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主論文題目

Longitudinal Growth in Vocabulary Size, Vocabulary Learning Strategy Use, Motivation, and Self-efficacy in Japanese High School EFL Learners

主論文要旨（邦文は4,000字以内 外国語は2,000語以内）

This study investigates growth in vocabulary size and potential causal factors in a three-year high school EFL course in Japan. The study is presented in two phases: (1) the validation and equating of three vocabulary size tests using Rasch analysis and (2) a longitudinal analysis of growth in vocabulary size and its relationship to four individual differences: use of vocabulary learning strategies, motivation, time on task, and self-efficacy. The participants were 189 Japanese high school EFL learners majoring in science and engineering, ranging in age from 16 to 18. Measurements of vocabulary size and the three individual differences were taken in April of their 1st, 2nd, and 3rd year and again in December of their 3rd year, at a National Institute of Technology (NIT) in Japan.

The first phase of the research involved a Rasch analysis and linking of vocabulary size measures. Although the three forms of the Vocabulary Size Test (VST) created by Aizawa and Mochizuki (2010) were designed to be of equal difficulty, formal equating of the three forms was never carried out. In order to verify whether gains in test scores were due to growth in vocabulary size or differences in difficulty among the three forms, a fourth form comprised of items selected from VST 1–3 was developed and administered in December of Year 3. The four test forms were then equated using Rasch analysis, placing persons and items on a single, uniform logit scale. The study systematically describes a method for equating test forms that lack common items, as well as a Rasch-based method for estimating total vocabulary size based on test scores. The first phase provides additional insight into the relationship between word frequency and word difficulty, and concludes that participants, on average, increased their vocabulary size by about 1,000 lemma during their three year course of study.

The second phase of the research examined relationships among vocabulary size, use of vocabulary learning strategies, motivation, time on task, and self-efficacy. Longitudinal descriptive plots indicated that both strategy use and motivation decreased somewhat at Time 2 but then recovered. Cluster analysis of a strategy use questionnaire administered at Time 4 identified three profiles, which were labeled High, Medium, and Low frequency strategy users. The High group were particularly frequent in their use of higher-order strategies such as metacognitive, grouping, and contextualizing strategies. Qualitative analysis of an open-ended questionnaire added additional insight into how the three groups used vocabulary learning strategies. A two-way repeated measures ANOVA demonstrated that the strategy use profiles were significantly related to vocabulary size at all four time points, as well as the rate of gain in vocabulary size over three years.

A second cluster analysis based on longitudinal measures of strategy use identified four clusters. Cluster 1 used strategies frequently and consistently throughout the three years. Cluster 2 used strategies consistently but somewhat less frequently than the first group. Cluster 3, however, showed a substantial decline in strategy use at Time 2 but slowly recovered to match Cluster 2 at Time 4. Finally, Cluster 4 began as low frequency users of strategies and continued to decrease their use even further during the course of the study. A second two-way repeated measures ANOVA confirmed a significant relationship between longitudinal strategy use patterns and vocabulary size at each time point, as well as the rate of growth in vocabulary size.

In a final analysis, SEM was employed to investigate relationships among estimated vocabulary size at Time 4 and the individual difference measures. Two models were specified and tested. A simple model demonstrated that strategy use directly and positively influenced vocabulary size at Time 4, while motivation had a positive influence on frequency of strategy use but did not directly influence vocabulary size. A second model added self-efficacy and time on task in a reciprocal path. Success at learning vocabulary positively influenced self-efficacy, which in turn increased motivation, which positively influenced both strategy use and time on task. Strategy use then directly influenced vocabulary size, creating a virtuous circle. The final model showed good fit to the data (CMIN/DF = 2.080, CFI = .931, PCFI = .692, RMSEA = .076).

Training in the implementation of certain higher order vocabulary learning strategies, such as grouping by semantic theme or type of affix employed, was included as a regular part of classroom instruction by the researcher and other teachers at the research site during the course of the study. Although the study was not designed to directly investigate the efficacy of strategy training, a steady increase in the use of these

strategies was noted in the results. Consequently, the study has included a detailed description of materials and methods employed for strategy training at the research site.

(781 words)