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The Effect of Morphological Strategies Training for English Language Learners

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INTRODUCTION

Native speakers have a vocabulary size of about 50,000 when they enter college, but English as a second language learners (ELLs) have a size between 3500 and 4500 word families to take TOEFL exam (Chujo & Oghigian, 2009). It is not difficult to conclude that, when students enter college, the vocabulary size of native speakers is about 12 times of that for ELLs.

Of the recently developed Academic Word List (Coxhead, 2000), more than 82% of the entries are of Greek or Latin origin, indicating that the knowledge of morphemic structures, such as prefixes, suffixes, and word stems, positively affects vocabulary learning (Tong, Deacon, Kirby, Cain, & Parrila, 2011). This is especially true for college-level vocabulary as most college textbooks are filled with technical terms, jargons, and new disciplinary concepts (Francis & Simpson, 2009) .
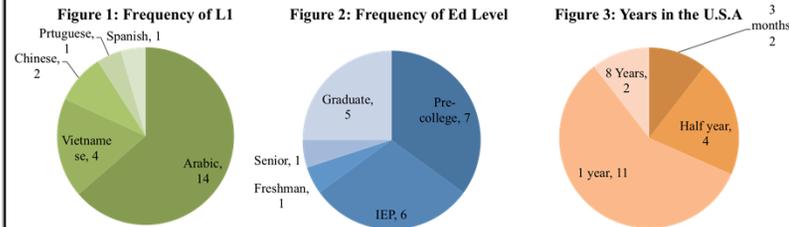
Morphological awareness refers to the conscious awareness of the morphemic structures of words and abilities to reflect on and manipulate the structures (Carlisle, McBride-Chang, Nagy, & Nunes, 2011). Morphological awareness influences lexical processing in the sense that students with better morphological awareness are more likely to retrieval their prior knowledge of the componential morphemes in their memory storage, and hence make connection between the morphological knowledge and the meaning of the new word to construct a schema for the new word, which enables the learners to achieve a deeper level of processing and store the new word in sematic memory (Goodwin & Ahn, 2010).

There is evidence, however, that college students do not always apply morphological strategies. In fact, many students have little knowledge about morphological strategies, especially ELLs (Francis & Simpson, 2009; Nation, 2001). Up to date, it is not known how well ELL college students are equipped with morphological strategies and knowledge that enable them to learn vocabulary more effectively.

PURPOSES AND HYPOTHESES

The purpose of this study was to examine the effect of morphological strategies training for ELLs with different English proficiency levels. A secondary goal was to examine how the training influence their cognitive load during morphological analysis tasks.

We hypothesized that students would improve their morphological knowledge after training in their skills of sentence completion, breaking words down, and guessing meanings from words parts. We also hypothesized their cognitive load for morphological tasks would be lower after the training.
Research questions:
1. Does morphological training affect the morphological awareness of ELLs?
2. Does morphological strategies training affect the cognitive load of ELLs?
3. How does the training effect on morphological awareness differ for ELL students with different English proficiency levels?
4. How does the training effect on cognitive load differ for ELL students with different English proficiency levels?

METHOD

Participants

Participants were 22 students (13 Female, 9 Male) from an Intensive English Program that serves non-native English students in preparation for academic study in Midwestern research university. They speak a variety of L1s (refer to Figure 1). They were from 11 majors and diverse grades (refer to Figure 2). Most of them have stayed in the U.S. for less than two years, and only two of them have stayed in the U.S. for 8 years (refer to Figure 3). Regarding L2 proficiency level, ten students were at the advanced level in IEP program, 6 at the Intermediate level, and 4 at the Beginning level. We dichotomized the proficiency level by aggregating the latter two level into Low, and the first into High..

Figure 1: Frequency of L1
Prtuguese, ; Spanish, 1; Chinese, 2; Vietnamese, 4; Arabic, 14

Figure 2: Frequency of Ed Level
Graduate, 5; Pre-college, 7; Senior, 1; Freshman, 1; IEP, 6

Figure 3: Years in the U.S.A
3 months, 2; 8 Years, 2; Half year, 4; 1 year, 11

Materials

Morphological Training. (60 minutes)
1. Students are introduced to a useful strategy to learn new words, "word-part clues".
2. The instructor explains key morphological terms e.g. "compound word", "word root", "prefix", with examples
3. Next, they were taught the five word roots: centr, cide, dic/dict, scrib/script, and man with five to seven word family examples.
4. Students work with a partner to form new words from given word parts, and construct the meaning.
5. Followed is detailed explanation on the four steps procedure to learn a new word through morphological analysis strategies.
6. Last, students find morphologically complex words in a published paper break them into parts and construct meaning.

Morphological Knowledge Pre- and Post-test (20 minutes).
•*Sentence Completion*: 10 sentence completion questions where students are asked to use the right form of given words to complete the sentences.
•*Analogy*: 10 word analogies to measure students' metalinguistic ability to recognize and manipulate morphological relationships. The first 5 analogies followed the form A:B::C:D that asked them to select a word to form a related pair of words whereas the second 5 analogies that followed the form A:B that asked them to select the word that is not related to the given words.
•*Break down words*: Asked students to break words down into smaller word parts. All words were non-words that are composed of word parts (e.g., prefix, word roots, and suffixes) in order to minimize the confounding factor for students' prior knowledge of word meanings.
•*Meaning Guess*: Asked students if they could guess the meaning of the words they've just broken down.
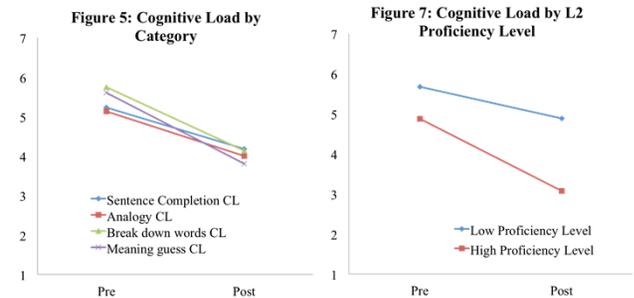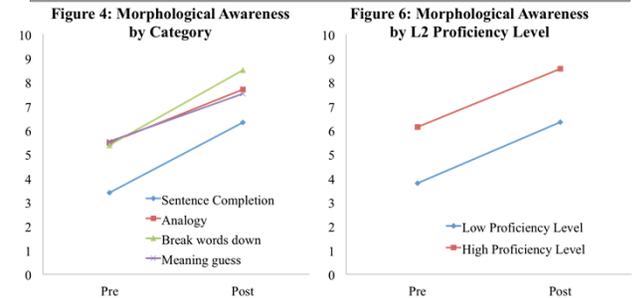***Cognitive Load Measure***.
Following Sweller's (2010) cognitive load theory, at the end of each of the four parts, a single question was created to ask students to report their mental effort they put forward: "How difficult is it to finish the tasks on this page?" Students rated their effort on a scale ranging from 1 (very easy) to 7 (very difficult).

Procedure

The intervention took place in a quiet room on campus in groups ranging from 2 to 6 students that took about 1.5 hours. The training resemble a real classroom teaching format. The training procedure consisted of the following sections after obtaining students' informed consent: (1) Morphological Awareness Pre-test, (2) a Demographic Survey, (3) Morphological Strategies Intervention with Guided and Independent Practices with Feedback, (4) Morphological Awareness Post-test. For the intervention, the experimenter used overhead projector to present the training material and distributed printed handouts for guided and independent practices. During teaching the morphological knowledge, the experimenter engaged students by asking students to provide examples and giving them credit by providing positive feedback. Students receive positive and corrective feedbacks during guided practices and after independent practices.

RESULTS

The morphological awareness of students was improved in all four categories: sentence completion, analogy, break words down, and meaning guess, and for students across all three proficiency levels: beginning, intermediate, and advanced level. The cognitive load of students was reduced in all four categories: sentence completion, analogy, break words down, and meaning guess, and for students across all three proficiency levels: beginning, intermediate, and advanced level. Reliabilities was .84, .75, 80, and .92 for morphological awareness pre-test and post-test, and cognitive load pre-test and post-test, respectively.

Figure 4: Morphological Awareness by Category
Sentence Completion; Analogy; Break words down; Meaning guess

Figure 6: Morphological Awareness by L2 Proficiency Level
Low Proficiency Level; High Proficiency Level

Figure 5: Cognitive Load by Category
Sentence Completion CL; Analogy CL; Break down words CL; Meaning guess CL

Figure 7: Cognitive Load by L2 Proficiency Level
Low Proficiency Level; High Proficiency Level

CONCLUSIONS

1. Morphological strategies training positively affect the morphological awareness of ELLs.
2. Morphological strategies training reduces the cognitive load of ELLs for all four types of tasks.
3. The training is effective to ELLs' morphological awareness regardless of their English proficiency level.
4. The training reduces ELLs' cognitive load regardless of their English proficiency level.

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