

# The utility of phonic generalizations in the primary grades

*There are some studies that add to a continuing line of research. There are other studies that simply state a truism, and do so assertively so that the truism becomes self-evident. From then on, both theory and practice must take note of that truism. Theodore Clymer's study on phonic generalizations asserted such a truism—that most of the phonic generalizations taught in elementary school, often called "rules," are not valid most of the time. This is especially true of the vowel generalizations, less true of consonant generalizations. Given how politicized beginning reading is, it is not surprising that this truism would be interpreted in a number of different ways, depending on one's perspective. Some people have used this truism to argue that, because the rules are not consistently true, phonics should not be taught. Others have used it to suggest that phonics instruction should not stress rules, but instead should stress the regularities in words because those regularities are used in identifying words. Clymer himself merely suggested that instruction be limited to those generalizations that were valid 75% of the time. However, even with these different interpretations, and with the updatings of Clymer's original study by Robert Emams and Mildred Bailey, the results of the study still need to be taken into account whenever we talk about how best to help children decode words.*

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The origins of this study go back to Kenneth, an extraordinary elementary pupil. Prior to my encounter with Kenneth I had completed a reading methods course in a small teachers college which provided a background in the principles of teaching reading as well as a good introduction to techniques. Among these techniques were procedures to develop phonic generalizations and also *the* list (not *a* list) of the most valuable generalizations to develop. (To those of you who might like copies of the list, I am sad to report that somehow through the years it has been lost.)

Difficulties with Kenneth began as the class reviewed phonic generalizations at the start of the school year. Our procedures were like those used in many classrooms: Groups of words were presented, and the class analyzed their likenesses and differences with a view toward deriving a generalization about relationships between certain letters and sounds or the position and pronunciation of vowels.

Throughout these exercises, following the dictum of my reading methods teacher, we were careful not to call the generalizations "rules," for all our statements had a number of exceptions. As the class finally formulated a generalization regarding the relationships of letters, letter position, and sounds, such defensive phrasing as "most of the time," "usually," and "often" appeared as protective measures. We also spent time listing some of the exceptions to our generalizations.

At this point Kenneth entered the discussion. While the class was busily engaged in developing the generalization, Kenneth had skimmed his dictionary, locating long lists of exceptions to the generalization. In fact, he often located more exceptions than I could list applications. When I protested—somewhat weakly—that the dictionary contained many unusual words, Kenneth continued his role as an educational scientist. He turned to the basic reader word list in the back of his text and produced nearly similar results. Today, of course, Kenneth's behavior would be rated as "gifted," "talented," or "creative"—although I remember discussing him in other terms as I sat in the teacher's lounge.

As Kenneth had provided a memorable and even a "rich" learning experience for me,

he furnished the impetus for a series of studies which will attempt to answer three questions: (1) What phonic generalizations are being taught in basic reading programs for the primary grades? (2) To what extent are these generalizations useful in having a "reasonable" degree of application to words commonly met in primary grade material? (3) Which of the generalizations that stand the test of question 2 can be learned and successfully applied to unknown words by primary children?

### What generalizations are taught?

Four widely used sets of readers were selected to determine the phonic generalizations being taught in the primary grades. After a preliminary study of the manuals, workbooks, and readers, the manuals were selected as the source of the generalizations. The manuals presented the generalizations in three ways: (1) statements to be taught to the pupils, (2) statements to be derived by the pupils after inductive teaching, and (3) statements with no clear indication as to what was to be done. Generalizations presented by all three means were included in the analysis.

Five general types of generalizations emerged from the study of the teachers' manuals. These types dealt with (1) vowels, (2) consonants, (3) endings, (4) syllabication, and (5) miscellaneous relationships. Arbitrary decisions were made in assigning some generalizations to one or another of the five types since certain statements might easily be classified under two or more headings.

If we eliminate from our consideration the miscellaneous type of generalization, a total of 121 different statements were located. There were 50 vowel generalizations, 15 consonant generalizations, and 28 generalizations in each of the ending and syllabication groups. In evaluating these figures it should be kept in mind that any statement was considered a separate generalization when its phrasing excluded or included different sets of words than another statement. For example, the generalization, "When there are two vowels side by side, the long sound of the first is heard and the second one is usually silent" and "When *ea* come together in a word, the first letter is long and the second is silent" were counted as two separate generalizations, although the second statement is a special application of the first.

### The utility of 45 phonic generalizations

*Generalization	No. of words conforming	No. of exceptions	Percent of utility
1. When there are two vowels side by side, the long sound of the first one is heard and the second is usually silent.	309 (bead)†	377 (chief)†	45
2. When a vowel is in the middle of a one-syllable word, the vowel is short.	408	249	62
middle letter	191 (dress)	84 (scold)	69
one of the middle two letters in a word of four letters	191 (rest)	135 (told)	59
one vowel <i>within</i> a word of more than four letters	26 (splash)	30 (fight)	46
3. If the only vowel letter is at the end of a word, the letter usually stands for a long sound.	23 (he)	8 (to)	74
4. When there are two vowels, one of which is final <i>e</i> , the first vowel is long and the <i>e</i> is silent.	180 (bone)	108 (done)	63
*5. The <i>r</i> gives the preceding vowel a sound that is neither long nor short.	484 (horn)	134 (wire)	78
6. The first vowel is usually long and the second silent in the digraphs <i>ai</i> , <i>ea</i> , <i>oa</i> , and <i>ui</i> .	179	92	66
<i>ai</i>	43 (nail)	24 (said)	64
<i>ea</i>	101 (bead)	51 (head)	66
<i>oa</i>	34 (boat)	1 (cupboard)	97
<i>ui</i>	1 (suit)	16 (build)	6
7. In the phonogram <i>ie</i> , the <i>i</i> is silent and the <i>e</i> has a long sound.	8 (field)	39 (friend)	17
*8. Words having double <i>e</i> usually have the long <i>e</i> sound.	85 (seem)	2 (been)	98
9. When words end with silent <i>e</i> , the preceding <i>a</i> or <i>i</i> is long.	164 (cake)	108 (have)	60
*10. In <i>ay</i> the <i>y</i> is silent and gives <i>a</i> its long sound.	36 (play)	10 (always)	78
11. When the letter <i>i</i> is followed by the letters <i>gh</i> , the <i>i</i> usually stands for its long sound and the <i>gh</i> is silent.	22 (high)	9 (neighbor)	71
12. When <i>a</i> follows <i>w</i> in a word, it usually has the sound <i>a</i> as in <i>was</i> .	15 (watch)	32 (swan)	32
13. When <i>e</i> is followed by <i>w</i> , the vowel sound is the same as represented by <i>oo</i> .	9 (blew)	17 (sew)	35
14. The two letters <i>ow</i> make the long <i>o</i> sound.	50 (own)	35 (down)	59
15. <i>W</i> is sometimes a vowel and follows the vowel digraph rule.	50 (crow)	75 (threw)	40
*16. When <i>y</i> is the final letter in a word, it usually has a vowel sound.	169 (dry)	32 (tray)	84
17. When <i>y</i> is used as a vowel in words, it sometimes has the sound of long <i>i</i> .	29 (fly)	170 (funny)	15
18. The letter <i>a</i> has the same sound ( <i>ô</i> ) when followed by <i>l</i> , <i>w</i> , and <i>u</i> .	61 (all)	65 (canal)	48
19. When <i>a</i> is followed by <i>r</i> and final <i>e</i> , we expect to hear the sound heard in <i>care</i> .	9 (dare)	1 (are)	90
*20. When <i>c</i> and <i>h</i> are next to each other, they make only one sound.	103 (peach)	0	100
*21. <i>Ch</i> is usually pronounced as it is in <i>kitchen</i> , <i>catch</i> , and <i>chair</i> , not like <i>sh</i> .	99 (catch)	5 (machine)	95
*22. When <i>c</i> is followed by <i>e</i> or <i>i</i> , the sound of <i>s</i> is likely to be heard.	66 (cent)	3 (ocean)	96

(continued)

### The utility of 45 phonic generalizations (cont'd.)

*Generalization	No. of words conforming	No. of exceptions	Percent of utility
*23. When the letter <i>c</i> is followed by <i>o</i> or <i>a</i> the sound of <i>k</i> is likely to be heard.	143 (camp)	0	100
24. The letter <i>g</i> often has a sound similar to that of <i>j</i> in <i>jump</i> when it precedes the letter <i>i</i> or <i>e</i> .	49 (engine)	28 (give)	64
*25. When <i>ght</i> is seen in a word, <i>gh</i> is silent.	30 (fight)	0	100
26. When a word begins <i>kn</i> , the <i>k</i> is silent.	10 (knife)	0	100
27. When a word begins with <i>wr</i> , the <i>w</i> is silent.	8 (write)	0	100
*28. When two of the same consonants are side by side only one is heard.	334 (carry)	3 (suggest)	99
*29. When a word ends in <i>ck</i> , it has the same last sound as in <i>look</i> .	46 (brick)	0	100
*30. In most two-syllable words, the first syllable is accented.	828 (famous)	143 (polite)	85
*31. If <i>a</i> , <i>in</i> , <i>re</i> , <i>ex</i> , <i>de</i> , or <i>be</i> is the first syllable in a word, it is usually unaccented.	86 (belong)	13 (insect)	87
*32. In most two-syllable words that end in a consonant followed by <i>y</i> , the first syllable is accented and the last is unaccented.	101 (baby)	4 (supply)	96
33. One vowel letter in an accented syllable has its short sound.	547 (city)	356 (lady)	61
34. When <i>y</i> or <i>ey</i> is seen in the last syllable that is not accented, the long sound of <i>e</i> is heard.	0	157 (baby)	0
35. When <i>ture</i> is the final syllable in a word, it is unaccented.	4 (picture)	0	100
36. When <i>tion</i> is the final syllable in a word, it is unaccented.	5 (station)	0	100
37. In many two- and three-syllable words, the final <i>e</i> lengthens the vowel in the last syllable.	52 (invite)	62 (gasoline)	46
38. If the first vowel sound in a word is followed by two consonants, the first syllable usually ends with the first of the two consonants.	404 (bullet)	159 (singer)	72
39. If the first vowel sound in a word is followed by a single consonant, that consonant usually begins the second syllable.	190 (over)	237 (oven)	44
*40. If the last syllable of a word ends in <i>le</i> , the consonant preceding the <i>le</i> usually begins the last syllable.	62 (tumble)	2 (buckle)	97
*41. When the first vowel element in a word is followed by <i>th</i> , <i>ch</i> , or <i>sh</i> , these symbols are not broken when the word is divided into syllables and may go with either the first or second syllable.	30 (dishes)	0	100
42. In a word of more than one syllable, the letter <i>v</i> usually goes with the preceding vowel to form a syllable.	53 (cover)	20 (clover)	73
43. When a word has only one vowel letter, the vowel sound is likely to be short.	433 (hid)	322 (kind)	57
*44. When there is one <i>e</i> in a word that ends in a consonant, the <i>e</i> usually has a short sound.	85 (leg)	27 (blew)	76
*45. When the last syllable is the sound <i>r</i> , it is unaccented.	188 (butter)	9 (appear)	95

† Words in parentheses are examples—either of words which conform or of exceptions, depending on the column.

\* Generalizations marked with an asterisk were found "useful" according to the criteria.

While not directly related to our discussion here, note should be made of the wide variation of grade level of introduction, emphasis, and phrasing of the generalizations. Of the 50 different vowel generalizations, only 11 were common to all four series. None of these 11 was presented initially at the same half-year grade level in all four series. Some series gave a much greater emphasis to the generalizations than did other series. One publisher introduced only 33 of the 121 generalizations, while another presented 68. These comments are not meant to detract from the usefulness of basic materials, but simply to point out some of their differences. These differences do call for careful adjustments in the classroom when pupils are moved from one set of materials to another. The teacher who changes from series X to series Y may need to make some important revisions in the word recognition program. These findings may indicate also the need for further experimentation on emphasis and the developmental aspects of our word recognition program.

### Which generalizations are useful?

Forty-five of the generalizations given in the manuals were selected for further study. The selection of these was somewhat arbitrary. The main criterion was to ask, "Is the generalization stated specifically enough so that it can be said to aid or hinder in the pronunciation of a particular word?" An example or two will make our criterion clear. The generalization, "Long *o* makes a sound like its name," is undoubtedly a valuable generalization, but it was not specific enough to meet our criterion. On the other hand, the statement, "When a vowel is in the middle of a one-syllable word, the vowel is short," was included because we could judge by reference to a word list how often one-syllable words with a vowel in the middle do in fact have a short vowel sound.

Our next problem was to develop a word list on which we could test the generalizations. A reasonable approach seemed to be that of making up a composite list of all the words introduced in the four basic series from which the generalizations were drawn, plus the words from the Gates Reading Vocabulary for the Primary Grades. Once this list of some 2,600 words was prepared, the following steps were taken:

1. The phonetic respelling and the syllabic division of all words were recorded. Webster's *New Collegiate Dictionary* was used as the authority for this information.

2. Each phonic generalization was checked against the words in the composite list to determine (a) the words that were pronounced as the generalization claimed and (b) the words that were exceptions to the generalization.

3. A "percent 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. For example, if the generalization claimed that "When the letters *oa* are together in a word, *o* always gives its long sound and the *a* is silent," all words containing *oa* were located in the list. The number of these words was the total number of words to which the generalization should apply. Then the phonetic spellings of these words were examined to see how many words containing *oa* actually did have the long *o* followed by the silent *a*. In this case 30 words were located which contained *oa*. Twenty-nine of these were pronounced as the generalization claimed; one was not. The percent of utility became 29/30 or 97. This procedure was followed for all generalizations.

When the percent of utility was computed for each generalization, we set two criteria as to what constituted a "reasonable" degree of application. We have no scientific evidence to demonstrate that these criteria are valid; it can only be said that they seem reasonable to us.

The first criterion was that the composite word list must contain a minimum of 20 words to which the generalization might apply. Generalizations with lower frequencies of application do not seem to merit instructional time.

The second criterion was a percent of utility of at least 75. To state the matter another way, if the pupil applied the generalization to 20 words, it should aid her/him in getting the correct pronunciation in 15 of the 20 words.

The Table gives the results of our analysis of the 45 phonic generalizations. An inspection of the data leaves me somewhat confused as to the value of generalizations. Some time-honored customs in the teaching of reading may be in need of revision.

Certain generalizations apply to large numbers of words and are rather constant in provid-

ing the correct pronunciation of words. (See, for example, generalizations 19, 35, and 36.)

A group of generalizations seems to be useful only *after* the pupil can pronounce the word. Generalizations that specify vowel pronunciation in stressed syllables require that the pupil know the pronunciation of the word before s/he can apply the generalization. (See, for example, generalization 33.) This criticism assumes, of course, that the purpose of a generalization is to help the child unlock the pronunciation of *unknown* words.

The usefulness of certain generalizations depends upon regional pronunciations. While following Webster's markings, generalization 34 is rejected. Midwestern pronunciation makes this generalization rather useful, although we reject it because we used Webster as the authority. Such problems are natural, and we should not hold it against Mr. Webster that he came from New England.

If we adhere to the criteria set up at the beginning of the study, of the 45 generalizations only 18, numbers 5, 8, 10, 16, 20, 21, 22, 23, 25, 28, 29, 30, 31, 32, 40, 41, 44, and 45, are useful. Some of the generalizations that failed to meet our criteria might be useful if stated in different terms or if restricted to certain types of words. We are studying these problems at the present time. We are also examining other generalizations that we did not test in this study.

## Conclusion

In evaluating this initial venture in testing the utility of phonic generalizations, it seems

quite clear that many generalizations that are commonly taught are of limited value. Certainly the study indicates that we should give careful attention to pointing out the many exceptions to most of the generalizations that we teach. Current "extrinsic" phonics programs that present large numbers of generalizations are open to question on the basis of this study.

This study does not, of course, answer the question of which generalizations primary children can apply in working out the pronunciation of unknown words. The answer to the question of the primary child's ability to apply these and other generalizations will come only through classroom experimentation. Also, this study does not establish the percent of utility required for a generalization to be useful. The percentage suggested here (75) may be too high. Classroom research might reveal that generalizations with lower percentages of utility should be taught because they encourage children to examine words for sound and letter relationships.

The most disturbing fact to come from the study may be the rather dismal failure of generalization 1 to provide the correct pronunciation even 50% of the time. As one teacher remarked when this study was presented to a reading methods class, "Mr. Clymer, for years I've been teaching 'When two vowels go walking, the first one does the talking.' You're ruining the romance in the teaching of reading!"