Phonological Awareness, Working Memory and Non-Verbal Factors in Foreign Language Word Learning under Different Task Conditions
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1 Introduction

The majority of students the investigator teaches had learned English as a foreign language (EFL) for six years before entering the university, and yet their language skills have showed little sign of improvement over the years. It is hypothesized that the causes of low linguistic outcomes lie in the learners' cognitive functions; to be more specific, in deficits at the phonological levels. The student factors, if the hypothesis is tenable, have likelihood to become deteriorated when coupled with learning conditions.

The previous studies on the phonological processing issue of English as a Second Language (ESL) show that poor ESL learners are generally assumed to have deficiency in processing phonetic codes together with deficits in syntactic and semantic coding as measured by the Modern Language Aptitude Test (MLAT) (Carroll, J.B. and Sapon, S). On the other hand, there is evidence that foreign language learning difficulties (FLLD) are caused by deficits in the phonological and graphic decoding process. When assigned to phonetic and visual discrimination tasks (sound-letters association) of simple words, poor EFL students share cognitive commonality with at risk and learning disabled (LD) students in reading skills of their native language. With the common features in mind, it is evident that phonological processing skills are crucial in the acquisition of a native and non-native language for learners of all ages, and is also probable that semantic process, syntactic knowledge, and working memory (WM) are closely related to word recognition (WR) tasks, all of which underline basic reading skills.

As for the second issue of the cognitive domain related to foreign language learning (FLL), it is highly conceivable that non-verbal factors play a significant role in FLL consistent with Myklebust's and Rourke's viewpoints. The FLL situations require learners to simultaneously decode and encode phonological and visual information through different modalities in the learning processes. Particularly at the initial stage of FL vocabulary learning, the non-verbal cues help the learners to create a concrete image in the encoding process. The premise is embodied by the concept attainment approach employed in this experiment. The approach is supported by the research findings that foreign language words are learned better when associated with object stimuli than when paired with their equivalents in the native language. From the theoretical view, the present study attempts to examine cross-culturally if the approach is effective in FL word recognition for college students in relationship with phonological awareness (PA) and WM.
2 Purpose

The purpose of the present study is twofold: (1) to examine the roles of PA and WM at the receptive levels in learning a series of Japanese words with a population of English speaking college students; (2) to evaluate the concept attainment task for enhancing word recognition (WR) by comparing task effectiveness under different learning conditions. The experiment is part of a cross-cultural study to investigate the cognitive differences between English and Japanese speaking students.

3 Hypothesis

The hypotheses to be tested are: (1) that PA will be positively correlated with the scores on WR tasks under different learning conditions; (2) that WM will be positively correlated with scores on the WR tasks under the three conditions; (3) that the scores on the word-concept attainment condition will be higher than those in the other conditions, independent of PA and WM.

4 Research Method

(1) Target Population

Voluntary college students of English, who have learned or are learning Japanese as a foreign language at a Canadian university

(2) Type of Research Design

The research design includes two tests and one task of different learning conditions administered on an individual basis. The subtests of the MLAT Part I, Numbering Learning, and Part II, Phonetic Script are given to all the participants to assess memory of speech sounds and sound-symbol association. One of the WR tasks is assigned to them to measure the association of symbol and sound (verbal/non-verbal).

(3) Data Analysis Plan:

The analyses are conducted to examine the relationships of PW, WM and WR tasks. ANOVA and the Exact Tests (SPSS Version 12) are employed to determine if the three experimental groups differ from each other under the assigned learning conditions of the WR task.

5 Results and Discussion

The results support that WM is a valid indicator of FL word recognition tasks under the conditions assigned. However, the statistical results reject the third hypothesis that the concept attainment task is more effective to WR than the other two conditions. The experimental procedures will be briefed and discussed in the presentation session. The discussion will highlight the methodological implications revealed in the study. It is expected that the findings provide useful suggestions for FL educators in teaching less able students at the beginning stage of FLL.