How does elicitation technique affect vowel intelligibility?
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Conference Abstract

In pronunciation research and assessment, L2 speakers' production accuracy is known to vary according to speech elicitation technique. Moreover, the benefits of any particular technique must be balanced with the need to obtain specific target material, whether at the segmental, prosodic, or other levels. Both teachers and researchers may benefit from understanding how elicitation techniques tap differentially into L2 speakers' phonological store. The present investigation compares vowel intelligibility under two such techniques. It complements a previously-completed study, in which 18 Cantonese speakers produced multiple tokens of 31 English target words in a picture elicitation task. Targets were common real words, with V = /i/, /ɪ/, /u/ and /ʊ/, and vowel intelligibility was assessed by 4 phonetically-trained judges. The new study used the same methods and speakers, except that tokens were elicited through an aural presentation of each word, after which the speakers were required to count aloud to 10 before repeating. The counting was expected to disrupt auditory memory to prevent simple mimicry. Intelligibility in the delayed-repetition task was significantly better (by 14%) than in the picture-naming task, but the improvement was not uniform across different vowels, syllable types, individual words, or individual speakers. This outcome raises interesting complications for the assessment of segmental knowledge in the classroom and other contexts. While picture elicitation presumably accessed speakers' stored phonological representations, it did not consistently capture their best possible segmental performance. Explanations for the discrepancy will be discussed and interpreted in terms of best practices for research and assessment.

Useful sources:

Munro, M. J. (2021, in press). On the difficulty of defining "difficult" in second-language vowel acquisition. *Frontiers in Communication*. Preprint version available at http://www.sfu.ca/~mjmunro/ .

Munro, M. J. (2018). How well can we predict L2 learners' pronunciation difficulties? *The CATESOL Journal*, 30(1), 267-281.

Follow-up study on elicitation type

How much of a difference exists between picture elicitation and aural elicitation with interruption?

Is the effect about equal across rhymes, words, speakers?

Design

Speakers [*same as in Munro (2021)*]
- 18 native Cantonese adults from Hong Kong
- living in Canada [mean LOR = 4.9 years; range = .75 to 6.9]
- advanced-level
- passed a pure-tone hearing screen

PLUS
- 2 native speakers of WCE (for checking purposes)

Recordings
- high quality digital audio; sound-treated booth; head-mounted microphone
- CV(C) words in a sentence frame

TWO ELICITATION TYPES

Picture naming

- same data as in Munro (2021)
- pictures presented in random order (3 rounds)
- speaker names each item using sentence frame: "Now I say _."

Interrupted repetition
(aural priming with delay)

- target word presented aurally in frame "The next word is ___." (3 rounds)
- speaker counts to 10 and then reformulates as "Now I say ___."

In all cases, PNaming preceded IntRep

Target words for both tasks

| Vowel	Coda	Words
	#	key, see, tea
	/t/	feet, heat, seat
/i/	/k/	cheek, speak
	/d/	feed, read
	/t/	hit, sit
/ɪ/	/k/	chick, kick, sick
	/d/	kid, lid
	#	Sue, two
	/t/	boot, suit
/u/	/k/	Luke, tuque
	/d/	food
	/t/	foot, put
/ʊ/	/k/	book, cook, look
	/d/	good, wood

JUDGE'S EVALUATIONS

- 4 linguistically-trained RAs, familiar with IPA
- random presentation of items through headphones
  (multiple sessions over several days)
- judges selected symbol for the vowel they heard in each item

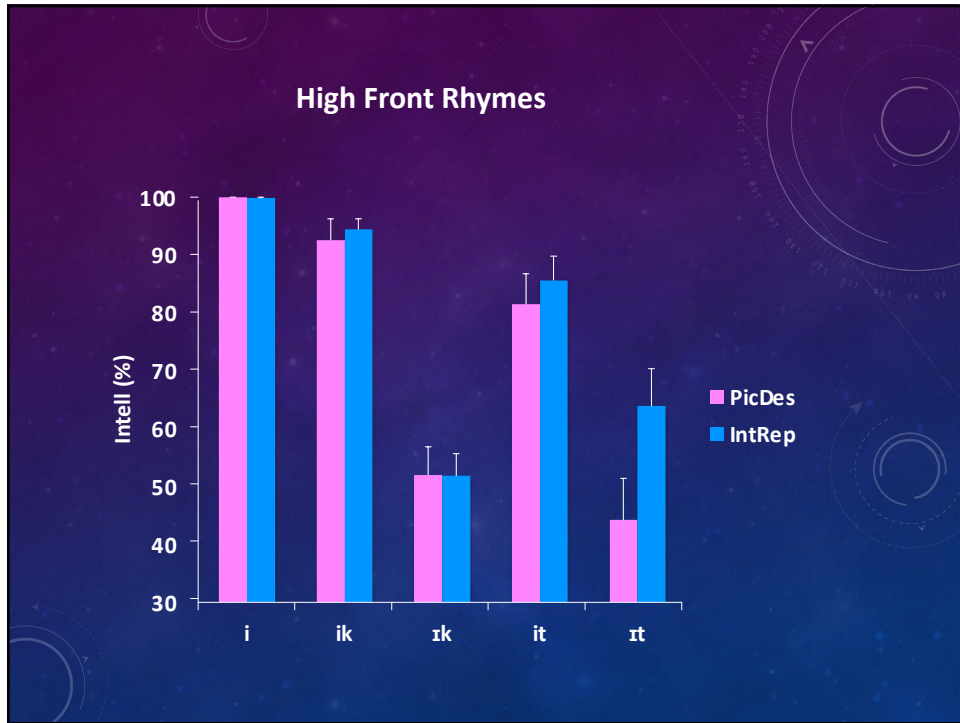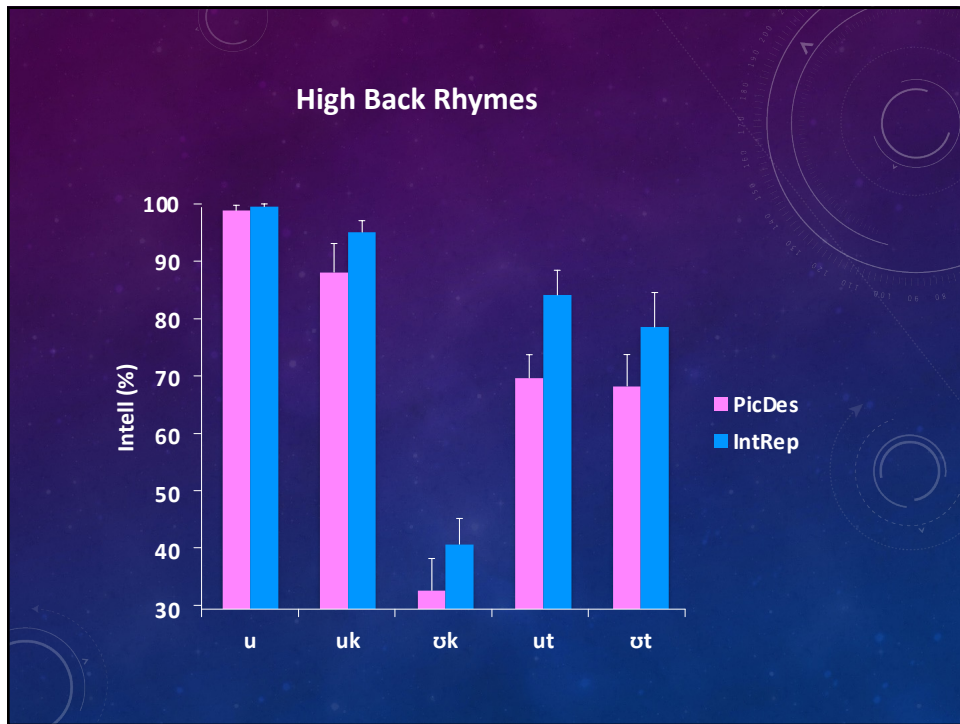results were reliable

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RESULTS

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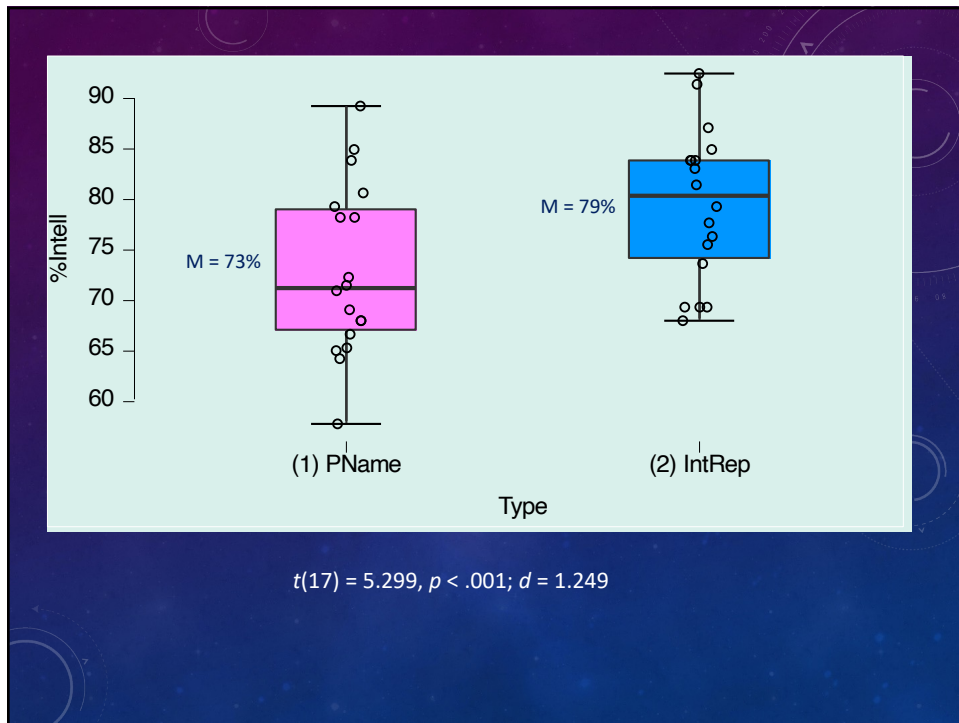
$t(17) = 5.299, p < .001; d = 1.249$

Is the difference consistent across rhymes?

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Examples of inconsistencies among speakers across rhymes

c008 & c021
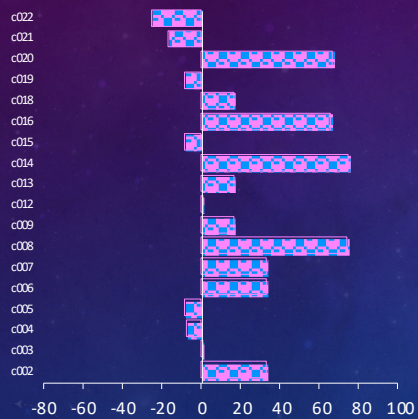< 20% on all /ʊk/, in both conditions

c008
0% to 90% on /ɪt/

c021
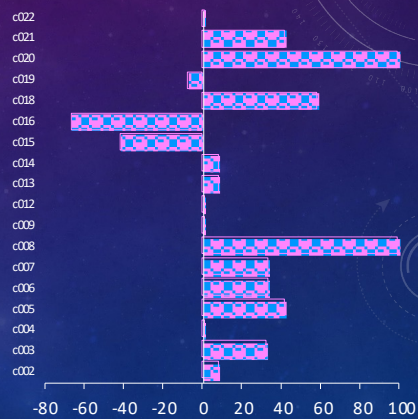slight improvement from 60 to 70% on /ɪt/

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Individual performance on words with same rhyme

Change in *hit* intelligibility

Change in *sit* intelligibility

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Main Findings

At the group level

- IntRep ➔ significantly higher vowel intelligibility (ca. 6 pts)

    applies to many rhymes, but amount of difference varies from one
        rhyme to another

    i.e., the effect is somewhat inconsistent

Main Findings

At the level of individual learners

- Effects of elicitation type are inconsistent.

    For rhymes
    For words with the same rhyme

NB: Vowel intelligibility is linked to particular words for particular learners.

Accounting for these findings

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Picture naming

- lexical retrieval is on the basis of all or <u>some part</u> of the speaker's stored knowledge

- may reflect the upper end of speakers' performance without support
  we would not expect "better" performance in an oral *interaction*, where pressure to perform is greater

- does not always represent what the speaker is capable of producing (with support)

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Interrupted repetition

- lexical retrieval is also from the speaker's knowledge store, but the aural prompt can influence that retrieval

- aural priming *sometimes* facilitates access to additional stored knowledge that is not so readily accessed without support.

Why is the benefit of the aural prompt inconsistent across speakers?

- different stored knowledge due to L2 experience (when a particular word was learned, who modelled it, how frequently heard...)

- different abilities to access stored knowledge

- differences in production capabilities. e.g., can't establish a production routine for a particular vowel or rhyme.

Recommendations for practice

For vowel assessment: use multiple words.
Intelligible vowel production in one word does not imply the same for other words.

"Teaching vowels" entails "teaching words."

Repetition tasks are likely to overestimate speaker's unaided capabilities.

Teaching should exploit "hidden knowledge": lots of aural "support" [cf: Vygotsky's ZPD]

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Future work

more vowel phenomena from more L1/L2 combinations
more examination of lexical effects in L2 vowel accuracy
more examination of how well learners can transfer vowel knowledge to new words/ new contexts

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