AGING AND SECOND LANGUAGE ACQUISITION: DIFFERENTIAL SUCCESS IN LEARNING LATIN GRAMMAR VIA IMPLICIT AND EXPLICIT FEEBACK

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INTRODUCTION

SECOND LANGUAGE ACQUISITION: There is a linear decline in the ability to learn a second language with increasing age (Hakuta and Bialystok 2003, Singleton 2001)

LATE ACQUISITION: Adults can learn a second language with native-like proficiency (Birdsong 1992, Bongaerts et al. 2000, Rossi et al. 2006)

FACTORS INFLUENCING SUCCESS: Working memory, attention, inhibitory control, motivation (Park 2000, Daneman and Case 1981, Marinova-Todd 2001, Cohen et al. 1990)

AIM: Midford and Kirsner (2005) found smaller age deficits when older adults learned artificial grammar implicitly than when they learned explicitly.

- Will implicit feedback be more effective than explicit feedback for older adults when learning the grammar of a real language?

METHOD

PARTICIPANTS

- 20 Older Adults (72.3 ± 4.73, 11 Female)
- 20 Younger Adults (18.7 ± .9, 13 Female), who were tested for a different study

GENERAL PROCEDURE

- DAY 1: Vocabulary Lesson and Pre-Test
- DAY 2: Grammar Training and Post-Test
- DAY 3: Delayed-Test

VOCABULARY TRAINING

- Learned 36 Latin nouns and 12 Latin verbs
- To criterion of 100% accuracy

GRAMMAR TRAINING

- Assigned to either Explicit or Implicit Feedback
- In older adults, the two groups were matched for language background and gender
- Completed two rounds of training

TESTS

- Completed at the end of each day
- Written Interpretation, Aural Interpretation, Grammar Judgment, and Sentence Production

QUALITATIVE ASSESSMENT

- Asked for their strategies at the end of each day

This experiment was part of The Latin Project©.

TWO TYPES OF FEEDBACK

EXPLICIT

- Told if right or wrong
- Given grammar rule

EXAMPLE: Parvulum spectant angelus.

- (The angel looks at the boy)

Right! –us is a subject case ending, and –um is an object case ending. Remember also that in Latin, the subject does not have to be the first noun in a sentence.

- (the boy looks at the angel)

Sorry! –us is a subject case ending, and –um is an object case ending. Remember also that in Latin, the subject does not have to be the first noun in a sentence

IMPLICIT

- Told if right or wrong
- NOT given grammar rule

EXAMPLE: Parvulum spectant angelus.

- (The angel looks at the boy)
  - Right!
- (the boy looks at the angel)
  - Sorry, that's incorrect!

Feedback was visible for 6 seconds in both groups.

FORMAT OF FOUR TESTS

WRITTEN INTERPRETATION

- Choose which picture corresponds to a given sentence

AURAL INTERPRETATION

- Choose which picture matches a sentence they hear

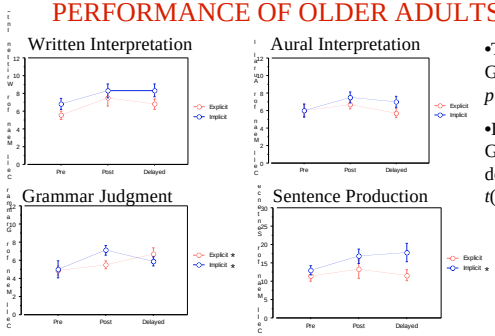
GRAMMAR JUDGMENT

- Say if a sentence is grammatically correct

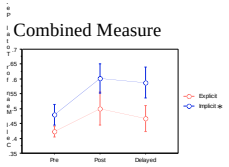
SENTENCE PRODUCTION

- Drag over noun and verb endings to complete words and create a sentence.

PERFORMANCE OF OLDER ADULTS ON THE FOUR TESTS

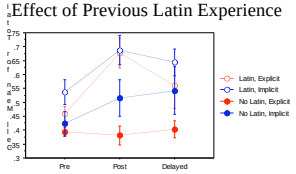


The four tests were converted to percentages and combined into one composite measure.



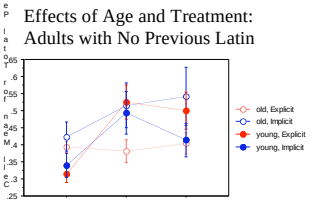
*Significant learning across the three sessions was observed.

- Treatment X Session interaction on the Grammar Judgment task $F(1,2)=3.323$, $p=.0488$.
- Implicit better than Explicit on post session in Grammar Judgment $t(18)=2.304$, $p=.0334$ and delayed session of Sentence Production $t(2.188)$, $p=.0439$.



There was a significant main effect of Latin experience, $F(1,16)=12.337$, $p=..0034$. Therefore, participants with previous Latin experience (n=9) were omitted from the age comparison analysis.

AGE COMPARISON



- No significant main effect of age. Therefore, there were no age deficits on the four tests.
- Combined, the groups showed significant learning ($p=.0007$)
- Neither treatment yielded significantly better results in the young group. However, it appears the explicit group is performing better.
- The implicit treatment yielded better overall results than the explicit treatment in the old group ($p=.017$).

SUMMARY AND DISCUSSION

- For the older group, but not the young, Implicit feedback yielded better performance than Explicit, consistent with Midford and Kirsner's (2005) findings with artificial grammar
  - Only one test, the Grammar Judgment test, produced the expected Treatment x Session interaction for the old.
- Minimal exposure to Latin approximately 50 years before the experiment helped participants learn. This could suggest "permastore" (Bahrick 1984)
- There were no significant age deficits on the four tests. Motivation and experience with foreign languages could have made up for any learning deficits.
- The most significant experimental limitation was the small sample size. For example, after omitting older adults with previous Latin experience, there were only 11 participants in the older group.
- Nevertheless, this experiment bodes well for older adults motivated to learn a second language.

The Psychology Honors Symposium
Georgetown University
April 11, 2008

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Supported by NIH/NIA Grant R37AG15450