Effects of Learning American Sign Language on Co-speech Gesture

Shannon Casey

Karen Emmorey

Laboratory for Language and Cognitive Neuroscience

San Diego State University

Anecdotally, people report gesturing more after learning ASL

- If true, this would indicate an unusual effect of the non-dominant L2 language (ASL) on the dominant L1 language (English)
  - Gesture creation interacts on-line with speech production processes (e.g., McNeill, 2005)
- For spoken languages, cross-language interference rarely occurs from the L2 to the L1

Overview

- Study 1: Survey of signed vs. spoken language learners after one year of instruction
- Study 2: Longitudinal study of signed vs. spoken language learners before and after one year of instruction

Study 1: Survey

- Students surveyed after two semesters of a foreign language at San Diego State University:
  - ASL, N = 102
  - French, N = 72
  - Italian, N = 47
  - Spanish, N = 119 (total spoken learners = 238)

Survey Questions

1. After learning French/Italian/Spanish/ASL, do you think you gesture while talking (in English):

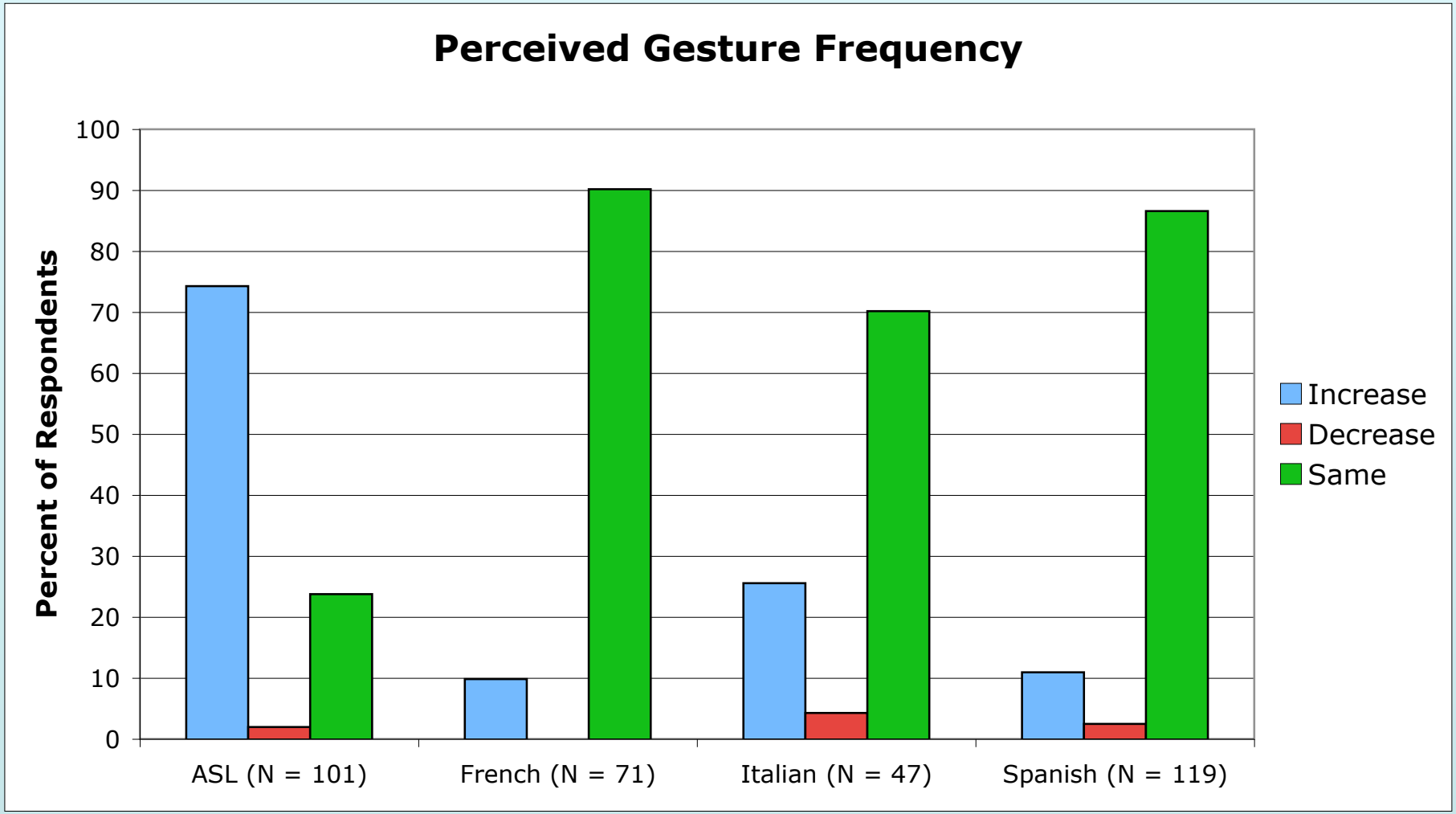
   less more the same

2. Do you feel that gestures you make while talking have changed since learning French/Italian/ Spanish/ASL?

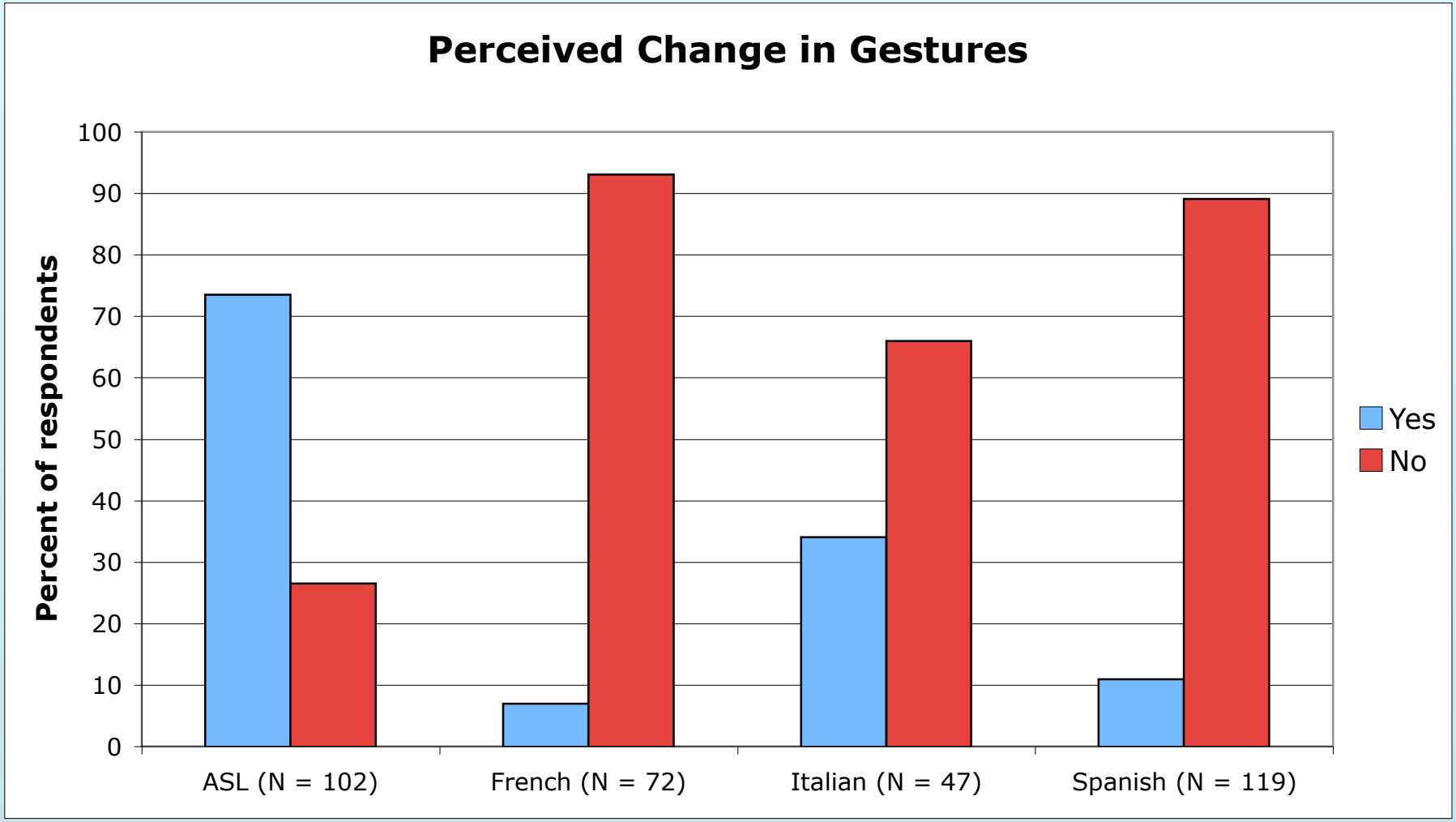
   yes no

3. If yes, please explain how you think your gestures have changed.

Most ASL learners felt their gesture frequency increased after 1 year



ASL learners, unlike spoken language learners, felt their gestures changed



Survey Results:
How have your gestures changed?

Changes in **use** of gestures: (signed and spoken learners)

- more exaggerated/enthusiastic/intense/animated/larger
- more expressive/descriptive/meaningful
- to express emotion

Changes in **form** of gestures: (signed and spoken learners)

- different hand motions
- more defined/precise

Change in gesture **content**:

- insert ASL signs/more ASL-like (57% of ASL learners)

Survey Results Summary

- After one year:
  - ASL learners perceived an increase and a change in their co-speech gesture
  - Spoken language learners felt their gestures remained the same
- When changes in gestures were perceived:
  - Spoken and sign language learners reported some changes in use and form of gestures
  - ASL learners overwhelmingly felt a direct influence from ASL

Questions

- Does learning a manual language (ASL) actually increase gesture rate or change gesture form when speaking English?

- Or are ASL learners just perceiving a difference (that is not there) because they are paying more attention to their hands?

Study 2: Longitudinal Study

- 21 hearing native English speakers learning ASL
- 20 hearing native English speakers learning a Romance language (control group)
  (Italian = 9, French = 4, Spanish = 7)
- data collected before and after 1 academic year of exposure to the language
- watched *Canary Row* in 8 segments
- retold cartoon in English to a non-signer
- analyzed bowling ball scene and Tarzan scene

Predictions for gesture production in ASL learners

- Rate – may increase due to learning to use the hands for communicative purposes
- Content – influenced by ASL
  - use of ASL signs

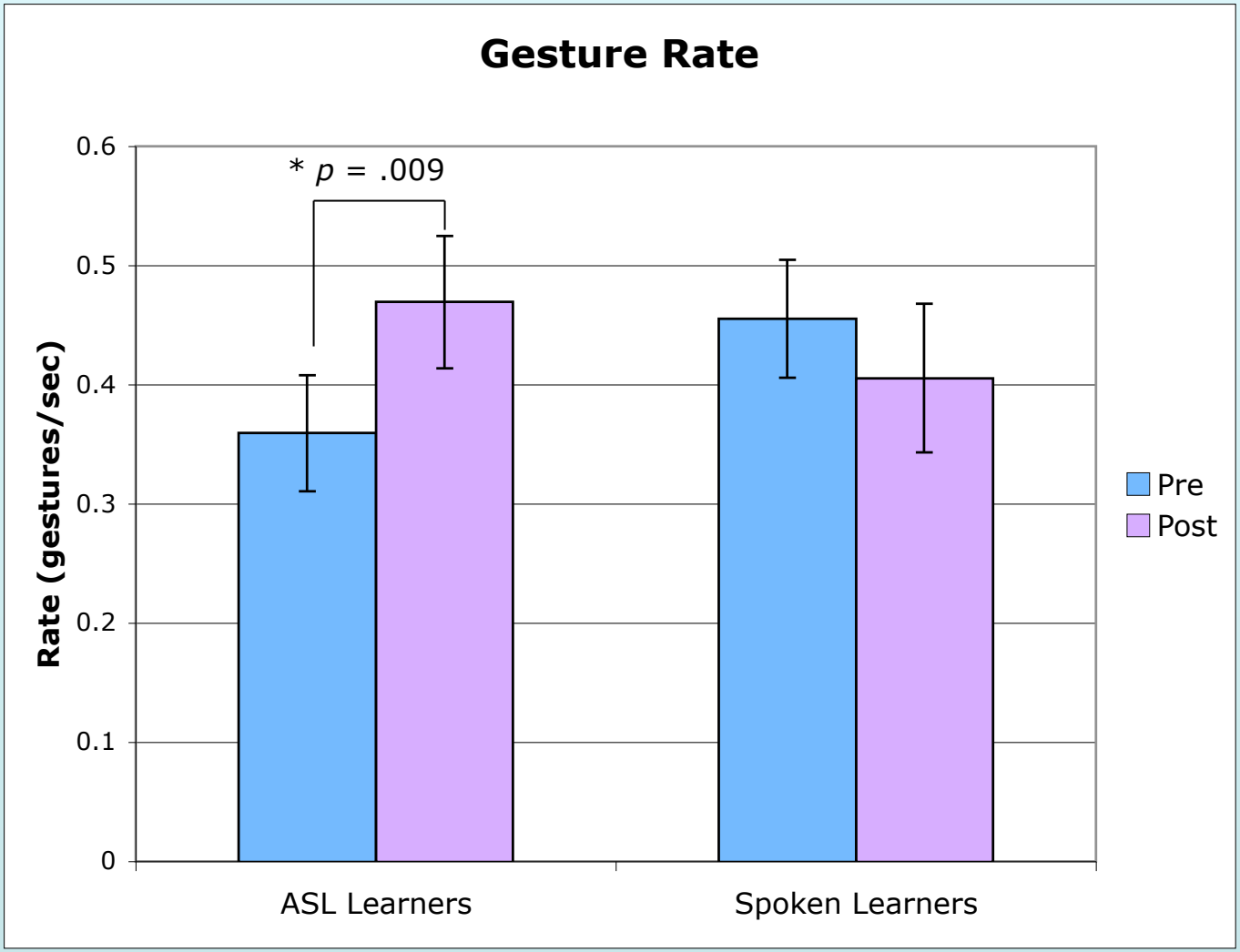
Production of ASL signs when speaking to non-signers

- In the survey, ASL learners reported using ASL signs while speaking English
- Native ASL-English bilinguals produce code-blends when speaking with non-signers (Casey & Emmorey, 2009)

Predictions for Gesture Production in ASL Learners

- Rate – may increase due to learning to use the hands for communicative purposes
- Content – influenced by ASL
  - use of ASL signs
  - increase in iconic and deictic gestures
  - increase in gestures from the character's point of view, mirroring role shift in ASL
- Form – influenced by ASL phonetic inventory: increase in handshape variety due to marked handshapes in ASL (e.g. E, K, Y)

Results: Increase in gesture rate for ASL learners only

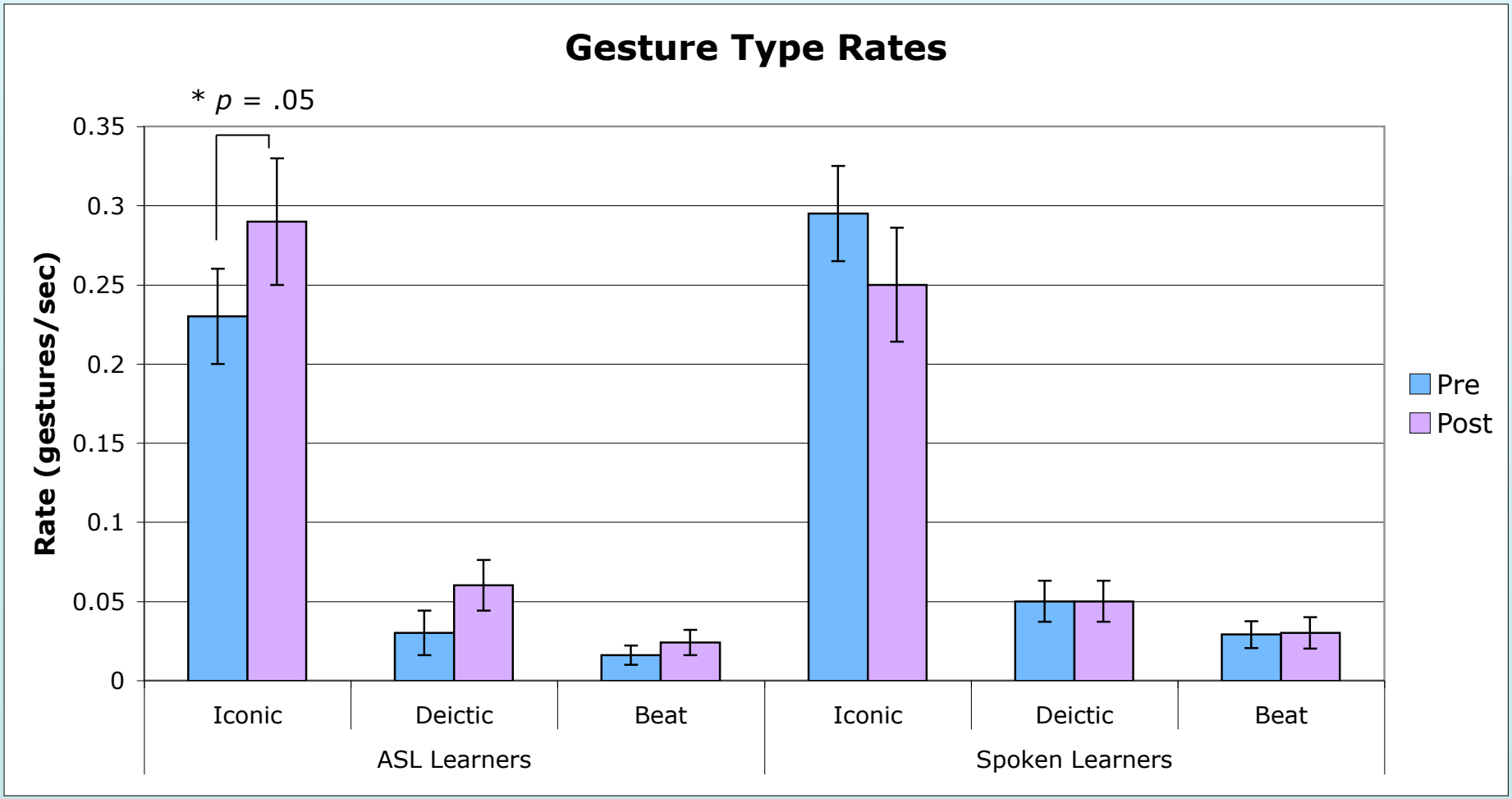


Results: Co-speech signs

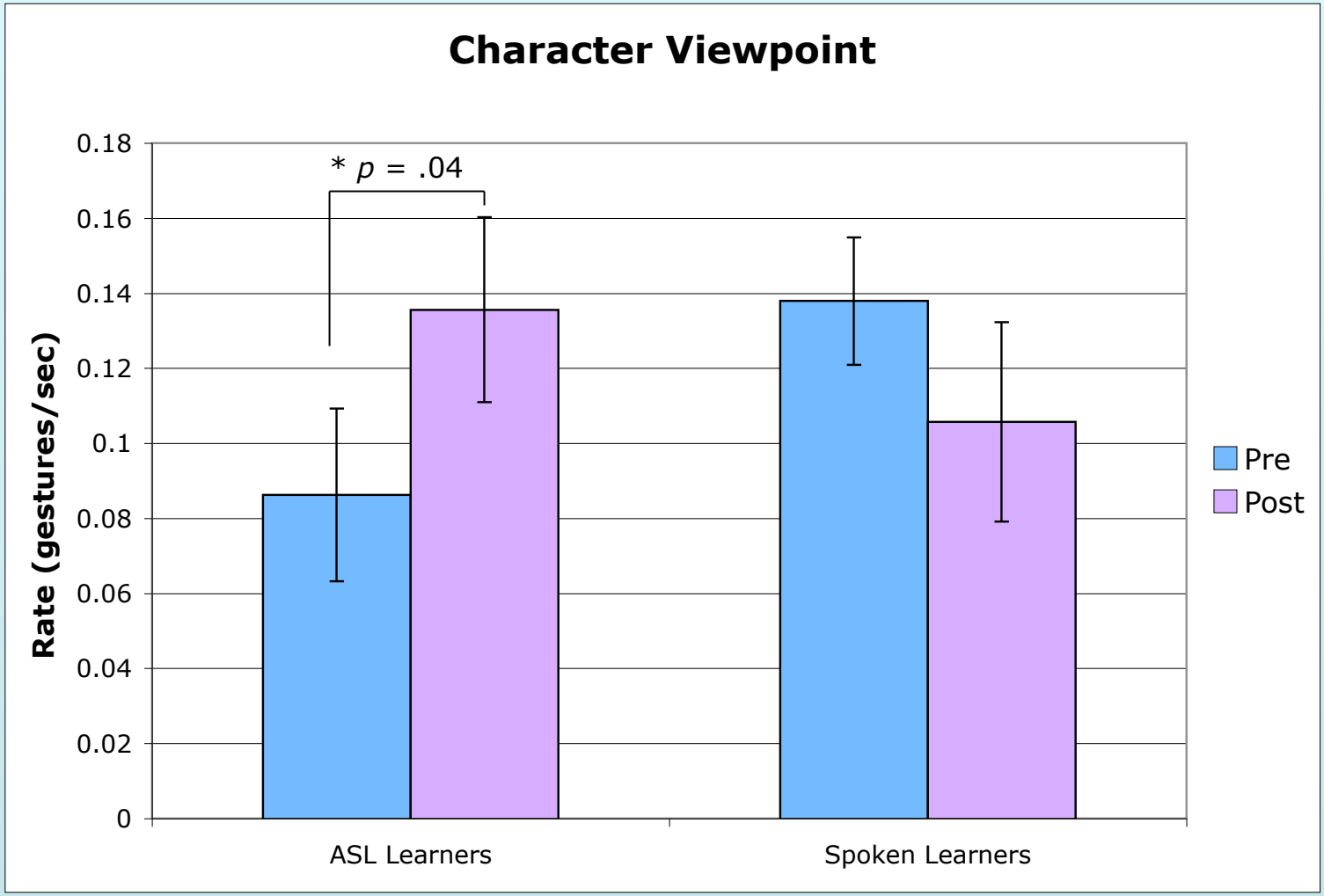
- Five (out of 21) learners produced ASL signs when speaking English, but signs were relatively rare (mean = 2.6 signs; range = 1 - 5 signs)

- No spoken language learners produced non-English words

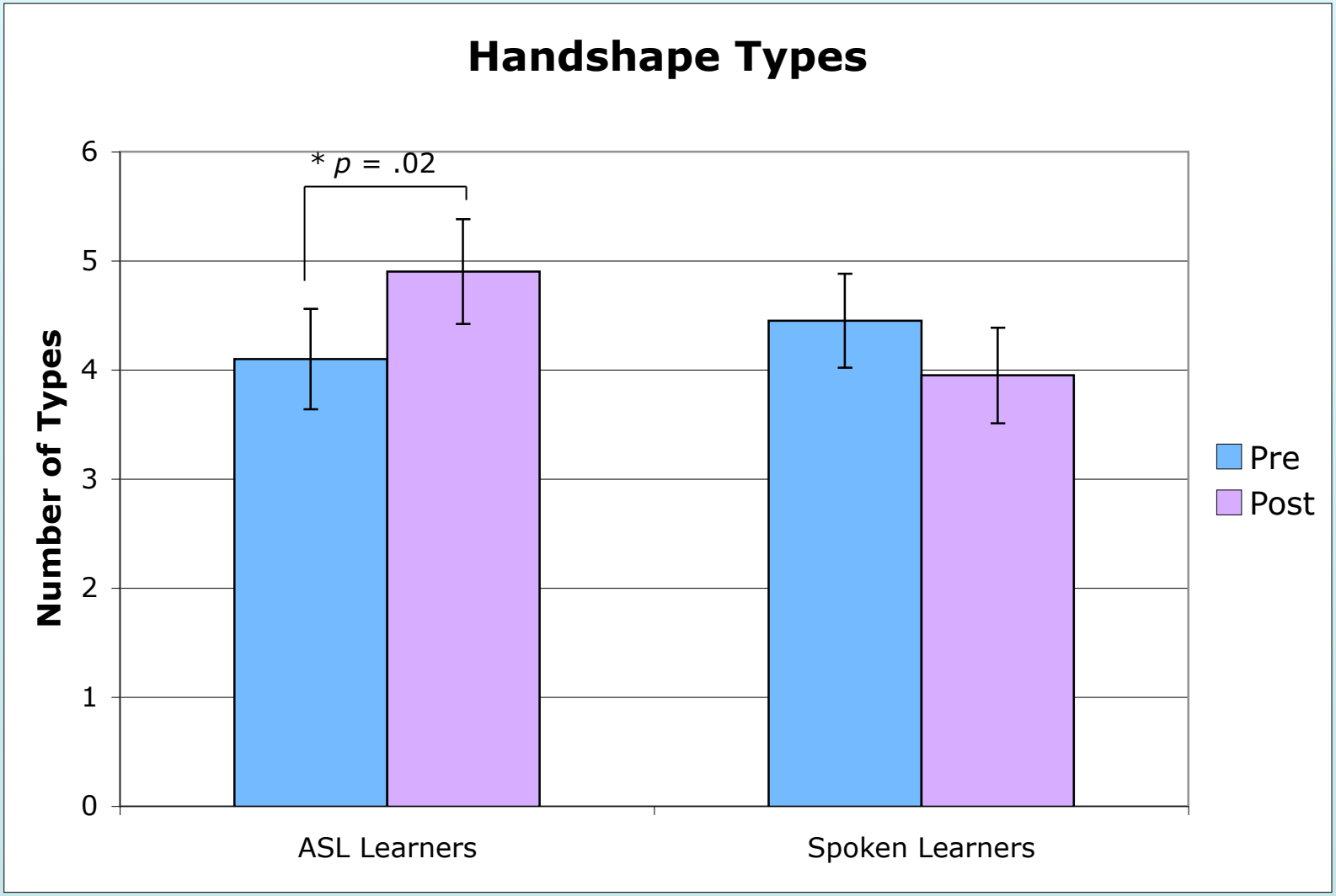
Results: Increase in iconics for ASL learners only



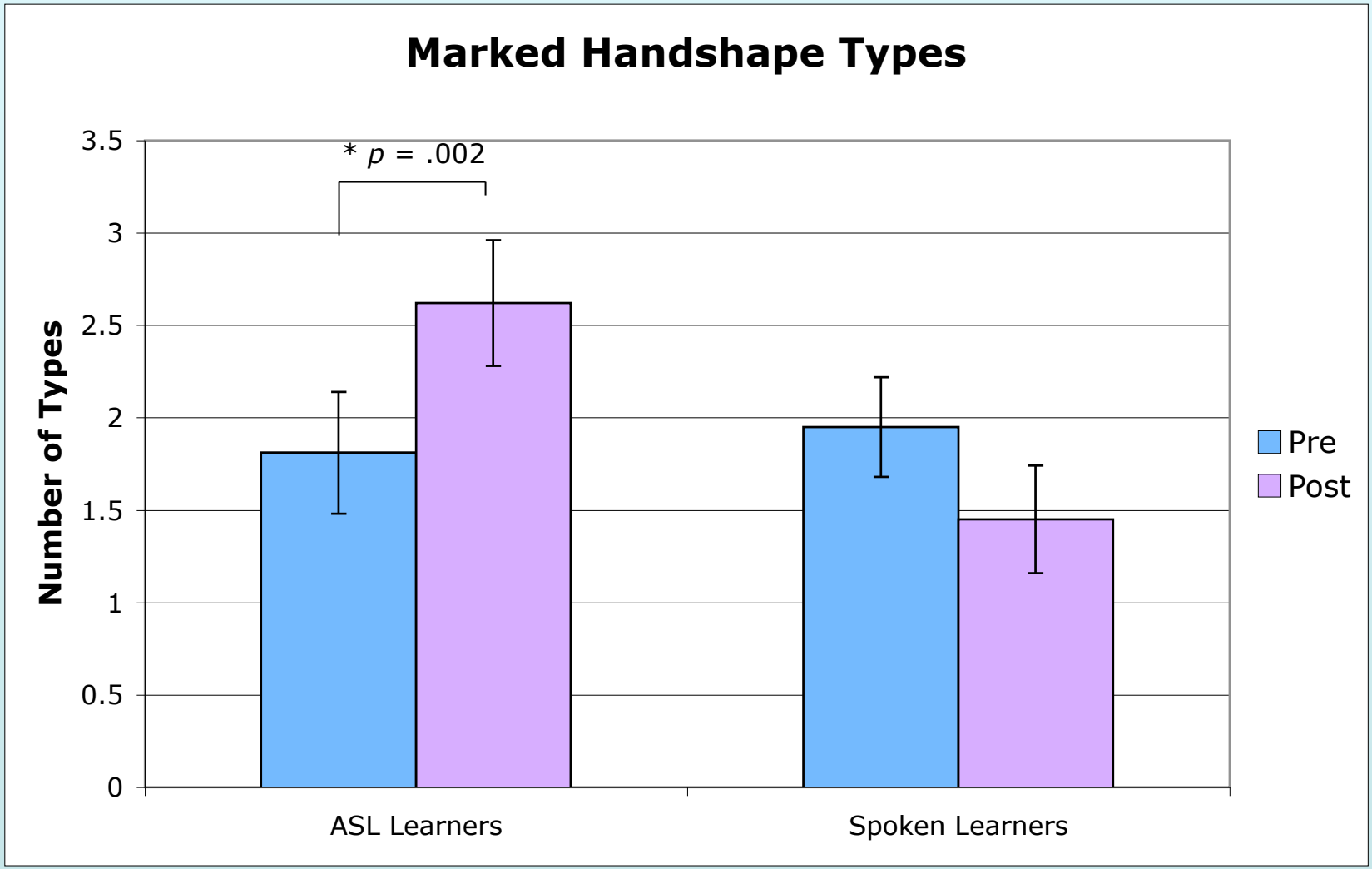
Results: Increase in character viewpoint for ASL learners only



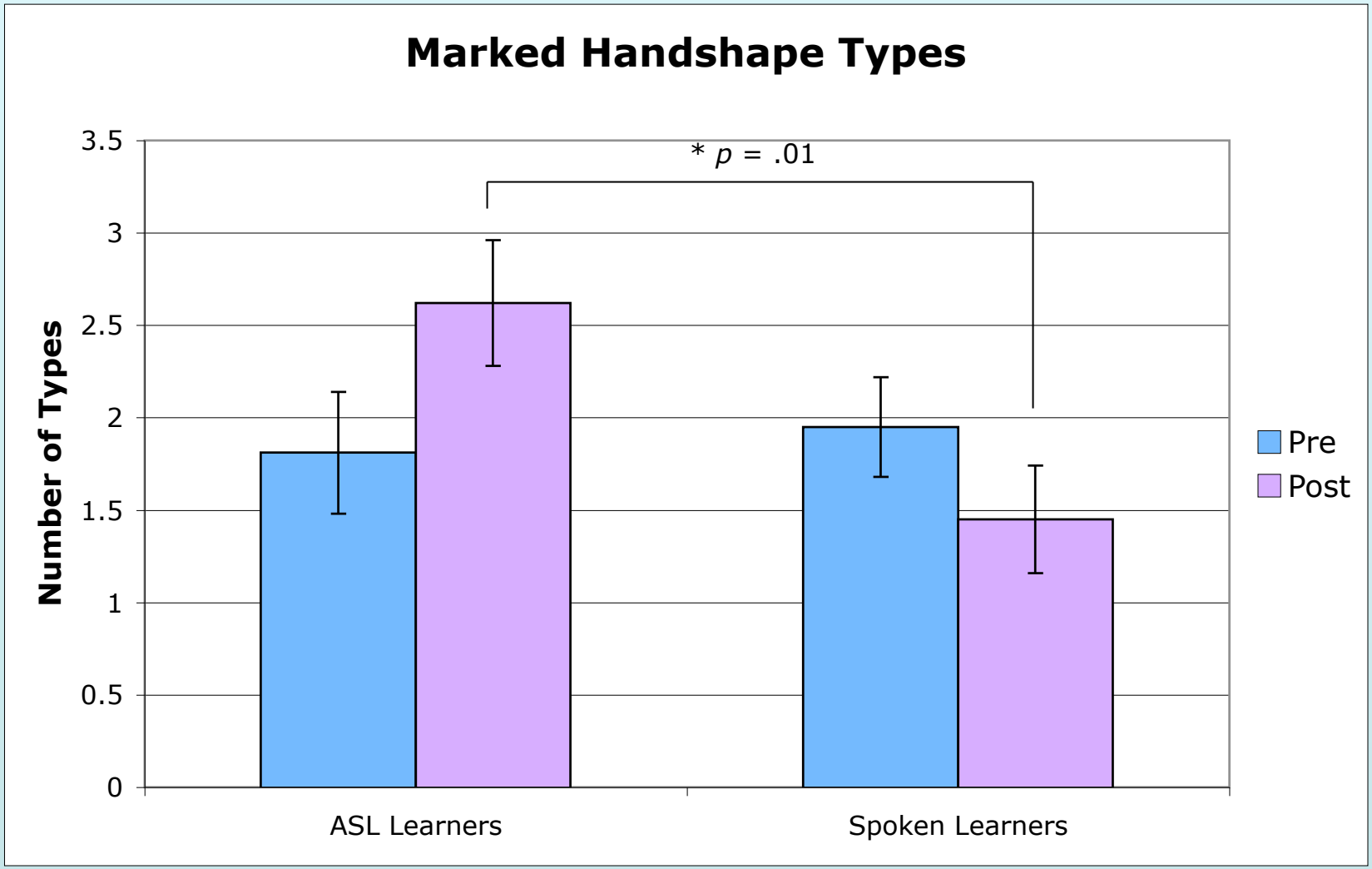
Results: Increase in handshape types for ASL learners only



Results: Increase in marked handshape types for ASL learners



Results: Language exposure difference after 1 year



Summary: Study 2

Minimal exposure to ASL in adulthood appears to change co-speech gesture when speaking English:

- increase in gesture rate
- insertion of ASL signs
- increase in iconics
- increase in character viewpoint
- increase in variety of handshape types

Why?

- Sign language and co-speech gesture share a modality
  - Gesture creation can draw on knowledge of ASL
- Dual language activation -- even with minimal L2 knowledge
  - L2 (ASL) does not compete with L1 (English) for articulation, unlike a spoken L2
  - Failure to suppress ASL signs does not disrupt the spoken message, unlike a code-switch to another spoken language

Further Questions

- Do ASL effects on co-speech gesture in L1 increase with increased bilingualism?
  - New ASL learners did not differ significantly from non-signers on most measures
  - Proficient late English-ASL bilinguals produced more iconic and deictic gestures with more varied handshapes than non-signers (preliminary data)
- Do early and late English-ASL bilinguals differ in the effects of ASL on co-speech gesture?
  - Proficient late bilinguals produced more ASL signs in co-speech gesture than native bilinguals (preliminary)

Thank You!

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Contact: scasey@projects.sdsu.edu