Children Use Vowels to Help Them Spell Consonants

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Introduction

Phonological knowledge alone does not suffice for spelling in English. Beginning spellers must rely on other strategies in order to spell seemingly irregular words. Contextual clues may help spellers make sense of these so-called irregular words, as sound-to-spelling correspondences in English become more regular when other parts of the word are considered (Kessler & Treiman, 2001). Our study asked whether children use vowel context to help them spell consonants.

Two contextual rules were used to study knowledge of vowel context:

1. Extension rule (coda condition):

Some final consonants are doubled, or extended, depending on the preceding vowel.

poof – puff, feel – fell

2. Initial /k/ rule (onset condition):

Initial /k/ spelling depends on the following vowel.

cat – kit, coop – keep

These rules are not explicitly taught in typical spelling lessons prior to sixth grade.

Research Questions

1. Do children use these rules when spelling final (coda) and initial (onset) consonants?

2. Are context effects based on vowel pronunciation (short, as in *fell,* vs. long, as in *feel*)? Or are context effects based on how the vowel is spelled (using one letter, as in *fell,* vs. more than one letter, as in *feel*)?

Methods

Participants:

	Grade			
	2nd	3rd	5th	College
N	27	31	27	35
M Age (y;m)	7;8	9;3	10;8	19;10

Stimuli:

Coda condition

20 pairs of monosyllabic nonwords differing only in vowel, ending with /f/, /l/, /tʃ/, /k/. These coda spellings could be extended depending on vowel context.

/sæf/ should be spelled *saff* (cf. *staff*)

/suf/ should be spelled *soof* (cf. *poof*)

Onset condition

5 pairs of monosyllabic nonwords differing only in vowel, beginning with /k/ that could be spelled *c* or *k* depending on vowel context.

/kɛsk/ - /kɑsk/

(expected spelling for /kɛsk/ is *kesk,* not *cesk)*

Procedure:

Production task: Participants heard 50 nonwords and spelled them.

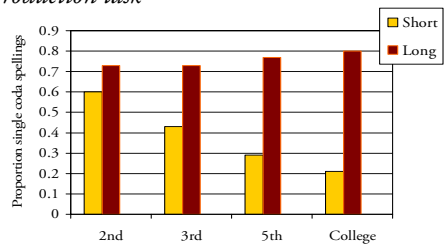
*Choice task:** Participants saw pairs of nonwords and were asked to choose which one looked more like a real word.

thool – thooll, zul – zull

** Used only with coda condition stimuli*

Results – Coda Condition

Production task



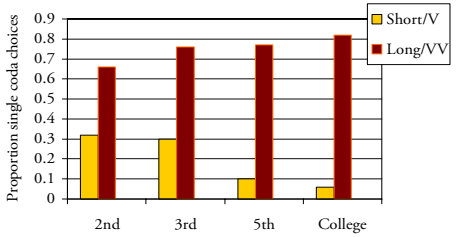
Coda spellings were first analyzed based on vowel pronunciation (short or long). Participants used single coda spellings more often following long vowels than short vowels, and the difference between long and short vowels increased significantly with grade ($p < .001$).

Coda spellings were also analyzed based on how the vowel was spelled: one letter (V) as in *saff,* or more than one letter (VV) as in *soof.* Participants used single coda spellings more often following VV vowel spellings than V vowel spellings, regardless of vowel pronunciation.

Proportion of single coda spellings following V and VV vowel spellings for short and long vowels

Vowel Sound	Vowel Spelling	Grade 2nd	3rd	5th	College
Short	V (/sæf/, spelled *saf*)	.56	.35	.26	.21
	VV (/sæf/, spelled *saef*)	.86	.76	.76	.89
Long	V (/suf/, spelled *suf*)	.58	.50	.42	.31
	VV (/suf/, spelled *soof*)	.83	.82	.87	.86

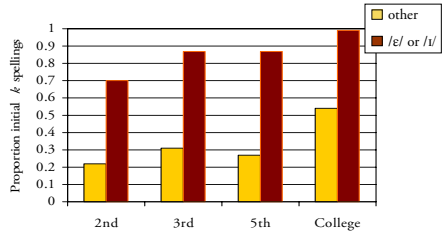
Choice task



The pattern of choice task results is similar to the production task results ($p < .001$). Importantly, second graders chose significantly more words containing single coda spellings following long/VV vowels than short/V vowels.

Results – Onset Condition

Production task



Participants were significantly more likely to spell initial /k/ as *k* when it preceded /ɛ/ or /ɪ/ than when it preceded other vowels ($p < .001$). Older participants used more *k* spellings than younger participants ($p < .001$). The lack of a significant interaction between vowel and grade indicates that this effect was as large statistically for second graders as for college students.

There were few cases in which the vowel spelling did not match the vowel pronunciation. Therefore, analyses could not be conducted on whether participants spelled onsets based on vowel pronunciation or vowel spelling.

Conclusions

1. Children as young as second grade used vowel context in spelling initial consonants as well as final consonants. These results are in contrast to some theories of spelling development which state that children are more sensitive to some parts of words (vowel + coda) than others (onset + vowel) (e.g., Goswami, 1993).

2. Context effects appear to be based on vowel spellings rather than vowel pronunciation. These results suggest that even novice spellers take advantage of clues that are based on spelling, or graphotactic information, rather than pronunciation, or phonological information. Importantly, children show knowledge of vowel context clues in the absence of explicit instruction.