring	W	4
borned	born	W	6A
bole	bowl	W	4
breck	break	W	11
breakfist	breakfast	W	7
bullitten	bulletin	W	13
by	buy	W	4
		O	8
		W	2
capage	cabbage	W	8
calenders	calendars	W	8
camra	camera	O	5C
cammra	camera	W	11
may	can	W	8
capuring	capturing	W	12
year	car	W	10
carrols	carols	W	13
cared	carried	W	12
carrys	carries	W	4
cought	caught	W	11
celabrate	celebrate	W	11

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
sellabrated	celebrated	W	4
chaffing	chafing	W	13
chire	chair	W	8
charge	charged	W	5B
chiret	chariot	W	8
Charlottesville	Charlottesville	W	7
churish	cherish	W	11
cheif	chief	W	3
chocklet	chocolate	W	11
chior	choir	W	3
chose	chosen	W	5B
christiananity	christianity	O	8
citison	citizen	W	15
cival	civil	W	11
calaw	claw	O	8
close	clothes	W	4
cloths	clothes	W	4
collage	college	W	11
comming	coming	W	13
comander	commander	W	12
communist	communism	W	9
compleatly	completely	W	13
confy	confide	W	11
coumpy	country	W	10

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
crame	crime	W	11
crimnal	criminal	W	5A
inlited	enlisted	W	11
Dainel	Daniel	W	3
decrake	decorate	W	11
dectorins	decorations	W	11
defence	defense	W	15
discribed	described	W	11
dest	desk	W	7
destened	destined	W	11
distatarship	dictatorship	W	8
did'nt	didn't	W	9
differant	different	W	7
dissapeared	disappeared	W	11
discust	discussed	W	11
discise	disguise	W	11
distent	distant	O	7
divorse	divorce	W	15
docter	doctor	O	8
doen't	doesn't	W	8
dubble	double	W	12
dubiously	dubious	W	6A
dieing	dying	W	4
florished	flourished	W	11

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
year	ear	O	8
emeny	enemy	W	3
inlisted	enlisted	W	11
invironment	environment	W	11
essically	especially	W	1
exclame	exclaim	W	12
exhost	exhaust	W	12
exprissions	expressions	W	11
giver	gifts	W	9
fadded	faded	W	13
fasle	false	W	3
falt	fault	W	12
fought	fault	W	8
faverit	favorite	W	8
feeb	feebly	W	12
feild	field	W	3
firey	fiery	W	3
fighten	fighting	O	7
findly	finally	W	12
finely	finally	W	8
fine	find	W	11
find	fine	W	11
furst	first	W	11
florished	flourished	W	12

TABLE 5--Continued

ERROR	CORRECT FORM	NUMERICAL CATEGORY	
		O - ORAL	W - WRITTEN
			14
floks	folks	W	13
footprients	footprints	O	8
fer	for	W	8
foured	forward	W	3
freind	friend	W	3
form	from	O	8
herth	hearth	O	7
git	get	W	9
gives	gifts	W	4
god	God	O	8
go'es	goes	O	7
go'en	going	W	9
goinging	going	O	8
gonna	going to	W	12
govener	governor	W	11
grane	grain	W	13
greast	great	W	4
grate	great	W	11
greety	greedy	W	5C
groceries	groceries	W	9
groupe	group	W	6A
groweth	growth	W	11
gardes	guards	W	14
geuss	guess		

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
had went	had gone	O	8
hat to	had to	O	8
hare	hair	W	4
handly	handling	W	10
have	having	W	5B
herred	heard	W	8
herth	hearth	O	8
hope	helped	O	8
hiden	hidden	W	12
hissself	himself	W	1
horse	hoarse	W	12
horsley	hoarsely	W	11
househole	household	W	11
hugh	huge	W	9
humors	humorous	W	12
hungary	hungry	W	11
husbund	husband	W	7
highjean	hygiene	W	4
library	library	O	8
I don't got	I don't have	O	8
I got it	I have it	O	8
independance	independence	W	11
imformation	information	W	15
at	it	W	9

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
its	it's	W	5B
made	map	W	13
jewery	jewelry	W	8
judes	judge	W	9
giggler	juggler	W	11
juce	juice	W	12
sent	seant	W	13
conneti	kinetic	W	11
kit	kite	W	12
nealing	kneeling	W	12
neeling	kneeling	W	12
new	knew	W	12
night	knight	W	12
noing	knowing	W	12
negro	negro	W	9
lanturns	lanterns	W	11
lauahing	laughing	W	11
lead	led	W	4
libary	library	O	8
like	liked	W	5B
lituture	literature	W	12
lord	Lord	W	4
lowd	loud	O	7
laying	lying	W	4

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
makeing	making	W	14
maped	mapped	W	13
making	map	W	11
marveles	marvelous	W	11
can	may	W	14
mean	means	W	5B
ment	meant	W	13
medicene	medicine	W	11
millef	medium	W	10
menory	memory	W	11
mastak	mistake	W	11
morning	mourning	W	4
pass	past	W	11
neer	near	W	11
negroe	negro	W	9
knew	new	W	13
known	noun	W	13
nound	noun	W	13
plane	plain	W	4
offely	of	W	13
of	off	W	12
office	officer	W	12
of	on	W	8
ounion	onion	W	7

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
oppening	opening	W	13
orperated	operated	W	11
orgestra	orchestra	W	11
otha	other	O	7
ourer	our	W	13
ovah	over	O	7
oner	owner	O	12
		W	8
payed	paid	W	4
pants	paid	W	10
pances	pants	O	7
pasted	passed	W	8
pass	past	W	11
patroitic	patriotic	W	3
payment	pavement	O	9
peesants	peasants	O	11
peppa	people	O	7
piolet	pilot	W	8
plane	plain	W	4
planely	plainly	W	4
played	play	W	6A
possitive	positive	W	13
poverty	poverty	W	13
pressing	present	W	9

TABLE 5--Continued

ERROR	CORRECT FORM	NUMERICAL CATEGORY	
		O - ORAL	W - WRITTEN
pretened	pretended		W 12
prety	pretty		W 12
principle	principal		W 4
prise	prize		W 7
proibly	probably		W 5A
progresed	progressed		W 12
puppys	puppies		W 4
puritons	Puritans		W 8
puting	putting		W 12
separate	separate		W 11
reddy	ready		W 11
releelize	realize		W 11
realised	realized		W 15
realy	really		W 12
recieve	receive		W 3
receceiving	receiving		W 13
reciveing	receiving		W 12
relitives	relatives		W 8
rember	remember		W 12
remines	reminds		W 11
ridding	riding		W 13
write	right		W 4
riding	runners		W 10
rudders	runners		W 11

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
runing	running	W	12
say	said	O	8
set	sat	O	4
satsiyed	satisfied	W	4
satuday	Saturday	W	12
was	saw	W	9
sailing	selling	W	4
sentance	sentence	W	11
seperate	separate	W	11
sevevten	seventeen	W	9
shrape	sharp	O	8
sholder	shoulder	W	12
show	showed	W	5B
show	shown	W	5B
sevce	since	W	10
sincerly	sincerely	W	12
senking	sinking	W	7
setting in da	sitting in there	O	8
sleve	sleeve	W	12
sley	sleigh	W	4
snuck	sneaked	O	8
snowmans	snowmen	W	4
solider	soldier	W	3

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
some	soon	W	10
Spanish	Spanish	O	8
speciments	specimens	W	7
speach	speech	W	11
spirt	spirit	W	12
splasing	splashing	W	12
steel	steal	W	11
steling	stealing	W	12
stoal	stole	W	11
stoled	stole	W	6A
stollen	stolen	W	13
stoop	stop	W	13
stop	stopped	W	5B
stoped	stopped	W	12
stona was ovio	storm was over	O	8
stuirrt	Stuart	W	9
stuborn	stubborn	W	12
studdy	study	W	13
stile	style	W	4
sucsess	success	O	8
super	supper	W	12
supply	supply	W	13
sopured	suppose	W	8
swetter	sweater	W	11

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
swolen	swollen	W	12
smybols	symbols	W	14
sympathys	sympathies	W	4
take	taken	W	12
talk	talked	W	5B
tanery	tannery	W	12
temtations	temptations	W	12
teritory	territory	W	12
da vlen	the	O	7
then	the	W	13
thier	their	W	14
there	their	W	4
thire	there	W	7
their	there	W	4
their's	there is	W	4
thease	these	W	8
than	they	W	10
thay	they	W	8
the	they	W	9
theif	thief	W	14
dis	this	O	7
though	through	W	12
trough	through	W	9

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
threw	through	W	4
tine	time	W	15
triming	timing	W	13
too	to	W	4
togeaether	together	W	13
to	too	W	4
toast	tossed	O	7
traite	trait	W	13
traping	trapping	W	12
travlen	traveling	W	7
treat	treated	W	5B
trail	trial	W	3
tryed	tried	W	11
truely	truly	W	13
			12
under stud	understood	W	8
unnone	unknown	W	12
unselifh	unselfish	W	9
unuseale	unusual	W	11
usall	usual	W	13
ussally	usually	W	11
usallies	usually	W	9
			4
vacition	vacation	W	11

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
vally	valley	W	12
valuble	valuable	W	12
vain	vane	W	4
vessal	vassal	O	8
vicotry	victory	W	3
weight	wait	W	4
wonted	wanted	W	8
wamm	warm	O	7
warn	warned	W	5B
worror	warrior	W	11
was	washed	W	9
Warshington	Washington	O	8
Washiton	Washington	O	8
wached	watched	W	12
warter	water	O	7
will	well	W	9
wen	when	W	12
were	where	W	9
witch	which	W	8
whisch	which	W	13
widly	widely	W	5C
when	with	W	4
womans	woman	W	4

TABLE 5--Continued

ERROR	CORRECT FORM	O - ORAL W - WRITTEN	NUMERICAL CATEGORY
wemen	women	W	7
workted	worked	W	13
word	world	W	12
worser	worse	O	8
wrath	wreath	W	12
wiggled	wriggled	O	8
writting	writing	W	13
writon	written	W	11
wrongng	wrong	W	9
yeild	yield	W	4
your	you're	W	4

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