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# No Gender Difference Exists in Academic Self-Efficacy Improvement for Higher Education Blended Foreign Language Learning

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## Abstract

*In order to determine whether gender difference exists in academic self-efficacy (ASE) improvement for blended foreign language learning, the current study uses a larger sample than the previous study, and tests the interaction between the intervention effect and gender directly. The results show that a statistically significant interaction was found between the intervention effect and gender in repeated measures ANOVA, and that ASE improvement was found to be greater for the female students than for the male students. However, since the female ASE scores were lesser than the male ones, regardless of the intervention, the current study conducted a further analysis to test the hypothesis that ASE learners with lower scores show larger improvement than the ASE learners with higher scores. The difference between the pre-intervention ASE and post-intervention ASE was significantly correlated with the pre-intervention ASE. Also, when the difference between the pre-intervention ASE and post-intervention ASE was included as a confounding covariate in ANOVA, no significant interaction was found between the intervention effect and gender. These results indicate that there is no gender difference in ASE improvement for blended foreign language learning, and that the difference occurs as a result of lower ASE scores at the pre-intervention period, regardless of gender. The current study implies that when using ASE, teachers and researchers may need to pay attention not to gender difference but to the lower ASE scores before intervention.*

**Keywords:** *academic self-efficacy, improvement, gender difference, foreign language learning, blended learning.*

## 1. Introduction

Self-efficacy is the belief of a learner that he/she can learn something or master certain skills [1-3]. Recently, self-efficacy has been considered as one important factor in academic success [4-6]. Many studies have carried out investigations to find out the factors that affects academic self-efficacy (ASE) and its improvement. Further, many researchers have recently focused on the effect of ASE on academic achievement [7].

A previous study has reported the presence of gender difference in ASE improvement for blended foreign language learning [8]. However, that study did not statistically test the interaction between the intervention effect and gender directly. This means that there is a need to test whether there is a gender difference in ASE improvement for blended foreign language learning. Thus, the current study uses a larger sample than the previous study, and tests the interaction between the intervention effect and gender directly.

## 2. Methods

### 2.1 Participants

Self-efficacy scales of foreign language learning courses were collected from 168 Japanese college students (109 males and 59 females aged 17–23 years, with an average age of 18.65 years).

### 2.2 Materials and methods

Moodle, an open source learning platform that students use for taking their blended English learning course, was used for collecting the ASE data. In the present study, Motivated Strategies for Learning Questionnaire (MLSQ) [9] was used as the ASE scale. While the students were assigned to one of the several classes, however, all the students were given the same textbook and course materials. The course schedule was also identical. The course duration was 15 weeks, one class per week. All the participants were informed of the method and deadline in the first lecture.

### 2.3 Data analysis

Repeated measures ANOVA was implemented to find out the interaction between the intervention effect and gender on ASE directly. Then, if there is a statistically significant interaction between the intervention effect and gender, post hoc analyses will be conducted.

## 3. Results

The results show that a statistically significant interaction was found between the intervention effect and gender in repeated measures ANOVA ($F$=55.2, $p$<0.001). Particularly, in the post hoc analysis, female students were found to have greater ASE improvement than the male students ($p$<0.001, Bonferroni), and the intervention effect was also found to be higher among female students ($p$<0.001). The results are shown in Figure 1.

However, since the female ASE scores were lesser than the male ones, regardless of the intervention, the current study conducted further analysis to test the hypothesis that learners with lower ASE show larger improvement than the learners with higher ASE. As a result, the difference between the pre-intervention ASE and post-intervention ASE was significantly correlated with the pre-intervention ASE. Also, when the difference between the pre-intervention ASE and post-intervention ASE is included as a confounding covariate in ANOVA, no significant interaction was found between the intervention effect and gender.

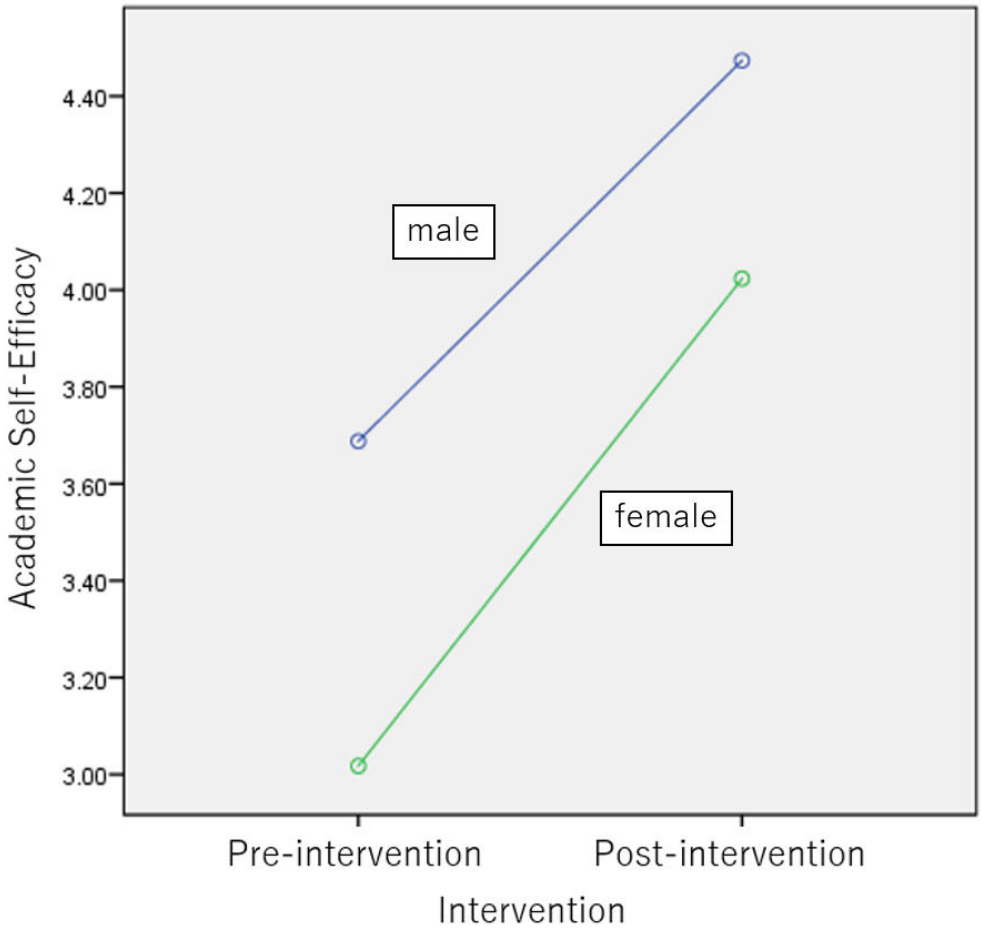


Figure 1. ASE results.

## 4. Discussion

The purpose of the current study is to test the interaction between the intervention effect and gender on ASE directly. The current study found a statistically significant interaction between the intervention effect and gender, as reported by the previous study [8]. However, since the female ASE scores were lesser than the scores for male students, regardless of the intervention, the current study

conducted a further analysis to test the hypothesis that learners with lower ASE scores show larger improvement than the learners with higher ASE scores. This further analysis showed that the difference between the pre-intervention ASE and post-intervention ASE is significantly correlated to the pre-intervention ASE. The results of this study support the hypothesis. Further, when the difference between the pre-intervention ASE and post-intervention ASE was included as a confounding covariate in ANOVA, no significant interaction was found between the intervention effect and gender.

These results indicate that there is no gender difference in ASE improvement for blended foreign language learning, and that the difference occurs due to the lower ASE scores at the pre-intervention period, regardless of gender. The current study implies that when using ASE, teachers and researchers may need to pay attention not to the gender difference but to the lower ASE scores before intervention.

## 5. Acknowledgement

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