

Gender Differences among Engineering Majors in Their Attitudes and Motivation toward Learning English

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Generally, it is said that female students have more positive attitudes toward foreign language learning than male students, and empirical studies have supported this notion (e.g., Bacon & Finnemann, 1992; Kobayashi, 2002; Yashima et al., 2009). In Japan, more female students major in foreign languages than their counterparts. For example, the Japanese Ministry of Education reported in 1998 that 67% of university students majoring in a foreign language in Japan were females (Kobayashi, 2002). Indeed, English majors at Toyo University at present are 65% female and 35% male. Kobayashi (2002) explains that female students fear success in stereotypically male domains such as mathematics, so they choose stereotypically female domains such as literature and language studies. Engineering majors at Toyo University consist of 12% female and 88% male students. In this study, I focus on female engineering students, who have opted to major in a so-called male domain, and investigate possible gender differences among engineering majors in terms of their attitudes and motivation toward language study.

Literature Review

The idea that women are more interested in and better at learning foreign languages than men may have come from research suggesting girls' superiority in L1 acquisition over boys (Ehrlich, 1997) and from some feminine traits such as cooperative behaviors and sensitivity in dealing with relationships, which are often considered to foster language proficiency (Ellis, 1994). Some empirical studies have found that female students are more motivated language learners than males. For example, Bacon and Finnemann (1992) investigated 938 first-year students (48% male and 52% female) studying Spanish at a university in the U.S. by administering a questionnaire. The results indicated that the female students had significantly higher instrumental motivation and higher levels of social interaction using Spanish than male students. Dörnyei and Clément (2001) examined eighth-grade primary school students (2,377 boys and 2,305 girls) in various parts of Hungary. They found that the female students scored significantly higher than the male students on motivational scales such as Direct Contact with L2 Speakers,

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Instrumentality, Integrativeness, Validity of the L2 Community, and Cultural Interest. Additionally, Kissau (2006) investigated 490 ninth-grade students (236 boys and 254 girls) studying French at a Canadian school. After examining the questionnaire data, he reported that the female students responded more positively to Desire to Learn French, Integrative Orientation, and Motivational Intensity than did the male students, while no significant difference was found for French Class Anxiety.

Schmenk (2004) assumed that the gender stereotype of language learning as a feminine domain causes women to study foreign languages more often than men. He maintains that “language learning itself appears to be gendered; it is feminized” (p. 519). Kissau’s (2006) qualitative results seem to confirm Schmenk’s opinion. Kissau conducted individual interviews during which boys reported that they were less capable in French and less interested in learning about French culture than girls because society taught them learning French is more of a female concern and thus it is not normal for a boy to excel in French.

Gender differences in attitudes and motivation toward language learning have also been examined in Japanese contexts. Kobayashi (2002) administered a questionnaire to 555 Japanese high school students (242 male and 313 female). The results indicated that the female students responded to the following five variables more positively than male students: Attitude Toward Long-Term English Learning, Interest in Culture and Communication, Perceptions about Studying English in a School Context, Images Associated with English, and English Learning Activities Outside School.

Yashima et al. (2009) compared 103 male and 78 female first-year students in English classes at a private university in Japan, who belonged to four faculties: law, commerce, economics, and letters. The results of questionnaire data analysis indicated that the female students had higher levels of intrinsic and extrinsic motivation than the male students, while no gender difference was found in the total scores on the Foreign Language Classroom Anxiety Scale.

Fukuchi and Sakamoto (2005) examined 182 male and 132 female university students in the College of Humanities and Social Sciences at two Japanese universities. Multiple regression results indicated that gender was a significant predictor of Motivation ($\beta = .20, p < .001$), suggesting that the female students were more interested in learning about other cultures, opportunities to use English, and studying or training overseas in the future than the male students, who tended to consider foreign language study to be unnecessary.

Mori and Gobel (2006) examined 453 second-year students in the Faculty of Cultural Studies at a Japanese university. Among the four variables identified from their questionnaire, the female students scored significantly higher on Integrativeness than the male students, suggesting that the female students had a greater interest in the people and culture of the target language community, a greater desire to make friends with those people, and they were more interested in traveling and/or studying overseas than the male students. However, no significant differences were observed for the other three variables: Intrinsic Value, Negative Value, and Attainment Value.

Gaps in the Literature

As shown above, many empirical studies have reported that female students showed more positive attitudes and greater motivation toward language learning than male students, probably due to the influences of the gender stereotypes that consider language learning to be a female domain. However, little research has investigated female engineering students, who have chosen to major in a stereotypically male domain. Therefore, I focused on female engineering students at Toyo University, who comprise only 12% of the engineering majors, comparing their L2 motivation with that of male engineering students.

Research Questions

Two research questions are investigated in this study. (1) Are there any gender differences among engineering majors in their attitudes and motivation toward learning English as measured by a self-reported questionnaire? (2) Are there any gender differences in affective variables predicting English proficiency as measured with TOEIC scores?

Method

Participants

My previous study (Iwamoto, 2011) found that higher proficiency engineering students, as measured by TOEIC scores, were more motivated language learners than low proficiency students. In order to avoid differences derived from factors other than gender, I decided to equate the proficiency levels between male and female students; hence, male students whose TOEIC scores matched with female students were selected as participants. Consequently, the participants of this study were 117 male and 117 female first-year engineering students, all Japanese students who had no or little experience studying abroad. The results of a one-way analysis of variance (ANOVA) showed that their TOEIC scores were not significantly different between male ($M = 336.97$, $SD = 101.68$) and female students ($M = 337.44$, $SD = 102.00$), $F(1, 232) = .001$, $p = .97$.

Instruments

A 50-item fixed-response questionnaire in Japanese was used to measure the participants' attitudes and motivation toward learning English. Motivation items were created based on Gardner's (1985) Attitude/Motivation Test Battery (AMTB), and in addition, some items were adapted from Self-Determination Theory (Deci & Ryan, 1985; Noels et al., 2001). Moreover, other attitudinal and motivational items were adapted from Gardner, Tremblay, and Masgoret (1997) and Irie (2005). Language Anxiety items were adapted from Horwitz et al.'s (1986) Foreign Language Classroom Anxiety Scale (FLCAS). International Posture items were adapted from Yashima (2002). Willingness to communicate items were adapted from Sick and Nagasaka (2000). The participants answered each question using a six-point Likert scale where: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly

Disagree, 4 = Slightly Agree, 5 = Agree, and 6 = Strongly Agree.

Procedure

The first-year engineering majors, who agreed to participate in the study, completed the questionnaire listed in the Appendix in July 2013. The questionnaire was conducted after the English final exams, and the students required about ten minutes to complete it.

The data were subjected to factor analysis using SPSS 18.0, which ascertains variables from the analysis. To examine the construct validity of each variable, the Rasch measurement model was employed through Winsteps 3.70. To answer the first research question, a one-way multivariate analysis of variance (MANOVA) was conducted to examine gender differences for each variable, and to address the second research question, stepwise multiple regression analysis was conducted for the male and female participants; the dependent variable was the TOEIC scores from December 2013, and the independent variables were the L2 affective variables. The alpha level for statistical significance was set at .05.

Results

First, a descriptive analysis was conducted for the questionnaire items. The Appendix reveals the mean and standard deviation for each item. Item 9 (*English is one of the important subjects*) had the highest mean score ($M = 5.16$), while Item 19 (*English is not necessary for engineering students*) had the lowest ($M = 2.12$). This seems to indicate that many engineering students tend to believe English is important for them.

Next, the dimensionality of the 50 questionnaire items was examined using a principal axis factor analysis with a direct oblimin rotation. Items 15, 17, 18, 24, 43, and 45 were deleted because they loaded below .40 on all factors. Items 6, 10, and 36 were complex: Item 6 loaded on Factor 1 at .41 and Factor 6 at .42; Item 10 loaded on Factor 3 at -.44 and Factor 4 at -.42; and Item 36 loaded on Factor 1 at .50 and Factor 4 at .46. Therefore, these items were also deleted. A factor analysis was then conducted with the remaining 41 items, the results of which are shown in Table 1.

The following ten items loaded on the first factor: Items 23, 25, 26, 27, 37, 46, 47, 48, 49, and 50. These items are thought to indicate the students' interest in foreign people and cultures and their willingness to communicate in English. Therefore, Factor 1 was labeled International Posture. The Rasch measurement model was employed to examine the construct validity. Linacre (2007) suggested that the Infit and Outfit MNSQ statistics of .50–1.5 are an indication of a good item fit. After a Rasch analysis was conducted with ten items, it became clear that Item 23 (*I would like to study abroad if possible*) misfit the Rasch model: Infit MNSQ was 1.67, and Outfit MNSQ was 1.66. Thus, it seems that International Posture for engineering students means having an interest in foreign culture and speaking English, but does not include studying abroad. This may represent the fact that very few engineering students choose to study abroad. After Item 23 was deleted, the Rasch analysis was conducted again

Table 1*Factor Loadings from a Principal-Axis Factoring of the Questionnaire Items*

Item	Factor						communality
	1	2	3	4	5	6	
Item 1	.05	-.05	-.05	.10	-.11	.81	.77
Item 2	.08	-.05	-.07	.07	-.08	.79	.75
Item 3	.27	-.04	-.03	.10	-.09	.65	.70
Item 4	.33	.02	-.10	.16	-.01	.67	.78
Item 5	.08	.00	.00	-.09	-.08	.72	.67
Item 7	-.09	-.07	.04	-.10	.00	.76	.57
Item 8	.08	-.10	.09	-.11	-.02	.52	.37
Item 9	-.04	.15	-.43	-.26	.10	.24	.45
Item 11	.03	.06	-.44	-.32	.13	.21	.49
Item 12	.06	.02	-.14	-.61	-.06	.05	.51
Item 13	.22	.13	-.09	-.57	-.11	.02	.57
Item 14	.12	.11	-.16	-.61	-.16	-.01	.60
Item 16	-.17	.06	-.08	-.66	.03	-.04	.46
Item 19	-.11	.02	.84	-.03	.06	.24	.68
Item 20	-.06	.11	.89	-.09	.03	.07	.78
Item 21	-.16	.28	.45	.17	.06	-.21	.58
Item 22	.05	.02	.71	-.03	-.01	-.19	.58
Item 23	.72	-.12	-.03	.00	.07	-.05	.51
Item 25	.65	.09	-.13	.05	.02	-.01	.47
Item 26	.60	.22	-.02	.07	-.05	.11	.46
Item 27	.76	-.07	.08	-.03	-.08	-.02	.58
Item 28	-.03	.45	-.07	-.22	-.13	.12	.35
Item 29	.00	.89	-.05	.04	.03	-.02	.79
Item 30	-.02	.82	-.02	.10	-.04	-.13	.72
Item 31	-.06	.74	.08	-.05	-.02	.03	.58
Item 32	.11	.67	.17	-.19	.04	-.06	.55
Item 33	-.00	.53	-.00	.09	.02	-.07	.29
Item 34	.06	-.01	.15	-.62	-.11	.02	.42
Item 35	.01	-.07	.07	-.60	.05	.01	.33
Item 37	.60	-.11	-.07	-.23	-.20	-.05	.57
Item 38	.03	-.17	.09	-.04	-.71	.00	.54
Item 39	-.14	-.02	-.09	.03	-.58	.14	.36
Item 40	-.05	.23	-.06	-.05	-.72	-.05	.60
Item 41	.01	.04	.02	-.12	-.78	-.05	.65
Item 42	.19	.00	.06	.08	-.49	.08	.34
Item 44	.17	.11	-.42	-.32	-.01	.07	.50
Item 46	.52	-.03	-.13	-.06	-.06	.33	.69
Item 47	.60	-.05	-.01	-.09	.02	.29	.67
Item 48	.61	-.03	-.00	.01	.07	.35	.70
Item 49	.84	.02	-.03	-.07	-.05	.11	.83
Item 50	.82	-.02	-.06	-.03	-.01	.07	.79
% of variance	28.33	10.75	6.11	5.23	3.80	3.28	57.50

Note. $N = 234$. Boldface indicates factor loadings higher than .40.

with the remaining nine items, and all the items met the criterion. Therefore, these nine items are included in the International Posture variable.

The second factor consists of six items: Items 28, 29, 30, 31, 32, and 33. A Rasch analysis was performed with these items, and none misfit the Rasch model. These items represent the anxiety that students feel in English class. Thus, Factor 2 was labeled Language Anxiety.

The third factor consists of seven items: Items 9, 11, 19, 20, 21, 22, and 44. Items 9, 11, and 44, which represent the recognition of the importance of English, negatively loaded on this factor, while Items 19, 20, 21, and 22, which represent students' amotivation, loaded positively. After these amotivation items were reversely coded, the Rasch analysis was performed on all nine items. As all the items met the criterion, Factor 3 was labeled Importance of English.

The fourth factor includes six items: Items 12, 13, 14, 16, and 34, and 35. All the items met the criterion in the Rasch analysis. These items are related to identified, introjected, and external regulations, which represent extrinsic motivation (Deci & Ryan, 1985). Thus, Factor 4 was labeled Extrinsic Motivation.

The fifth factor consists of five items, Items 38 to 42. In the Rasch analysis, all these items matched the criterion. These items represent students' efforts to improve their English language proficiency, and thus, Factor 5 was labeled Motivational Intensity.

Seven items loaded on the sixth factor: Items 1, 2, 3, 4, 5, 7, and 8. The Rasch measurement model was employed, and all the items met the criterion. These items are related to interest and enjoyment in learning English, so Factor 6 was labeled Intrinsic Motivation.

After extracting these six affective factors, the first research question, "Are there any gender differences among engineering majors in their attitudes and motivation toward language learning?" was investigated by conducting a MANOVA for Rasch measures of each variable. Rasch measures were used because the Rasch model converts ordinal raw scores to interval measures known as logits (i.e., log-odd units), indicating the relative difficulty of each item in comparison with other items in the questionnaire and placing both people and items on a single logit scale (Bond & Fox, 2007).

A MANOVA was conducted to determine the effect of the gender (male and female) on the six affective variables (International Posture, Intrinsic Motivation, Extrinsic Motivation, Language Anxiety, Importance of English, and Motivational Intensity). The test for homogeneity of dispersion matrices is nonsignificant, $F(21, 197965) = 1.36, p = .13$, indicating that the variances and covariance among the dependent variables are the same for all levels of a factor. No significant differences were found between gender, Wilks's $\Lambda = .98, F(6, 227) = .63, p = .71$.

Table 2 contains the means and the standard deviations on the dependent variables for male and female students. Table 2 shows that although they were not significantly different, the male students had higher average Rasch measures for Intrinsic and Extrinsic Motivation, International Posture, Importance of English, and Motivational

Intensity than the female students, and the female students had higher average Language Anxiety than the male students.

The second question, "Are there any gender differences in affective variables predicting English proficiency as measured with TOEIC scores?" was investigated using a stepwise multiple regression analysis with all six variables as predictors and TOEIC scores as the dependent variable. Before the regression analysis, correlations among the six variables for the female and male students were calculated. Using the Bonferroni approach to control for Type I error across 15 correlations, a p value of less than .003 (.05/15) was required for significance (Green & Salkind, 2004). The results are shown in Table 3 and Table 4 for the male and female students, respectively. The

Table 2

Gender differences in Rasch Measures of Each Affective Variable

Variable	Male		Female		t (232)	p
	M	SD	M	SD		
IP	-.13	1.92	-.23	1.80	.41	.68
ANX	.87	.94	.94	1.46	-.36	.72
IE	1.81	1.88	1.70	1.57	.01	.99
EXT	.35	1.13	.27	1.46	.45	.65
MI	-.47	1.42	-.83	1.54	1.86	.06
INT	-.34	3.27	-.54	3.37	.47	.64

Note. IP = International Posture; ANX = Language Anxiety; IE = Importance of English; EXT = Extrinsic Motivation; MI = Motivational Intensity; INT = Intrinsic Motivation.

Table 3

Correlations Among Six Affective Variables for Male Students

Variables	1	2	3	4	5	6
1. IP	—					
2. ANX	-.09	—				
3. IE	.48*	.06	—			
4. EXT	.31*	.27	.51*	—		
5. MI	.22	-.04	.20	.15	—	
6. INT	.69*	-.15	.52*	.26	.27	—

* $p < .003$.

Table 4

Correlations Among Six Affective Variables for Female Students

Variables	1	2	3	4	5	6
1. IP	—					
2. ANX	-.07	—				
3. IE	.46*	.00	—			
4. EXT	.35*	.23	.45*	—		
5. MI	.36*	.18	.11	.36*	—	
6. INT	.70*	-.26	.38*	.25	.33*	—

* $p < .003$.

correlations for the two genders were similar except that the female students' Motivational Intensity was positively correlated with Intrinsic and Extrinsic Motivation and International Posture, while no affective variables were significantly correlated with the male students' Motivational Intensity.

The results of stepwise multiple regression analysis indicate that even though the influences were small, the male students' TOEIC scores were negatively predicted by their Language Anxiety, $R^2 = .09$, $F(1, 115) = 11.35$, $p < .01$, while the female students' TOEIC scores were positively predicted by the Importance of English variable $R^2 = .03$, $F(1, 115) = 4.10$, $p < .05$.

Discussion

The present study investigated gender differences among engineering majors (117 male and 117 female) in their attitudes and motivation toward foreign language learning. Generally, as many empirical studies have reported, female students are more likely to have more positive attitudes and greater motivation toward foreign language learning than males. However, this tendency was not found among the female engineering students in this study; in other words, the female engineering students had essentially the same degrees of Intrinsic Motivation, Extrinsic Motivation, International Orientation, Importance of English, Motivational Intensity, and Language Anxiety as the male engineering students. Although they were not significantly different, male mean scores for these five variables were higher than those of the female, and males tended to exhibit less Language Anxiety than females. Thus, the prevailing notion about female foreign language learners is not always true. This may be particularly so for female students majoring in stereotypically male domains.

The correlation and regression analysis results did reveal some gender differences. The correlation results indicated that female students with greater Intrinsic and Extrinsic Motivation and International Posture tended to invest more effort in studying English, whereas no affective variables were correlated with male students' Motivational Intensity. Thus, it seems that the degree of effort that female students reportedly make is related to attitudinal variables, but the degree of effort by male students does not have a strong relationship with any affective factors.

As for the regression results, the female students who recognized the importance of English tended to have higher TOEIC scores. Although the female and male students had similar scores in terms of the Importance of English variable, only among female students did this correlate with higher TOEIC scores. A possible explanation is that after graduating from university, female students would work as female engineers in male-dominated workplaces, where female engineers may face some disadvantages as they are in the minority; however, in a globalized society where English is gaining increasing significance, having better English proficiency may compensate for the disadvantage of being female, so the female students who recognized the importance of English tended to have higher English proficiency.

The male students with greater anxiety toward English were likely to have lower TOEIC scores, while the

female students did not show this result. Even though they had the same degrees of Language Anxiety, only among men did Language Anxiety appear to have detrimental effects.

Conclusion

The findings of this study show that the female engineering students did not necessarily have more positive attitudes or greater motivation toward foreign language learning than the male engineering students with similar levels of English proficiency. However, the TOEIC score predictors did tend to differ between males and females. Whereas male student anxiety negatively predicted their TOEIC scores, female recognition of the importance of English positively predicted theirs.

It should be noted that the participants were all first-year engineering majors at one university, and therefore, the results should be generalized with caution to other contexts. Moreover, the English proficiency of most participants was at a CEFR A-2 level; therefore, the results may not be applicable to students with much higher or lower proficiency levels.

Despite these limitations, the present study suggests some implications. First, female English teachers are those who have chosen to study language, which has been described by Schmenk (2004) as a “feminine domain”; thus, they may suppose that female students are more interested and motivated in learning English than males. However, English teachers should avoid stereotyping all female students into one pattern. They need to recognize that female engineering students are not necessarily the same as females who opt to major in English.

Secondly, as female students’ recognition of the importance of English often leads to higher TOEIC scores, it appears to be useful to tell female students that having good English proficiency can be a great advantage for female engineers in the global workplace. On the other hand, this study points out how male students’ language anxiety has a detrimental effect on their TOEIC scores. Since female students’ anxiety was not correlated with any other variables and did not predict their TOEIC scores, teachers may not need to worry too much about it, whereas male students’ anxiety might need to be treated more carefully.

The participants in this study were all first-year students who answered a questionnaire in July 2013. Therefore, in future research, it may be interesting to conduct a longitudinal study which compares these results with those obtained when participants are in their second or third years of university. This would clarify whether their attitudes and motivation toward language study tend change when they engage in their major studies more deeply.

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Appendix. A Translation of the Questionnaire Items with Means and Standard Deviations for the Entire Sample

Questionnaire Items	<i>M</i>	<i>SD</i>
1. English is my favorite class.	3.21	1.40
2. I enjoy learning English.	3.44	1.25
3. I have a "good" feeling when hearing and speaking English.	3.35	1.20
4. I like being exposed to English.	3.35	1.29
5. I study English for the pleasure I experience when surpassing myself in my English studies.	3.67	1.31
6. I enjoy studying English because I can increase my knowledge about English -speaking countries.	3.65	1.24
7. I study English for the satisfaction that comes in the process of accomplishing difficult exercises in English.	2.72	1.30
8. The more difficult English tests are, the more strongly I feel that I want to study English.	2.32	1.29
9. English is an important subject.	5.16	.97
10. English is a must for me to succeed in the future.	4.89	1.14
11. English is necessary in today's internationalized world.	5.05	1.03
12. I feel ashamed when I can't speak English well.	3.82	1.43
13. I feel guilty if I don't study English.	3.63	1.30
14. I think I will feel embarrassed if I cannot speak English in the future.	3.85	1.35
15. I study English because my parents expect me to do so.	2.26	1.15
16. I study English because I think it will be useful in getting a good job.	4.25	1.18
17. I study English to get credits to graduate.	4.32	1.23
18. I am tired of studying English.	3.91	1.33
19. English is not necessary for engineering students.	2.12	1.16
20. I don't know why I need to study English.	2.19	1.12
21. I don't want to study English at university.	2.71	1.26
22. I have the impression I am wasting my time in studying English.	2.19	.99
23. I would like to study abroad if possible.	3.03	1.53
24. I have a favorable impression of English-speaking people such as Americans and Brits.	3.98	1.11
25. I want to make friends with English-speaking people.	3.98	1.23
26. I am interested in the cultures of English-speaking countries.	3.81	1.24
27. I would like to have a job in which I work overseas frequently.	3.05	1.33
28. I feel nervous while speaking English.	4.23	1.21
29. I worry about my English class exams.	4.38	1.26
30. I worry about the consequences of failing my English class(es).	4.47	1.34
31. I tremble at the thought of being called on in English class.	3.96	1.34
32. I feel overwhelmed by the number of rules I have to learn to acquire English.	4.09	1.13
33. I keep thinking that my peers are better at English than I am.	4.40	1.29
34. I learn English to be more knowledgeable.	3.95	1.03
35. I study English to improve my TOEIC scores.	3.77	1.16
36. I study English to travel abroad.	3.51	1.17
37. Studying English is important to me because it will allow me to communicate with foreign people.	3.57	1.20
38. Compared to other studies, I think I study English relatively hard.	2.82	1.03
39. During my English classes, I am absorbed in what is taught and concentrate on my studies.	3.75	1.12
40. I study hard for quizzes and tests in English class.	3.65	1.19
41. I spend a lot of time studying English.	2.87	1.11
42. I study English on my own beyond the required English coursework.	2.67	1.18
43. I want to improve my English ability while a university student.	4.44	1.10
44. I absolutely believe that English should be taught at university.	4.37	1.19
45. I would take English class(es) even if it(they) were not required.	3.79	1.40
46. I want to speak English more in my English classes.	3.41	1.27
47. I want to engage in more English discussion.	3.16	1.24
48. I want to speak English with English teachers outside of class.	3.19	1.24
49. I want to speak English with foreign students.	3.29	1.28
50. I want to speak English with native English speakers.	3.33	1.28

【Abstract】

言語学習に対する態度とモチベーションにおける理工学部生の男女差

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本論文は、理工学部1年生の男子117名と女子117名を比較し、外国語学習に対する態度やモチベーションの男女差を調査した。50問からなるアンケートデータを因子分析した結果、「国際的志向性」「内発的動機」「外発的動機」「言語不安」「英語の重要性の認識」「英語習得努力」の6つの要因が検出された。多変量分散分析を用いて6つの要因に男女差があるかを分析したところ、有意の差は見られず、本研究の理工学部男子学生と女子学生は、英語や異文化に対する関心・態度、英語学習に対するモチベーション、言語不安、英語習得努力において違いがないことが明らかになった。次に、TOEICスコアを従属変数、6つの情意要因を独立変数とする重回帰分析を行ったところ、男女で異なる結果が出た。より強く英語の重要性を認識する女子学生ほどTOEICスコアが高かった一方で、男子学生は言語不安が高いほどTOEICスコアが低くなるということが分かった。

キーワード：ジェンダー、理工学部生、言語習得、言語学習に対する態度、第二言語習得動機

The present study investigated gender differences among 234 first-year engineering students (117 male and 117 female) in their attitudes and motivation toward foreign language learning by administering a 50-item questionnaire. Data reduction through factor analysis indicated six variables: International Posture, Intrinsic Motivation, Extrinsic Motivation, Language Anxiety, Importance of English, and Motivational Intensity. A *t*-test was conducted for each variable between genders. No significant differences were found suggesting that male and female engineering students did not differ in their attitudes or motivation toward language study. However, stepwise multiple regressions indicated that the female students' recognition of the importance of English positively correlated with their TOEIC scores, while the male students' language anxiety negatively correlated with them.

Keyword: gender, engineering majors, foreign language acquisition, attitude toward foreign language learning, L2 motivation

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