Report 報 告

An Analysis of Motivational Structure in Learning English

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【Abstract】 In this study, a questionnaire was administered to a sample of 180 college students to investigate the motivational structure of learning English in the Japanese college context. The exploratory principal components analysis was performed several times with a promax rotation in order to extract the factors to probe the internal structure of motivation. The results showed seven factors; perceived competence, introversion, communication apprehension, motivational intensity, integrativeness, attitudes, and other-directedness with reasonable values of reliability. Furthermore, their motivational structure was discussed based on the scores for these elicited factors.

【Keywords】 motivational structure, factor analysis, perceived competence, introversion, communication apprehension, motivational intensity, integrativeness, attitudes, other-directedness

Introduction

According to Gardner (1985), motivation is the combination of effort and desire to achieve the goal of learning a language, and favorable attitudes toward learning it; furthermore, motivation to learn a second or foreign language is as important as language aptitude in order to acquire that language successfully, as researchers and teachers are aware. On the other hand, Keller (1983, cited in Schmidt et al., 1996) stated that ability and motivation are identified as the major sources of variation in educational success. Ability refers to what a person can do; motivation, to what a person will do.

As Schmidt et al. (1996) explicate, motivation has been treated either as a single construct or as a list of different types of constructs. Among the researchers in this line, Gardner and associates (e.g., 1972, 1985) established the discipline of focusing on second language learning in motivation. A dichotomous model featuring instrumental orientation and integrative orientation was the best known aspect in his motivational research; however, Gardner and associates have been elaborating and expanding the internal structure of motivation for second language learning, accounting for the multiple constructs.

Schmidt et al. (1996) developed and administered a questionnaire to a sample of adult learners at the American University in Cairo, performing factor analysis to identify the components of English learning motivation. The results suggested that there are three basic dimensions, labeled as Affect, Goal Orientation, and Expectancy. Dörnyei (1990) proposed a motivational construct consisting of (a) an instrumental motivational subsystem, (b) an integrative motivational subsystem with four dimensions; a general interest in foreign languages, a desire to broaden one's view and avoid provincialism, a desire for new stimuli and challenges and a travel orientation, (c) need for achievement, and (d) attributions about past failure.

This study also investigates multifactor models of motivation, which can be extracted by principal components analysis from responses to a motivation questionnaire. By so doing, the internal constructs of motivation in learning English among Japanese college students, majoring in nursing, are examined. Knowing their internal structure of English learning motivation will provide pedagogical implications such as in knowing what points in English they are eager to improve.

Method

Participants

One hundred and sixty-four female and 16 male students majoring in nursing participated in this study, out of 177 female and 18 male students who were invited to participate

Table 1 *Descriptive Statistics for the Individual Difference Questionnaire Items (N = 178)*

Item	*M*	*SD*
01. I am panicked when I cannot make myself understood in English.	4.85	1.01
02. I think that I study English harder than other students.	2.32	1.08
03. I frequently think over what I have learnt in my English class.	3.21	1.06
04. I feel worried when I hear other students speaking good English.	4.78	1.18
05. When I have assignments to do in English, I try to do them immediately.	3.46	1.34
06. If English were not taught at college, I would study it on my own.	3.68	1.36
07. Even when I have an opinion, I refrain myself verbalizing it in English.	4.17	1.23
08. I spend long hours studying English.	2.46	1.15
09. I am an extrovert.	3.56	1.35
10. During English classes I am absorbed in what is taught and concentrate on my studies.	3.98	1.06
11. I absolutely believe that English should be taught at school.	4.69	1.17
12. I would like to learn about the English-speaking world.	4.91	1.03
13. I prefer being silent rather than being embarrassed in speaking English.	2.95	1.27
14. I worry that my English proficiency is worse than other students.	4.56	1.31
15. I would rather work in my hometown.	3.60	1.55
16. I would like to live in a foreign country.	3.78	1.50
17. I want to work in an international organization such as the WHO.	3.54	1.48
18. I would rather avoid the kind of work that sends me overseas frequently.	2.85	1.45
19. I can speak English in one-to-one conversations.	2.58	1.20
20. I think that I am good at English.	2.28	1.17
21. I learn English to be more knowledgeable.	3.80	1.28
22. I would feel ashamed if I couldn't speak to native speakers in English.	3.96	1.24
23. I have an aptitude for learning foreign languages.	2.34	1.08
24. I would like to get married to an English-speaking person.	2.52	1.21
25. I ask English teachers questions or talk to them outside of class.	3.31	1.27
26. I talk with friends or acquaintances outside of school in English.	2.15	1.29
27. I hope to be active in the international health services later on.	4.10	1.48
28. I feel nervous speaking English in front of a native speaker.	4.76	1.25
29. My English proficiency is superior to other Japanese in general.	2.14	0.94
30. I would like to make friends with English speaking people.	5.07	1.11
31. I think that I will have no problem when I visit English-speaking countries.	1.87	0.95
32. English is a must for me to succeed in the future.	5.14	1.05
33. I feel worried that other people may think that I am a poor speaker of English.	4.26	1.36
34. I have a "high" feeling when hearing or speaking English.	4.00	1.38
35. I feel embarrassed when I make a simple mistake speaking English.	4.00	1.32
36. I have a favorable impression of British people.	4.38	1.06
37. I learn English off campus.	2.39	1.44
38. I would like to study abroad if possible.	4.47	1.53
39. I have a favorable impression towards American people.	3.98	1.26
40. I think that speaking English should be required in Japan from now on.	5.16	1.00

Table 2 *Component Correlation Matrix*

Component	1	2	3	4	5	6	7
1	-						
2	.31	-					
3	.23	.48*	-				
4	− .01	− .09	− .10	-			
5	.30	.13	.18	.21	-		
6	.30	.41*	.48*	.10	.32*	-	
7	− .16	− .17	− .19	.01	.01	− .08	-

Note. * p < .001

(response rate: 92.8%). The research purposes and the procedures were explained during the extra class session, and the students who agreed to contribute their time for this study filled in the questionnaire. The author clarified to the participants that there was no risk attached to participation, and that longer-term benefits may include the more effective teaching of English to students in Japan. The students were assured and all records and data collected for this study would be treated in the strictest confidence. The consent from the participants was obtained, and the questionnaire was filled out by them during the extra class session. The students who participated in this study passed a highly competitive entrance examination in order to enter this university. They have basic knowledge of English grammar and vocabulary as a result of six years of study at the secondary level. Many of them appear to be interested in English and its culture and to be highly motivated to improve their English, particularly their speaking skills. However, despite their desire to improve, it is difficult for many of them to communicate easily in English. Regarding their level of English proficiency, the mean of the TOEIC scores for the participants, which were estimated based on scores of the Computerized Assessment System of English Communication (CASEC), was 526.75. This is above the average score of 425 for college students in 2004 in Japan. The participants were aware that the CASEC scores were accessible to the author for the research purposes as well as pedagogical purposes.

Material

The motivation questionnaire was first piloted with 81 items that were collected and modified from a number of previous studies (e.g., Gardner & Smythe, 1981; Yashima, 2002). The items, which were randomized in order to avoid any possible order effects (Brown, 2001), were measured using a 6-point Likert scale (1=Strongly disagree; 2=Disagree; 3=Slightly disagree; 4 = Partly agree; 5 = Agree; 6 = Strongly agree). The 6-point scale was chosen in order to avoid including an undecided category. In order to reduce the number of items and to confirm the existence of the factors that the questionnaire was hypothesized to measure, the questionnaire was piloted with 226 Japanese students studying at four colleges in eastern Japan. As a result, 40 items remained for gauging individual differences constructing motivational structure.

Results and Discussion

Data screening

Potential univariate outliers were checked for using SPSS REGRESSION analysis, and none were detected. Then, multivariate outliers were examined by computing the Mahalanobis distance for each participant through SPSS REGRESSION. Two cases were identified as multivariate outliers, as their Mahalanobis distances exceeded Chi-square (50)=86.66, $p<.001$ (107.3, 123.3). These two cases were deleted, leaving 178 cases for the analysis. Finally, multicollinearity was checked for in 40 questionnaire items using SPSS REGRESSION. The tolerance (1 - Squared Multiple Correlation) of all 40 items exceeded .30, a finding that indicated that no multicollinearity was present (Tabachnick & Fidell, 2001, p. 84).

Principal components analysis

The assumptions underlying the principal components analysis were checked. The value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .84, which was adequate for conducting the analysis. Bartlett's Test of Sphericity was run in order to determine the association between the observed variables. The significance level of .000 allowed for the rejection of the null hypothesis that the PCA analysis was inappropriate. Table 1 shows the descriptive statistics of the individual difference questionnaire items.

In order to determine the proper rotation for the analysis, a correlation analysis was conducted because Promax rotation is recommended with correlated factors (cf., Tabachnick & Fidell, 2001; Toyoda, 2004). As Table 2 shows, five of the extracted

Table 3 *Principal Components Analysis Results for the Individual Difference Questionnaire Items*

Item	Factor loadings						
Number	1	2	3	4	5	6	7
Q17	**.78**	.21	− .07	.09	− .01	− .16	.06
Q16	**.78**	− .14	.14	.05	− .12	.05	− .10
Q27	**.77**	.06	.07	.14	.01	− .05	− .05
Q38	**.68**	− .20	.13	− .16	− .05	.24	− .09
Q18	**− .63**	.04	.20	− .17	.07	.00	**.48**
Q24	**.55**	− .09	.27	.01	− .04	.08	.23
Q32 *	**.52**	.09	.07	.07	**.43**	− .12	.20
Q30 *	**.38**	− .19	.23	− .05	.22	.29	− .09
Q20	.08	**.86**	− .02	− .20	− .01	.00	.10
Q23	− .11	**.83**	− .09	.02	.09	− .03	− .13
Q19	.17	**.71**	− .11	− .26	.04	.09	.24
Q29	.00	**.65**	.27	− .16	− .01	− .14	.00
Q31	− .06	**.45**	.16	− .12	.05	− .03	− .22
Q21 *	− .17	**.33**	.19	.05	**.32**	.07	.11
Q37	.01	− .14	**.85**	− .21	.09	− .10	− .06
Q8	.01	.27	**.76**	.28	− .14	− .06	.11
Q6	.15	.06	**.71**	.04	.01	− .10	− .04
Q26	.16	− .10	**.70**	− .26	.03	− .11	.10
Q2	− .04	.47	**.52**	.16	− .17	− .01	− .05
Q3	− .13	.14	**.41**	.28	.14	.15	− .08
Q25 *	.17	.02	**.36**	− .11	− .17	.28	.03
Q1	.11	− .12	.20	**.69**	− .11	− .19	− .02
Q33	.07	.00	− .11	**.66**	.05	.02	.21
Q28	.00	− .10	− .13	**.61**	.05	.02	.08
Q35	.07	.01	− .14	**.44**	.22	.15	.21
Q5 *	.07	**.37**	− .03	**.41**	− .18	**.33**	− .03
Q11	− .16	− .03	− .01	− .14	**.71**	.13	− .13
Q22	.04	.01	.03	.24	**.58**	− .10	− .12
Q40	.22	.23	− .16	.07	**.57**	.08	.05
Q12 *	**.41**	.22	− .03	− .03	**.46**	− .04	− .09
Q14	− .03	**− .42**	.02	**.41**	**.44**	.06	.09
Q4	− .01	− .23	.10	.42	**.43**	− .17	− .04
Q39	.02	− .01	− .18	− .10	− .04	**.98**	− .04
Q36	− .02	− .04	− .03	− .04	.15	**.86**	.00
Q10 *	− .17	.26	.13	.23	.22	.32	− .26
Q34 *	.27	.15	.19	− .14	.09	.30	− .12
Q15	− .52	− .05	.22	.02	.03	.17	**.58**
Q7	.09	− .13	− .02	.27	− .28	.14	**.55**
Q13	.08	− .07	− .13	.45	− .15	− .07	**.49**
Q9	.01	− .12	.06	− .07	− .06	.24	**− .49**

Note. Items with asterisks were deleted after conducting the analysis because of either low or complex factor loadings. Loadings over .40 in value are in bold.

Table 4 *Component Correlation Matrix*

Component	1	2	3	4	5	6	7
1	-						
2	.28	-					
3	.17	.45 *	-				
4	.16	− .07	− .04	-			
5	− .20	− .21	− .17	.19	-		
6	.25	.30	.35 *	.27	− .04	-	
7	.02	− .12	− .19	.28	.13	.02	-

Note. * p < .001

factors were statistically significantly correlated: components 2 and 3 (.48), 2 and 6 (.41), 3 and 6 (.48), and 5 and 6 (.32).

According to Tabachnick and Fidell (2001), a good sample size for factor analysis is at least 300; however, solutions that have several marker variables that load on factors over .80, which is the case in this study, do not require such large sample sizes and about 150 cases should be sufficient (Tabachnick & Fidell, 2001). Therefore, the sample size of this study, 178, is considered acceptable.

The number of factors to be extracted was based on three criteria. First, factors with minimum eigenvalues of 1.2 were sought. Most researchers using factor analysis or principal components analysis use the criterion of a minimum eigenvalue of 1.0 for the inclusion of a factor; however, a scree plot for this analysis showed a break at an eigenvalue of approximately 1.2. Second, each factor needed to be made up of individual items with a minimum loading of .40. Third, the number of factors predicted by prior research was considered. The PCA results are shown in Table 3.

Eight items were deleted. In Factor 1, Item 32 (English is a must for me to succeed in the future) loaded heavily on two factors, .53 on Factor 1 and .43 on Factor 5. Therefore, Item 32 was deleted. Item 30 (I would like to make friends with English speaking people), loaded weakly on Factor 1 at .38, which was below the cut-off point of .40, and the item had a high z-score (3.54) during data screening. Therefore, item 30 was deleted. Item 21 (I learn English to be more knowledgeable) was deleted because it loaded on Factor 2 at .33, which was below the .40 cut-off point. Item 25 (I ask English teachers questions or talk to them outside of class) loaded on Factor 3 at .36, which was below the cut-off point, so this item was deleted. Item 5 (When I have assignments to do in English, I try to do them immediately) was complex as it loaded strongly on three factors. In Yashima's (2002) study, where no factor analysis was conducted for her sample, this item was included in the category of motivational intensity (Gardner & Smythe, 1981); however, in this analysis, it did not load strongly on the *Motivational Intensity* factor. This discrepancy indicates that this item can be confusing and interpreted in different ways; therefore, it was deleted. Item 10 (During English classes I am absorbed in what is taught and concentrate on my studies), which was an indicator of motivational intensity in Yashima's study, loaded at .32 on Factor 6 and somewhat more weakly on a number of other factors, and was therefore deleted. Item 34 (I have a "high" feeling when hearing or speaking English), which was taken from Noel's (2001) questionnaire and was hypothesized to be an indicator of intrinsic motivation, loaded only at .30 on Factor 6 and at .27 on Factor 1. Therefore, it was deleted. Item 12 (I would like to learn about the English-speaking world) was deleted as it was complex with loadings of .41 on Factor 1 and .46 on Factor 5.

Item 14 (I worry that my English proficiency is worse than other students) loaded on Factor 2 (*Perceived Competence*) at − .42, on Factor 4 (*Communication Apprehension*) at .41, and on Factor 5 at .44. Although Item 14 was complex, this item represents other-directedness, a psychological state caused by socio-cultural factors that may lead to competitiveness and compulsivity (Wen & Clément, 2003). As this is an important factor in this study, this item was retained.

After these eight items were deleted, another principal component analysis was conducted. Prior to this final principal component analysis, a correlation of the components was examined again in order to determine the proper rotation for the analysis. Table 4 shows that two combinations of extracted factors were statistically significantly correlated. The correlation coefficient of components 2 and 3 is .45 and the correlation coefficient of components 3 and 6 is 0.35. Therefore, Promax rotation was selected.

The criteria for the number of factors to be extracted was based on the number of factors predicted by the PCA before deleting eight items. The PCA results are shown in Table 5.

Table 5 *Principal Components Analysis Results for the Individual Difference Questionnaire Items after Deleting Eight Items*

Item	Factor loadings						
Number	1	2	3	4	5	6	7
Q17	**.79**	− .08	.17	− .01	.04	− .02	− .01
Q16	**.78**	.21	− .06	.05	.12	− .13	.01
Q27	**.76**	.09	.08	.11	.01	− .02	.08
Q38	**.69**	− .17	.15	− .08	− .06	.20	− .14
Q18	**− .65**	.08	.16	.04	.35	− .08	− .27
Q15	**− .56**	.00	.22	.03	.50	.11	− .12
Q24	**.55**	− .06	.28	.03	.25	.08	− .11
Q20	.06	**.87**	.02	− .03	.08	− .01	− .17
Q23	− .13	**.83**	− .08	.05	− .19	.05	.17
Q19	.15	**.77**	− .09	− .01	.21	.06	− .29
Q29	− .03	**.66**	.26	− .06	− .08	− .06	− .02
Q31	− .04	**.41**	.18	.07	− .26	.00	− .07
Q37	− .01	− .41	**.82**	.07	− .19	− .04	− .13
Q8	.02	.22	**.77**	− .02	.13	− .02	.25
Q6	.15	.02	**.70**	− .01	− .08	− .03	.13
Q26	.17	.07	**.68**	.06	.03	− .11	− .30
Q2	− .04	.41	**.54**	− .13	− .03	.05	.28
Q3	− .12	.07	**.44**	.08	− .09	.27	.35
Q22	.05	.11	.06	**.74**	− .14	− .13	.01
Q11	− .11	.02	.05	**.69**	− .23	.15	− .35
Q4	− .03	− .18	.09	**.62**	− .08	− .13	.22
Q14	− .03	− .37	.05	**.62**	.09	.09	.11
Q40	.18	.29	− .14	**.52**	− .08	.15	− .03
Q35	.07	.10	− .09	**.45**	.31	.07	.12
Q7	.05	− .13	− .04	− .28	**.64**	.20	.17
Q13	.05	− .04	− .12	.12	**.62**	− .14	.11
Q9	.04	− .07	.05	.03	**− .46**	.16	.04
Q39	.04	.03	− .11	− .09	− .02	**.95**	− .09
Q36	− .01	.01	.03	.08	− .03	**.88**	− .04
Q1	.06	− .11	.15	.02	.07	− .08	**.76**
Q28	− .01	.00	− .10	.30	.23	− .05	**.40**
Q33	.07	.00	− .07	.29	.35	.30	**. 40**

Note. Loadings over .40 in value are in bold.

Factor 1 received strong loadings from items 15, 16, 17, 18, 24, 27, and 38. This group of items implies *Integrativeness*, the psychological state of desiring to be identified as an L2 member or integrated into the L2 community. Factor 1 is made up of the following seven items ($\alpha = .82$).

15. I would rather work in my hometown. (reverse coded)
16. I would like to live in a foreign country.
17. I want to work in an international organization such as the WHO.
18. I would rather avoid the kind of work that sends me overseas frequently. (reverse coded)
24. I would like to get married to an English-speaking person.
27. I hope to be active in the international health services later on.
38. I would like to study abroad if possible.

Factor 2, which received strong loadings from the following five items, was labeled *Perceived Competence* ($\alpha = .84$).

19. I can speak English in one-to-one conversations.
20. I think that I am good at English.
23. I have an aptitude for learning foreign languages.
29. My English proficiency is superior to other Japanese in general.
31. I think that I will have no problem when I visit English-speaking counties.

Factor 3, which received strong loadings from the following six items, was labeled as *Motivational Intensity* ($\alpha = .81$).

2. I think that I study English harder than other students.
3. I frequently think over what I have learnt in my English class.
6. If English were not taught at college, I would study it on my own.
8. I spend long hours studying English.
26. I talk with friends or acquaintances outside of school in English.
37. I learn English off campus.

Factor 4 received strong loadings from six items. This factor is made up of the following six items ($\alpha = .70$). The questionnaire items intended for gauging *Communication Apprehension* (Items 4, 14, 22, and 35) and *Instrumentality* (Items 11 and 40) created one factor. The psychological feature that may generate both *Communication Apprehension* and *Instrumentality* is referred to as *Other-directedness*. For instance, the learners are likely to be apprehensive in communication when they are concerned about what other learners may think of their way of communication. This may be interpreted as a face-protected orientation resulting from *Other-directedness* (Wen & Clément, 2003). English speaking can be projected as a requirement when the learners are concerned about how much people in other nations are able to communicate in English. This may be interpreted as the inner effect of strong belongingness as being Japanese that results from *Other-directedness*. The items that construct *Other-directedness* are as follows;

4. I feel worried when I hear other students speaking good English.
11. I absolutely believe that English should be taught at school.
14. I worry that my English proficiency is worse than other students.
22. I would feel ashamed if I couldn't speak to native speakers in English.
35. I feel embarrassed when I make a simple mistake speaking English.
40. I think that speaking English should be required in Japan from now on.

No prior L2 WTC studies have included *Other-directedness* or a similar factor as a predictor of L2 WTC; however, Wen and Clément (2003) designated other-directed self as an important factor to influence L2 WTC and to delineate the socio-cultural and psychological trait of the Chinese. In the Japanese context, some researchers (e.g., Berque, 1992; Kuwayama, 1992) stated that the Japanese concept of self is other-directed. Maynard (1997) pointed out the other-oriented self designation as one of the features of Japanese communication. Furthermore, the other-directed self may be caused by the interdependent interpersonal relationship among Japanese people. Markus and Kitayama (1991) suggested that interdependence leads Japanese to regard themselves as part of social relationship and to recognize that their behavior is determined by what is perceived to be the thoughts, feelings, and actions of others in the relationship (p. 225).

Some participants in this study, who are perceived as serious learners of English and are expected to use good English, stated that they are aware of the importance of speaking English and feel frustrated and even ashamed of themselves because they are not proficient in oral English. This psychological condition may well be caused by *Other-directedness*.

Factor 5, which was labeled *Introversion*, received strong loadings from three items. Item 7 may be interpreted as reticence, which is defined as "avoidance of social, verbal interaction" (Phillips, 1968, p. 40), and Item 13 may be regarded as shyness, which is defined as "discomfort, inhibition, and awkwardness in social situations" (Buss, 1984, p. 39). Taking into account that these two items are included in a

Table 6 *Descriptive Statistics for the Averaged Raw Factor Scores (N = 178)*

Item	PC	MI	IN	IG	ADT	OTD	CA
Minimum	1.00	1.00	1.00	1.14	1.00	2.17	1.67
Maximum	4.80	5.67	6.00	6.00	6.00	6.00	6.00
Mean	2.24	2.70	3.52	3.71	4.18	4.52	4.62
SD	0.84	0.89	0.90	1.04	1.09	0.76	0.91
Skewness	0.61	0.92	− 0.20	− 0.31	− 0.59	− 0.50	− 0.49
SES	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Kurtosis	− 0.16	0.94	0.09	0.01	0.31	− 0.12	0.15
SEK	0.36	0.36	0.36	0.36	0.36	0.36	0.36

Note. PC = Perceived Competence; MI = Motivational Intensity; IN = Introversion; IG = Integrativeness; ADT = Attitudes; OTD = Other-directedness; CA = Communication Apprehension.

single factor of *Introversion*, reticence and shyness may well be conceptually similar to *Introversion*. As shown by previous communication research on WTC, *Introversion* is an important predictor of WTC and both reticence and shyness were regarded as the foundation of the WTC construct (e.g., McCroskey & Richmond, 1990); therefore, this factor is a strong candidate to predict WTC. The following three items make up Factor 5 (α = .52).

7. Even when I have an opinion, I refrain myself verbalizing it in English.
9. I am an extrovert. (reverse coded)
13. I prefer being silent rather than being embarrassed in speaking English.

Factor 6, which was labeled *Attitudes*, received loadings from only two items 36 and 39 (α = .86).

36. I have a favorable impression of British people.
39. I have a favorable impression towards American people.

Factor 7, which received strong loadings from three items, was named *Communication Apprehension*. This term has been used by communication researchers (e.g., McCroskey & Richmond, 1990) because the items specify apprehension in communicating in English. The following three items make up Factor 7 (α = .63).

1. I am panicked when I cannot make myself understood in English.
28. I feel nervous speaking English in front of a native speaker.
33. I feel worried that other people may think that I am a poor speaker of English.

The results of the principal components analysis suggested that the motivational construct of nursing students in learning English is made up in part of (a) *Integrativeness*, (b) *Perceived Competence*, (c) *Motivational Intensity*, (d) *Other-directedness*, (e) *Introversion*, (f) *Attitudes*, and (g) *Communication Apprehension*.

Other factors that were not included on the questionnaire could be involved, but as the above factors were based on both theory and previous empirical findings, there is reason to believe that they play an important role in their classroom behavior in learning English and their speaking performance of English.

Factor scores

The averaged raw factor scores were calculated in order to examine the way in which the factors identified by the principal components analysis make up the participants' motivational structure. Table 6 shows the descriptive statistics of the factor scores in ascending order of their mean score. *Perceived Competence* produced the smallest scores, and it was followed by *Motivational Intensity*, *Introversion*, *Integrativeness*, *Attitudes*, *Other-directedness*, and finally, *Communication Apprehension*, which had the largest mean factor score.

The average factor score for *Perceived Competence* was 2.24 (SD = 0.84), which was the lowest among the six factors extracted in this study (see Table 6). This finding indicates that in general the participants in this study did not feel confident in speaking English and nor did they perceive themselves as being capable users of English. This lack of confidence in their own oral proficiency may have partially been the result of their high expectations regarding their own competence. Many of the participants had graduated from competitive high schools and had studied hard. Although they may have met their high expectations in English as an academic subject while high school students, some of them may have found it difficult to meet their expected levels of oral proficiency and they become self-degrading in their judgments of their English proficiency.

The averaged factor score for *Motivational Intensity* was

2.70 (SD = 0.89), which was the second lowest among the six factors (see Table 6). This score illustrates that the participants did not perceive themselves to be hard workers, despite the fact that they appear to take their studies quite seriously. It is possible that their expectations are higher that their actual performance, a combination that makes them perceive themselves to be studying less hard than they actually are.

The average factor score of *Introversion* was 3.52 (SD = 0.90) out of 6.00, a finding that indicated that the participants in this study were moderately extroverted as a whole. In some studies of Japanese culture (e.g., Matsumoto, 1994; McCroskey, Gudykunst & Nishida, 1985), Japanese are described as introverted because traditional Japanese thought is said to deemphasize verbal expression, and to value silence or nonverbal communication. However, this characteristic does not hold true for leaders, who are expected to be extroverted (e.g., Reischauer, 1978). In school activities, students who become leaders should be extroverted and capable of persuading other students and even teachers. Many of the participants in this study reported that they had positions of leadership in their high schools, which might have encouraged them to be more extroverted than other students.

The factor score of *Integrativeness* in the present study was 3.71 (SD = 1.04) out of 6.00, which means that the participants have moderately strong desire to integrate themselves in the English-speaking community. Because International Nursing is emphasized in the institution where the participants are studying, some of them have considerable interest in the international community and are eager to become more proficient in English. By the same token, a high factor score (4.18 out of 6.00) of *Attitudes* indicated that the participants have highly favorable attitudes towards English-speaking people.

The mean factor score of *Other-directedness*, which was 4.52 (SD = 0.76) out of 6.00, was the second highest of all seven factors (see Table 5). This indicates that the participants in this study are other-directed and concerned about the way in which they are perceived by others, based on the proposition that English is a must in the present international community and that they are required to improve their English.

The averaged raw factor score of *Communication Apprehension* in this study was 4.62 (SD = 0.92) out of 6.00, which was the highest of all individual difference variables. This indicates that the participants' level of *Communication Apprehension* was generally quite high. Thus, the majority of the participants appeared to feel highly apprehensive about communicating in English. In terms of frequency, only one student had a mean of 1 (apprehension free) on the 6-point Likert scale while eight students selected 6 (always very apprehensive). In a cross-cultural study on communication apprehension in East Asian contexts, Klopf (1984) found that Japanese had the highest level of communication apprehension, Chinese the second highest, and Koreans the lowest. High levels of communication apprehension or anxiety in the foreign language classroom may be typical in Japan.

Concluding Remarks

As Irie (2003) posited, the way of understanding a multifaced system of motivation is to identify a set of relevant underlying constructs. In this study, as in other studies (e.g., Sawada, 2004), principal component analysis was conducted in order to investigate the motivation structure of learning English among Japanese nursing college students. As a result, seven factors were identified as a motivational structure and labeled (a) *Integrativeness*, (b) *Communication Apprehension*, (c) *Perceived Competence*, (d) *Motivational Intensity*, (d) *Attitudes*, (e) *Other-directedness*, and (f) *Introversion*. In addition the scores for each component delineated the features of their motivational constructs, which can be applied and utilized to the language learning contexts. In a future study, pedagogical implications such as reducing the level of *Communication Apprehension* will be suggested, based on the results of the present study.

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英語習得における動機構造の分析

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【要旨】 本研究では，180 名の大学生を対象に質問紙調査をした結果に基づき，日本の大学生の英語学習に対する動機構造がいかなるものであるかを考察した。動機の内部構造を探る手がかりとして探索的主成分分析を，プロマックス回転を用いて数回行い，因子を抽出した。抽出されたのは，自信，内向性，コミュニケーション懸念，動機強度，統合的動機，態度，および他意識の 7 因子であり，それぞれ妥当な信頼性を得た。さらに，これら抽出された因子のスコアに基づき，動機構造の内部を考察した。