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ABSTRACT

Three reputed advantages of using a letter-combination (LC) approach, as opposed to a grapheme-unit (GU) approach for initial word-attack and spelling instruction are critically analyzed. While LC reduces the number of elements per word, it also reduces the number of words that can be generated. LC eliminates distortion in the final vowel-consonant elements; but it allows distortion in the initial consonant, which may be a more serious problem. Although LC places vowel letters in a pronunciation-determining environment, environmental constraints are much more complex and may cover at least the whole word. The analysis suggests that the LC approach is probably not maximally appropriate for either reading or spelling instruction and that individual grapheme units and sounds can be best analyzed and synthesized within whole words. (Author/RB)

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Three reputed advantages of using a letter-combination (LC) approach, as opposed to a grapheme-unit (GU) approach for initial word-attack and spelling instruction are critically analyzed. While LC reduces the number of elements per word, it also reduces the number of words that can be generated. LC eliminates distortion in the final vowel-consonant elements; but it allows distortion in the initial consonant, which may be a more serious problem. Although LC places vowel letters in a pronunciation-determining environment, environmental constraints are much more complex and may cover at least the whole word. The analysis suggests that the LC approach is probably not maximally appropriate for either reading or spelling instruction.

AN ANALYSIS OF LETTER COMBINATIONS VS. GRAPHEME UNITS AS ELEMENTS IN COMMUNICATION SKILLS INSTRUCTION

The SWRL Mod I Communication Skills Program uses a letter-combination (LC) approach to identification of elements for initial word-attack and speiling instruction. Thus man is considered to be composed of two elements, m - an, rather than three m - a - n as would be the case if grapheme units (GU)[1] were used. In this paper, three frequently cited advantages of LC over GU are presented and critically analyzed.

1. Number of elements per word.

The letter-combination approach makes use of fewer elements per word than does a grapheme-unit approach. However, the overall number of elements is increased. For example, to teach the 88 words in Sullivan, Okada, and Niedermeyer (1971) there are 18 single letters, one double letter, one digraph, and five consonant clusters (total: 25 elements) for the GU group (called the "single letter" group), but 25 VC[2] elements plus 12 initial consonants (total: 37 elements) for the LC group.

While the use of LC reduces the number of elements per word, it also reduces the number of possible words which can be generated, thus providing fewer new words for transfer. A study was made of the Sullivan et al. (1971) material to determine how many additional words could be generated using the elements taught (words taken from Berdiansky &

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[1]Grapheme units are one or more letters functioning in a spelling-to-sound correspondence, e.g., a, t, ch, ea, tt (see Cronnell, 1971a).

[2]V stands for a vowel letter, while C indicates a consonant letter.

Stanton, 1969). The LC condition produced only 77 words (including 13 with initial k and sh, which may not be appropriate since they were not taught as such).[3] One element, ish, generated no new words and in fact occurs in only one other one-syllable word (swish). The GU condition, of course, produced all 77 words generated by the LC conditions, plus 285 additional words, including nearly 100 which did not involve any new consonant clusters. In order to form merely these 100 words in the LC condition would require 33 additional word elements, nine of which only produce one word each. Clearly, the GU condition is much more productive in generating new words.

2. Distortion of sounds produced in isolation.

When many consonants are produced in isolation, there is considerable distortion since these consonants cannot occur in pure isolation (Russell & Pfaff, 1969a,b). However, some consonants can occur in isolation, e.g., [n], [š] (Russell & Pfaff, 1969b), so LC's such as en and ish cannot be justified on grounds of preventing distortion in such consonants. Vowels are not particularly affected by distortion when produced in isolation and therefore the LC approach cannot be justified on the grounds of preventing vowel distortion.

Thus, since vowels are not seriously distorted in isolation, the advantage of LC is in the lack of isolation (and consequent distortion) of some final consonants. Nonetheless, in the LC approach initial consonants are produced in isolation. Various linguistic studies

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[3]Eight of the LC elements--it, in, at, an, Ed, ad, am, end--are also words but it is not clear what their status is in the LC condition.

(cf, Liberman, Cooper, Shankweiler, & Studdert-Kennedy, 1967) have shown conclusively that perception of initial consonants very much depends on perception of the following vowel. In addition, stops produced in isolation must be followed by some voiceless vowel sound (Russell & Pfaff, 1969b), which much more closely approximates the sound of a released final stop than any initial sound. This suggests that CV rather than VC elements might best eliminate distortion, although CV elements are not generally considered to be elements in English (as opposed to VC(C) units, which are rhyming elements[4]).

While a VC or a CV element may reduce distortion of individual consonants, it is not clear how two consonants may be affected when combined as a CC element (i.e., a consonant cluster). It is altogether possible that distortion may be compounded when consonant clusters are produced in isolation (especially when both consonants are voiceless, e.g., [kt], [pt]).[5]

3. Environment.

Letter combinations are sometimes reputed to be more appropriate than grapheme units because they place vowel letters in environments which determine pronunciation. It is quite true that a primary vowel (a, e, i, o, u, or y) in isolation does not correspond to any particular

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[4]Note, however, that when rhymes are used, children may identify words on the basis of the first letter only (Silberman, 1965, pp. 509-510); this is certainly not what is desired.

[5]Sullivan et al. (1971) used final consonant clusters as elements for their "single letter" group; these, of course, are not single letters or even single grapheme units.

single sound; pronunciation is determined by the surrounding (primarily following) letters in the word. This means, however, that word-attack/blending can only be undertaken in a specified environment, but not that there must be an independent VC(C) element. The word, rather, is perhaps the better unit for analysis and synthesis.

In addition, if vowels must be placed in environments because of their pronunciation, so should the many consonants whose pronunciation varies depending on environment. (In Mod I SYCSP Word Attack Lesson 3, the children are presented with a c and told, "This letter makes the sound kkk." This, of course, is true only when the c is followed by a, o, u, or a consonant; see Rule C12, Berdiansky, Cronnell, & Koehler, 1969.) In the word cat, the pronunciation of c is determined by the following a, the pronunciation of which is determined by the following word-final t. This imples that phonics skills can be most efficient when grapheme units are used in whole words.

Environment is also important in spelling (cf, the spelling rules in Cronnell, 1971b). However, it should be noted that environmental constraints differ between reading and spelling. For example, while it is not possible to tell whether a is pronounced [æ] without observing what follows, [æ] is invariantly[6] spelled a and environment is irrelevant. On the other hand, while the pronunciation of k as [k] is nearly invariant,[7] the spelling of [k] as c, k, ck, or ch is determined by

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[6] With a few exceptions, of course, which must be learned by sight.

[7] Except initially before n, which can be ruled out anyway as a nonEnglish sequence.

complex environmental constraints. It is clear that an approach appropriate for reading instruction may not be appropriate for spelling (cf, Cronnell, 1971c).

In addition, it should be noted that in both reading and spelling the environment in some cases must be the whole word or even a larger context (e.g., a sentence for syntactic and/or semantic information). For example, the reading of ea as either [i] or [ɛ] depends on the whole word (e.g., bead or bread) or on the whole sentence (e.g., I will read/have read the book). Conversely, the spelling of [i] as either ee or ea depends on the whole word (e.g., need or bead) or on the whole sentence (e.g., Can you see the sea?).

Conclusion

Three reputed advantages of LC over GU have been discussed. While LC uses fewer elements per word, GU can generate many more additional words. LC reduces distortion of the final consonant, which may not be important, but it does not affect the more serious distortion of the initial consonant when produced in isolation. Although LC may place vowel letters in environments which determine pronunciation, it does not do this so well for consonants. Moreover, environments for spelling often differ from those used in reading. However, for both reading and spelling, the whole word or even a sentence may be needed to provide adequate environmental information. This anslysis, then, suggests that the LC approach is probably not maximally appropriate for either reading or spelling instruction and that individual grapheme units and sounds can be best analyzed and synthesized within whole words.

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DISTRIBUTION

1 - Berdiansky

1 - Butler

3 - Cronnell

1 - Koehler

1 - Legum

1 - Niedermeyer

1 - Okada

1 - Rudegeair

1 - Russell

1 - Schwab

1 - Scott

1 - Sullivan