

The Relationship Between Set for Variability and Nonword Reading in Adults



Cristina Kopels, Valeria Rigobon, Dr. Donald L. Compton,
Dr. Laura M. Steacy, and Ashley Edwards



Introduction

- Correctly identifying specific words of the English language when only being exposed to their decoded or orthographically mismatched pronunciations can test a person's Set for Variability.
- Set for Variability (SFV): flexibility in one's representation of word's pronunciation in English (Steacy, et al 2019).
- Decoded pronunciations: sounding a word out letter by letter based on traditional graphemes-phoneme correspondences and decoding rules in English.
- Mismatched pronunciations: replacing phonemes in a word's pronunciation that would be implausible for the real word's spelling
- Focusing on adult populations, how well they can decode words in isolation can tested with an experimental measure of nonword reading
- Nonwords: letter strings that look or sound like a word but are not real words in the participant's native language (English) accepted by native speakers.
- This research focuses on determining whether performance on SFV is purely a measure of phonological representations (i.e., how a word is pronounced) or if it depends on a person's orthographic representations (i.e., how the word is spelled), too.

Current Study

- Research question: Is the correlation between decoded SFV and nonword reading total scores stronger than mismatched SFV and nonword reading total scores?
- Hypothesis: We predict that the correlation between decoded SFV and nonword reading performance will be stronger than the relationship between mismatched SFV and nonword reading performance.

Methods

- This project was done remotely on Zoom with undergraduate students
- Set for Variability Task: Participants were administered a test of 80 words, including 40 with mismatched pronunciations (i.e., phonologically implausible based on traditional letter-sound correspondences) and 40 with decoded pronunciations (i.e., based on applying English reading rules and traditional letter-sound correspondences).
 - Phonological: auditory representation of a word
 - Orthographic: written representation of a word
- Words for this task were chosen from the English Lexicon Project (Balota et al., 2007) with consideration for word features including length (number of letters and syllables), number of morphemes (smallest units of meaning), frequency with which words appear in text, and number of phonemes (smallest units of sound)
- Nonword Reading Task: Participants were also administered an unstandardized test of 20 nonwords (e.g. Aggiere, Toab, Leuts) and tasked with reading them as fast and accurately as possible. Participants were timed.

Table 1: Pronunciation Chart

Word	Decoded Form	Mismatched Form
tongue	ton-goo	tin-goy
genre	jen-ree	zan-roh

Table 2: Correlation Table

Correlation between SFV Type and Nonword Reading

Decoded SfV	0.28
Mismatched SfV	0.14

Results & Discussion

- Based on data from 204 participants,
 - the correlation between decoded SFV and nonword reading is 0.28
 - the correlation between mismatched SFV and nonword reading is 0.14
- These results are consistent with the hypothesis, that the correlation between decoded SFV and nonword reading is the stronger of the two relationships
- We would interpret these findings to believe that SfV performance is not only based on phonological information but also an individual's orthographic representation of a word; in other words, higher nonword reading performance (involving orthographic and phonological representations) is more strongly associated with higher decoded SfV performance than mismatched SfV performance.
- Using Meng, Rosenthal, and Rubin's z-test (1992) the correlations were not significantly different [$z=.99, p=.32$]. This would not align with the hypothesis.
- The nonword reading task is an experimental measure containing items that have not yet been validated with adults outside of the FSU undergraduate pool, so it may not capture decoding skills as accurately as standardized measures of nonword reading
- Future work can focus on how to validate the items with a more representative sample of adults outside of the FSU undergraduate pool and compare correlations presented here to SfV's correlation with standardized measures of nonword reading

References

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Contact

Email: cak2od@my.fsu.edu
LinkedIn: <https://www.linkedin.com/in/cristina-kopels-3b9261232/>