



# The Evolution of Spanish Vowel Perception



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## Introduction

- This project aims to examine the acquisition of Spanish vowels by English-speaking individuals learning Spanish.
- Stressed syllables play an important role in vowel perception, this is a challenge for English speakers because in the English language, unstressed syllables are reduced acoustically and in duration (Byers, 2017).

Furthermore, this research investigated:

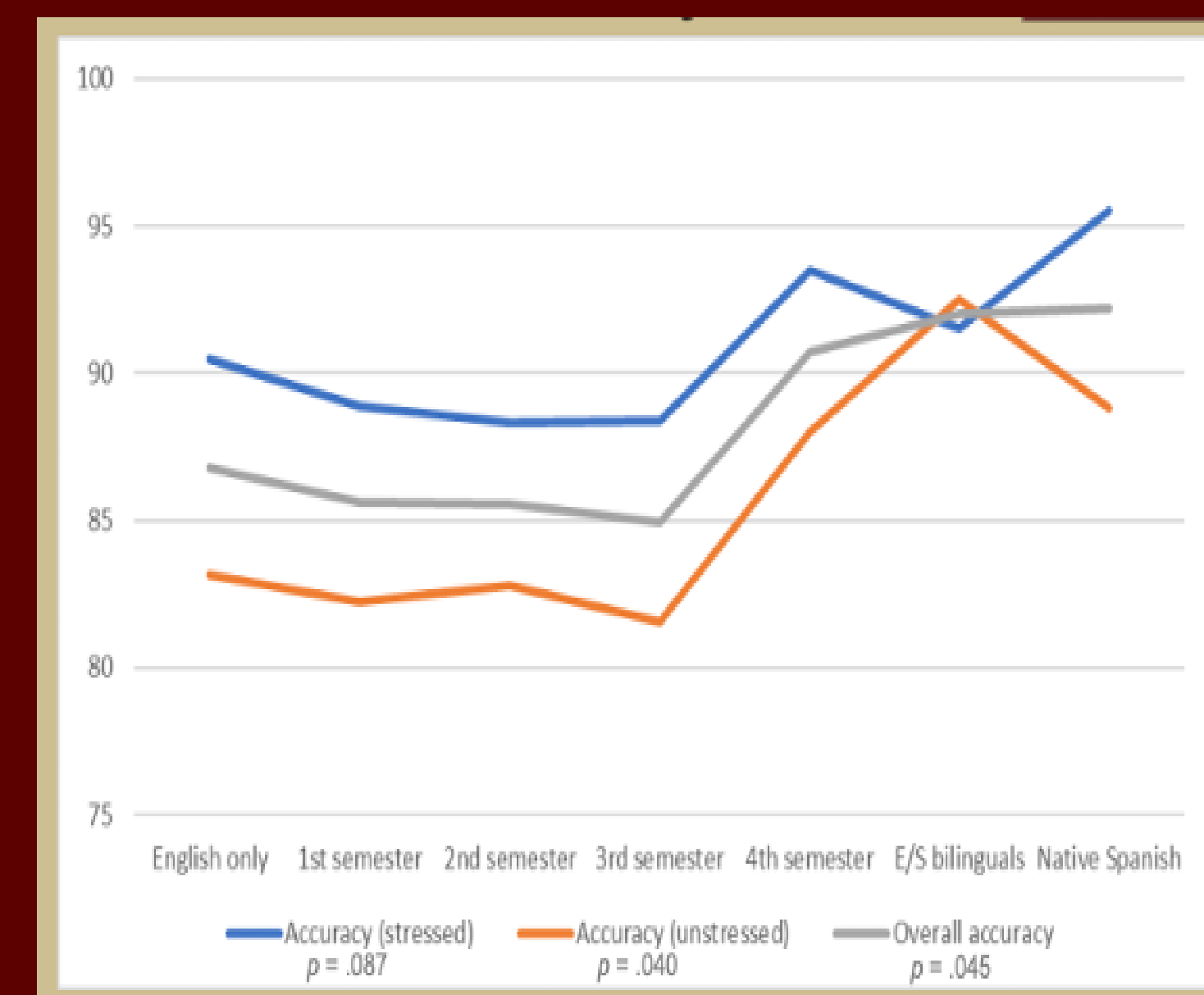
- The relationship between perceptual ability and experience with the Spanish language
- Which vowels are most difficult to perceive

## Methods

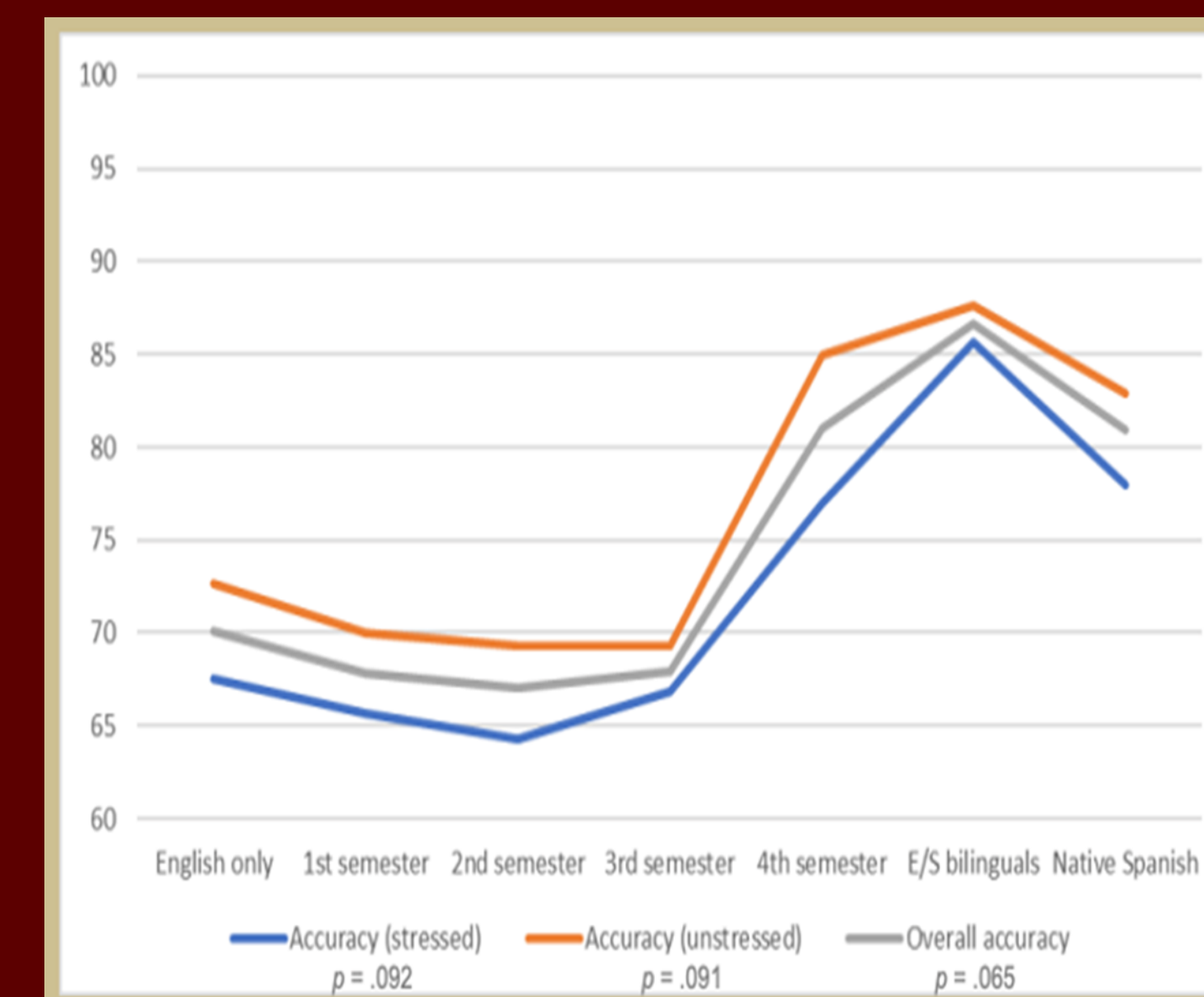
- Surveys were conducted online distributed to 243 participants, who were either native or non-native Spanish speakers.
- Audio that participants listened to included stressed and unstressed vowels.
- In Discrimination Task 1, participants were exposed to regular and nonce words in Spanish with four different vowel pairings.
- In Identification Task 2, participants were exposed to vowel sounds from Spanish and English in isolation.
- Data was composed into excel files, evaluated for errors, repetitiveness and incomplete surveys were discarded.

## Results

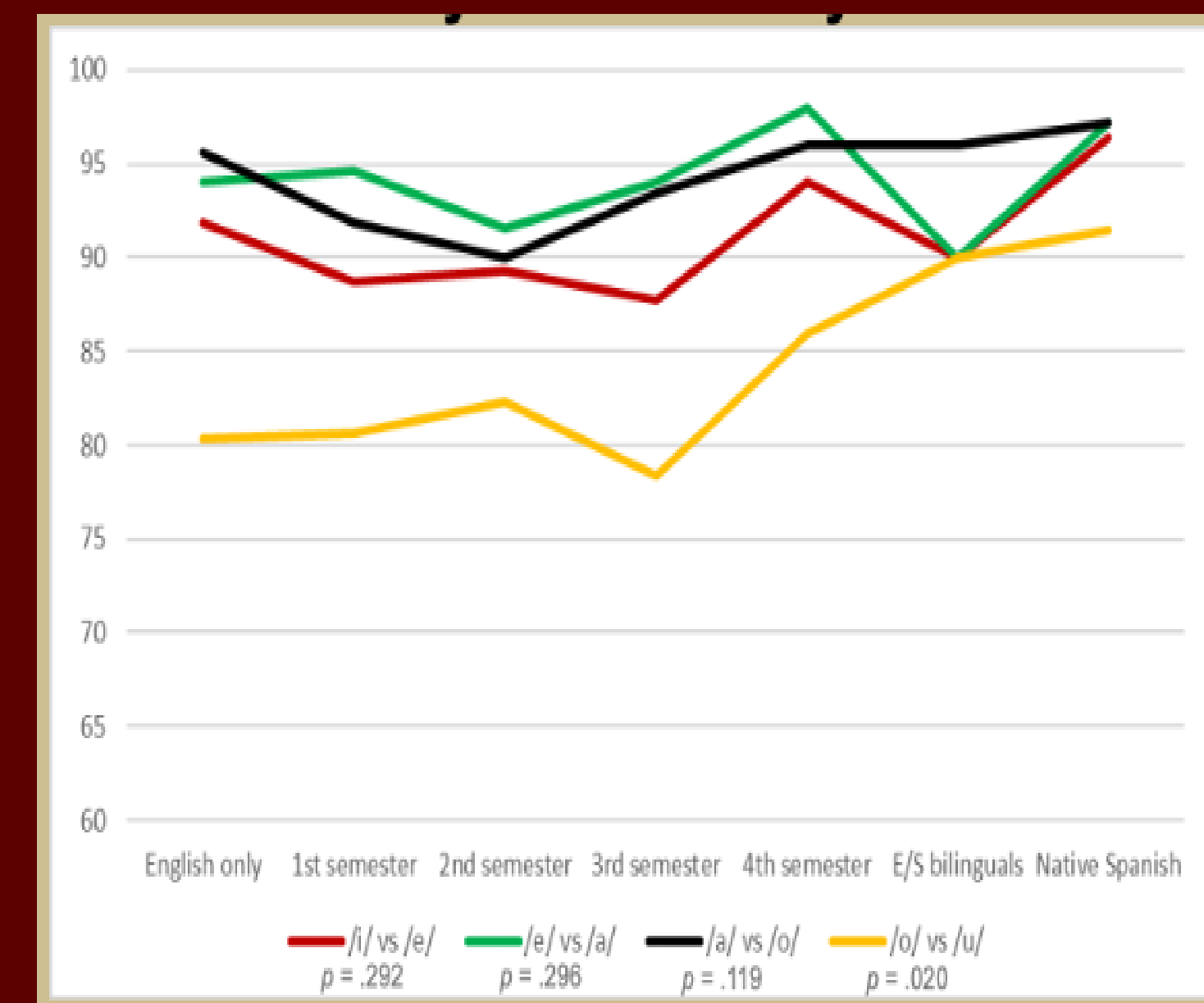
### Accuracy



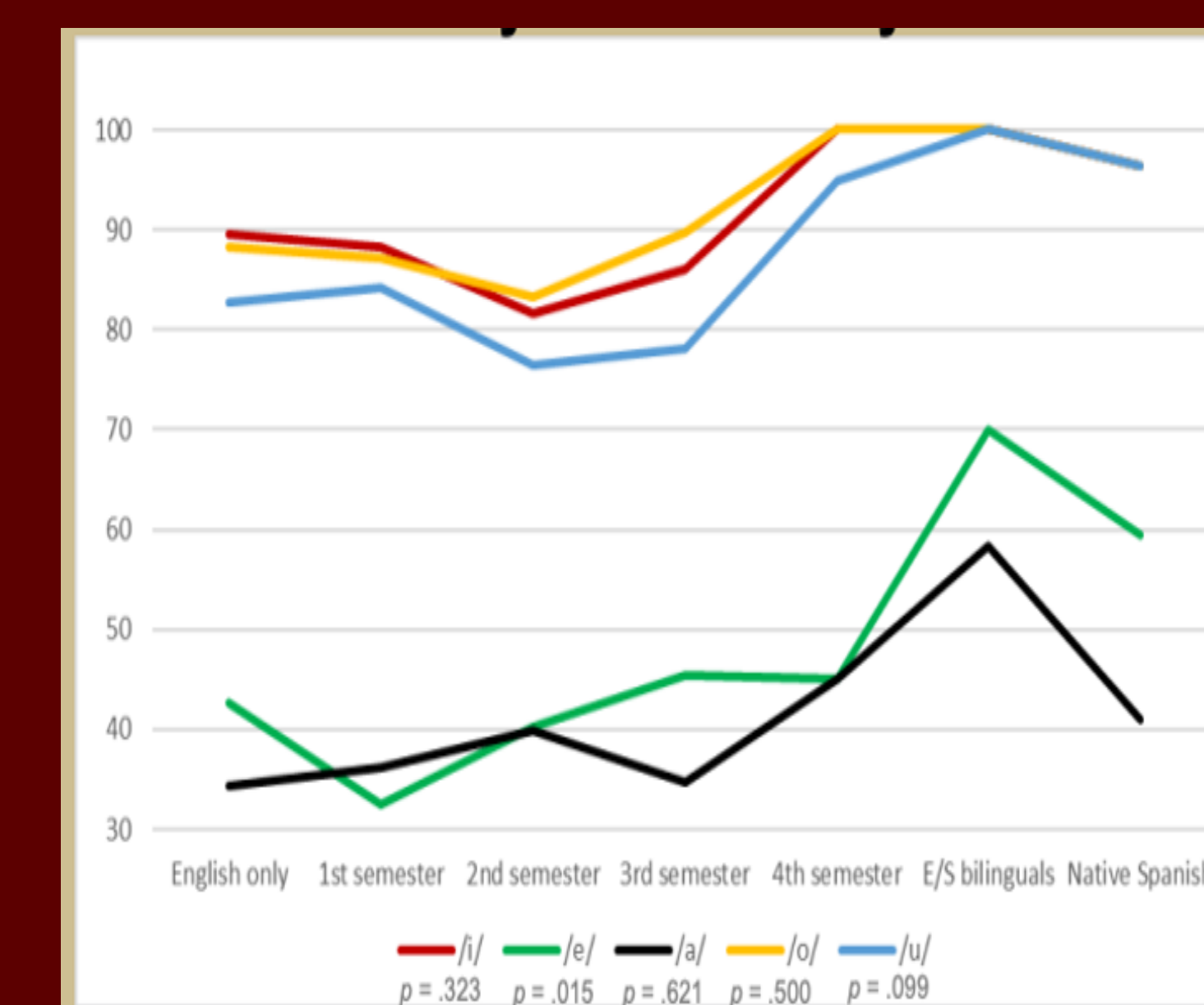
### Accuracy



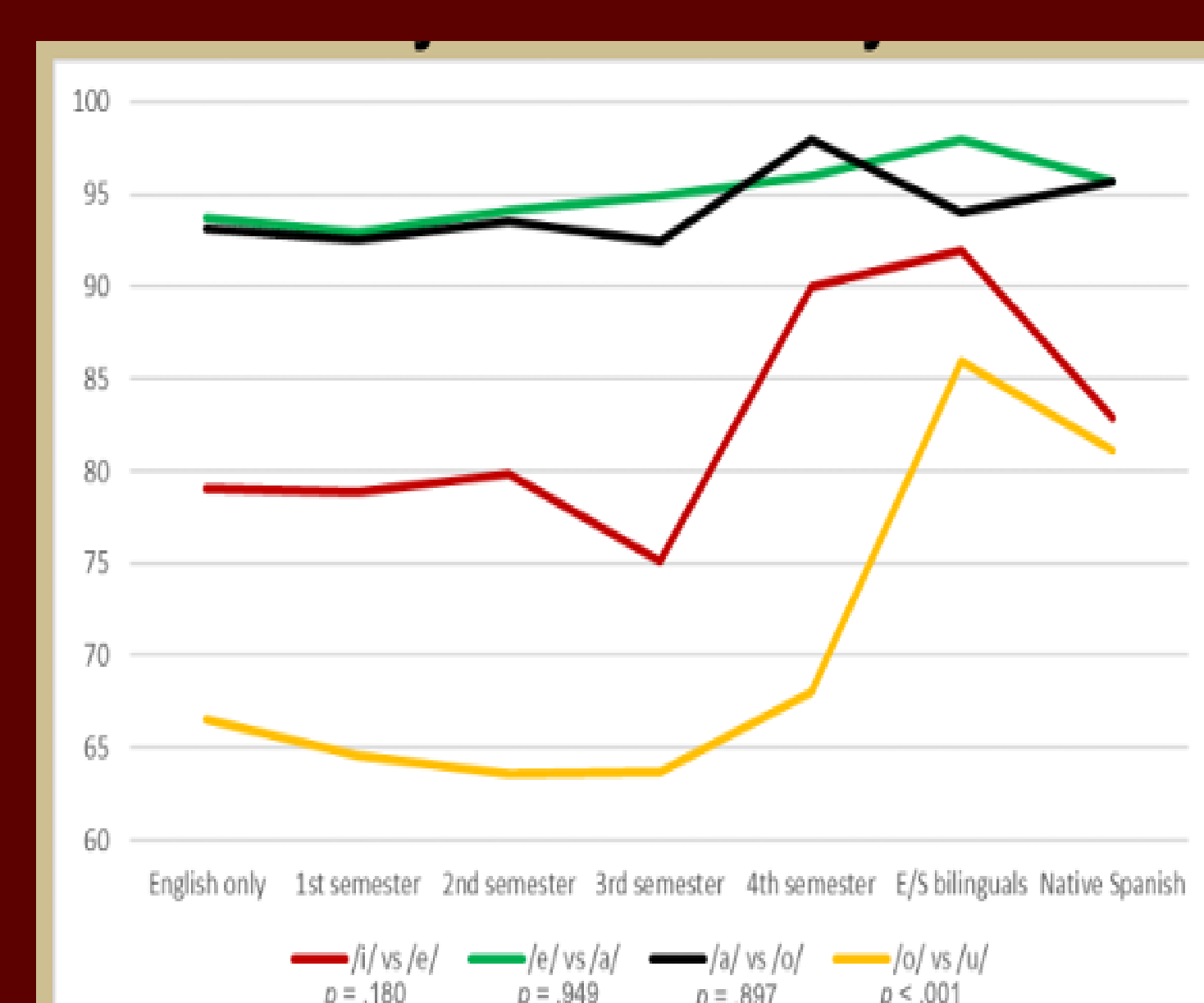
### Accuracy in Stressed Syllables



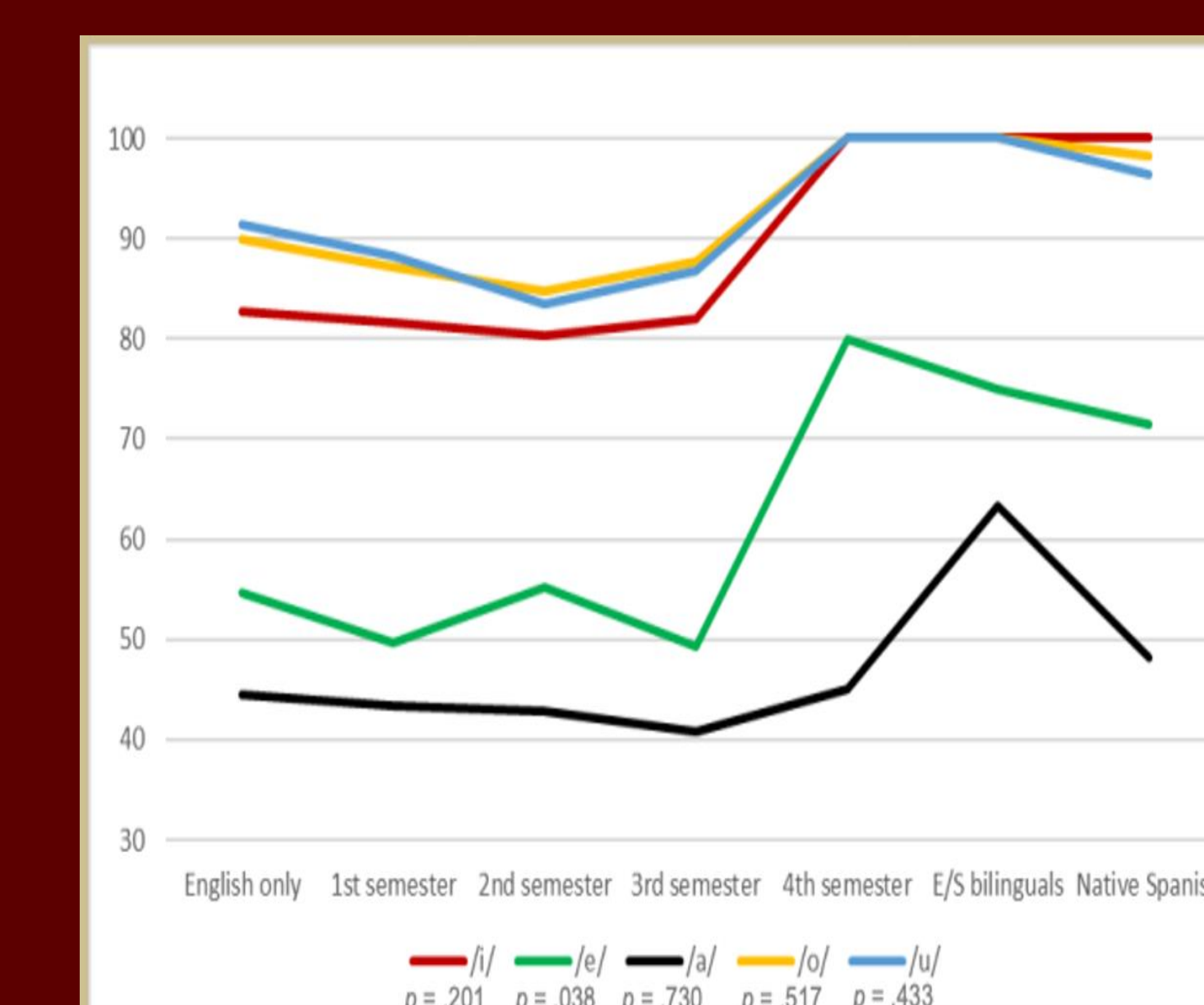
### Accuracy in Stressed Syllables



### Accuracy in Unstressed Syllables



### Accuracy in Unstressed Syllables



## Results

Several findings of this investigation included:

1. The accuracy rate was lower for unstressed vowels Task 1, but it was higher for unstressed vowels for Task 2.
2. Discriminating vowel pairs has various difficult levels depending on the vowels in Task 1, such as distinguishing vowels /a/ from /e/ and vowels /o/ from /u/,
  - /u/ and /o/ are the most different Spanish vowels acoustically when compared to English counterparts.
3. Participants in Task 2 found distinguishing vowels /e/ and /a/ most difficult due to nearby interfering English vowels /ɪ ɛ æ ɑ ə/.
4. Lastly, there was a significant difference in the results for both tasks when the independent variable was the bilingual language profile instead of group membership.
  - Language dominance was a better predictor of vowel acquisition than class enrollment was.

## References

Byers, E., Yavas, M. 2017. Vowel reduction in word-final position by early and late Spanish-English bilinguals. PLoS ONE 12(4).

