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It is apparent that the long-standing use of certain phonic rules should be abandoned

Phonics: a time for re-evaluation

by Randall J. Ryder

From the mid-1800s to the present, American educators have debated the merits of phonics instruction. According to Nila Banton Smith (1965) the controversy over phonics instruction began in the 1850s with the publication of the *Bumstead Readers*, which emphasized the whole word approach. While several publishers switched to the whole word approach at about that time, the majority of reading materials continued to employ the phonics method. Consequently most teachers continued to use the phonics approach.

From 1890-1920, elaborate phonics systems emphasized the sounds of isolated letters and clusters. Following this period silent reading for the sake of gaining meaning was considered more important than the decoding of words and consequently phonics instruction was largely dropped from 1920-1935.

Then, from 1935-1955 phonics was reimplemented into the curriculum. However, seldom in the course of American reading instruction has the debate reached the epidemic proportions that followed the publication in 1955 of Rudolph Flesch's *Why Johnny Can't Read*. In his book, Flesch challenged any attempt to teach reading by a sight method, advocating instead that the phonics approach was the only method to use in beginning reading instruction. Flesch's conclusions were based on rather loose interpretations of existing research and a good deal of subjective judgment which was more rhetorical than analytical in nature. At the same time, it should be noted that the conclusions of an extensive investigation designed to critically review existing research comparing different approaches to beginning reading instruction by Chall (1967) and the results of experimental studies by Bond and Dykstra (1967) provide support for phonics instruction up to the end of third grade.

More recently, the conclusions of Chall and of Bond and Dykstra have been questioned (c.f., Lohnes and Gray, 1972) and Smith (1971) and Goodman (1968) have gone so far as to argue for the unimportance of phonics skills. However, at the present time there is relatively little debate about whether or not phonics should be taught. As Venezky (1972) and Samuels (1974) have noted that since almost all contemporary reading systems make use of phonics instruction, the present day concerns over phonics are aimed not at its use, but rather at its scope, sequence, and emphasis within the reading curriculum.

Is such a pervasive acceptance of phonics justified, or are we, as Smith (1971) has noted, operating under the pretense of false gods? Certainly if one accepts the notion that writing is a form of speech and that the translation of written language requires the reader to acknowledge the letter-to-sound regularities of English, then it is apparent that the acquisition of these letter-sound correspondences is a necessary stage in the process of learning to read.

The purpose of this paper is to review the usefulness of commonly taught phonic "rules" and to examine studies which have attempted to ascertain the regularity of English orthography by examining letter-sound correspondences occurring in large corpuses of words and students internalization of these correspondences.

The teaching of letter-sound correspondences has proceeded on the assumption that certain rather general rules accurately and consistently describe the pronunciation of fairly large numbers of English words. Those generalizations thought to be useful have changed little over the years. An examination of the *Beacon Phonics Chart* (1924), for example, displays generalizations almost identical to those appearing in today's basal reading series. Several studies have examined these long accepted generalizations in an attempt to identify those which may be most useful for children to learn.

In one of the earliest of these investigations Clymer (1963) assessed the usefulness of letter-sound generalizations directly taught or exemplified in several basal reading series. Forty-five generalizations were tested against a composite list of words consisting of those introduced in the basal series and words appearing in Gates (1935) elementary grade word list. A percentage reflecting the rule's utility was computed by dividing the number of words which were pronounced according to the generalization by the number of words to which the generalization could be applied. Of the 45 generalizations examined, only 18 were found to have a utility of at least 75 percent. Clymer concluded that many commonly taught generalizations are of limited value and argued that attention to exceptions should be noted when generalizations are taught. The results of Clymer's study spurred a rash of inquiries into the utility of letter-sound rules. Bailey (1963) for example, investigated the usefulness of the 45 generalizations identified by Clymer on words appearing in the first through sixth grade materials of eight basal series. Of these 45 generalizations selected for study only six were found to be simple to understand, apply to a large number of words, and to have few exceptions. Similar types of studies examined the utility of letter-sound generalizations when applied to word frequency counts (Fry, 1964; Burmeister, 1972; Emans, 1967) or attempted to modify these generalizations to increase their utility (Emans, 1967; Burmeister, 1968). Generally, it is apparent from the results of

these studies that letter-sound generalizations gain utility as they become increasingly narrow, that is, as they are modified to reflect specific letter-sound correspondences. It can be seen, for example, that by replacing the general phonic rule that "when two vowels are side by side, the long sound of the first one is heard and the second is usually silent" with specific letter-sound correspondences (ai /e/, oa /o/, io /u/) the rule's utility is increased. While the use of letter-sound generalizations would appear to be of questionable value in light of the results of the heretofore mentioned studies, more detailed descriptions of the relationship between letters and sounds suggest a far greater regularity of English orthography than has previously been accepted.

Two studies stand out as the most extensive and detailed investigations of letter-sound correspondence to date. As part of a series of investigations supporting the development of a phonic based reading program, Cronnell (1971) described correspondences found to be useful with the vocabulary of children in kindergarten through third grade. A word corpus consisting of all one and two syllable words appearing contained in the Rinsland (1945) list were selected then analyzed by computer to tally the phonemes represented by (1) single letters, (2) consonants and vowel digraphs, (3) strings of letters which commonly function together as units (ck, tch), and consonant geminate clusters (ff, gg). The actual pronunciation of words to which each of the correspondences applied was then compared to the pronunciation predicted by the correspondence. Criteria which served to determine the usefulness of a correspondence were that (1) each correspondence had to have a minimum of ten exemplars in the corpus, and (2) each correspondence could have no more than a specified maximum number of exceptions in the corpus. A total of 168 correspondences met the established criteria. Of these 75 described the pronunciation of vowels, 33 described the pronunciation of vowel digraphs and 60 described the pronunciation of consonants and consonant clusters. In what is considered to be the most extensive study of the occurrence of letter-sound correspondences to date, Venezky (1970) described consonant and vowel correspondences found to occur regularly in a large corpus of words. Correspondences were obtained using a computer program (see Venezky, 1962) that derived and tabulated correspondences appearing in the 20,000 most frequent English words. Information from this printout was used to examine spelling-to-sound patterns and morphemic elements which contribute to the regularity of English orthography. Of the 138 correspondences specified, 19 described the pronunciation of vowels, 51 described the pronunciation of vowel clusters, and 68 correspondences described the pronunciation of consonants and consonant clusters. As a result of this lengthy investigation, Venezky suggested that spelling-to-sound correspondences be classified into the following three categories:

1. **Invariant-predictable** (b → /b/, z → /z/)
2. **Variant-unpredictable** → (ea → /i/, /e/, or /a/)
3. **Variant-predictable** (c → /s/ before e, i, y; otherwise c → /k/)

Several studies have attempted to examine the degree to which students have internalized letters and letter clusters of these three categories. In the earliest of these investigations, Calfee, Venezky and Chapman (1969) investigated the internalization of variant-predictable,

variant-unpredictable correspondences. Results showed that among variant predictable vowels the percentage of correct responses were significantly higher at each grade level from third grade through high school. Correlations between subjects correct pronunciations of these items and reading achievement were significant in the third and sixth grade but those in later grades were not. Analysis of variant-unpredictable vowel patterns compared subjects' responses to the frequency of pronunciation obtained from a count of the most frequent pronunciation of that letter or cluster in a large corpus of words (type count) to the frequency of pronunciations of that letter or cluster in highly frequent words (token count). Results suggested that students were more likely to respond with pronunciations which more closely matched the principal pronunciation of a type than token count. For example, the principal pronunciation for ai in a type count was /e/ with a frequency of 86 percent. The principal pronunciation of ai in a token count was /e/ with 38 percent frequency. In a similar study, Johnson (1970) found that elementary students are more likely to pronounce words according to the principal pronunciations indicated by type than those indicated by token counts. Furthermore, Johnson noted that subjects were much more consistent in their preference for highly frequent principal pronunciations such as ay → /e/, than for infrequent principal pronunciations such as ie /i/.

In the most recent investigation of students' internalization of letter-sound correspondences, Ryder (1978) examined secondary students' internalization of variant-unpredictable, variant-predictable and invariant-predictable letters and clusters. The findings of this study indicated that secondary students increasingly internalize letter-sound correspondences as they progress through school, and that among variant-predictable, variant-unpredictable and invariant-predictable patterns, certain correspondence types are consistently more fully internalized than others suggesting a definite sequence in the order and extent of letter-sound correspondence internalization. Among variant-predictable patterns, for example, consonants were more fully internalized than consonant clusters and vowels. Furthermore the rank-order of these correspondence patterns remained the same for each grade while the extent to which these patterns were internalized increased at each successively higher grade. And, by the eleventh grade there is no significant difference between good and poor readers' internalization of most correspondences.

Inherent in a review of studies which have examined the usefulness of phonic rules, the occurrence of letter-sound correspondences in English, and investigations of students' internalization of various letter-sound correspondences are several educational implications, and a re-occurring observation. First, the re-occurring observation is that the long accepted phonic rules which purport to accurately and consistently predict sounds of letters and clusters are useful only when they are modified to reflect specific letter-sound correspondences. It can be noted, for example, that of the 12 phonic rules dealing with vowels and consonants which Clymer (1963) reported as being useful, seven were stated in terms of specific letter-sound correspondences rather than phonic rules. While it is apparent that phonic rules are of little use in allowing the student to create a phonemic representation of graphemes, it is also apparent that students are not aware of the rules themselves.

Studies of elementary students' ability to vocalize rules which account for the pronunciation of specified letters or clusters (c.f. Towner, 1972; Hillsop and King, 1973) for example, have found that neither good nor poor readers make use of phonic rules, rather they report that in decoding unfamiliar words they compare the unknown words to known words containing the same grapheme. These findings as well as those of Calfee, Venezky, Chapman (1969), Johnson (1970), Johnson and Venezky (1975) and Ryder (1978) strongly suggest students at younger ages acquire knowledge of orthographic structures which are seldom taught, and students continue to acquire knowledge of letter-sound correspondences long after phonic instruction.

While the results of these studies are correlational in nature, and little evidence is available to suggest what effects direct instruction of letter-sound correspondences would have on students' reading ability, several educational implications are suggested. First, it is apparent that the long-standing use of certain phonic rules should be abandoned. Given our knowledge of the utility of these rules, and students' inability to recall the rules when applying them to unfamiliar words there is seemingly little justification for their continued use. Secondly, it is apparent that English orthography displays a much greater degree of predictable letter-sound patterning than was previously assumed. Consequently, phonics programs should be restructured to reflect the utility of these correspondences. Specifically, it would seem that correspondences which are invariant-predictable or variant-predictable should be taught directly. And those which are variant-unpredictable should not be taught directly, but rather exemplified in words which have a similar pronunciation of a given letter and cluster. Finally, it is apparent that students of various reading abilities become increasingly proficient in their internalization of correspondences at successively higher grades, suggesting that phonics instruction for older aged secondary students may be totally inappropriate.

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