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Language Learning Strategies

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**1. INTRODUCTION**

It is often said that the university entrance examination dominates the whole educational system and practice in Japan. According to a report issued by the Ministry of Education (1990, November), the total number of applicants to universities and junior colleges reached approximately 1,160,000 in 1990, and the total number of successful applicants was about 730,000. In addition, the rankings of universities are very sharp, and there is a widespread perception that entering renowned universities guarantees that the students can obtain better jobs after graduation. These are some of the important factors which make entering universities very competitive. As pointed out by Hughes (1989), "if a test is regarded as important, then preparation for it can come to dominate all teaching and learning activities" (p. 1).

Numerous arguments and discussions have taken place on the impact or the *washback effect* of the entrance examinations. However, little empirical research into the effects of the entrance exam on foreign language learning after entering universities has been done. Berwick and Ross (1989) is one study taking the effect of the entrance exam seriously. They noted that most Japanese students lack motivation to learn EFL after matriculation, observing that "the intensity of motivation to learn English hits a peak in the last year of high school" (p. 206). Ratzlaff (1980) and Kamada (1987), cited in Berwick and Ross's study, also drew similar conclusions that the entrance exam negatively affects motivation to learn EFL.

These studies are intriguing and informative for teaching and research in EFL. However, the washback effect of the entrance examination does not seem to be restricted to the motivational aspects of learning. Rather it seems to have far-reaching effects on the overall process of learning and teaching EFL. Some university students often ask how they should learn EFL in a better way. These students, who passed the entrance examination, seem to be lost when it comes to learning EFL efficiently in an examination-free situation. Also university teachers lament that even after entering university the students stick to examination-related strategies which they acquired when they were preparing for the entrance examination. In addition to these anecdotes, there are several researchers who suggest that a test will influence how learners learn (Stern 1983; Izawa 1990; Alderson 1991). However, it is not clear at all what quantity and quality of the effect the entrance examination has on language learning strategies. The report below attempts to answer this question.

## 2. FOREIGN LANGUAGE LEARNING STRATEGIES

Learning strategies are commonly defined as "the special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information" (O'Malley and Chamot 1990: 1). Oxford (1986a) claims that research on language learning strategies is important because they are "related to successful language performance," "encourage learner autonomy, are teachable, and expand the role of the teacher in useful ways" (p. 6).

The language learning strategy research which has been done so far could be classified into four major types according to their purposes.

- a. Descriptive research which is intended to taxonomize the strategies being used by various language learners (e.g., O'Malley, et al. 1985; Oxford 1986a).
- b. Descriptive research which examines specifically what

kind of strategies are used by successful/unsuccessful learners (e.g., Naiman et al. 1978).

- c. Research into the issue of learner training; that is, the area which examines how the strategies which are identified as those being employed by successful learners can be taught to unsuccessful learners (e.g., Cohen and Aphek 1980; Holec 1987).
- d. Research into how strategy use is related to other factors such as learner characteristics, university major, and career choice (e.g., Oxford and Nyikos 1989; Ehrman and Oxford, 1989).

The present study will complement the fourth type of strategy research by examining the impact of examinations as one of the factors that affect the use of foreign language learning strategies.

## 3. THE STUDY

### 3.1 SUBJECTS

A total of 312 first and second year students of the English department of B college took part in the study. However, 156 students were chosen at random out of these students so that there were a balanced number of students in each of the four categories which were set up according to the criteria described below. The students who had stayed overseas were excluded from consideration since such an experience might be a factor affecting attitudes toward the entrance examination.

B college is situated in a rural area of Japan, and all the students are females. They rarely had a chance to use English in daily life. Those who took part in the study were studying English for about 20 hours a week at college, in addition to other general subjects such as history, and mathematics. Out of the 20 hours, two hours were taught by native speakers of English during both the first and second years. The age range was from 18 to 20.

As is generally the case in Japan, there were two ways of entering the college. One was through an examination, and the other was through recommendation. In the case of the recommended students of B college, they were accepted on the basis of their high school records, and they were exempted from the examination completely. In addition, these students were not allowed to be a candidate of universities or colleges other than the B college they were recommended to enter, so that they were supposed to be relatively free from the effects of entrance examination. There were 39 students who entered the college through examination and 39 who did not take it (i.e., who were recommended) for each of the first and the second years.

The examination of B college did not include listening and speaking, but it included questions testing vocabulary, grammar, reading, and translation of Japanese into English.

### 3.2 HYPOTHESES

From the results and findings of the previous research, the following three hypotheses were drawn concerning the relationship between the effects of the entrance examination and the students' strategy use.

First, there will be differences in strategy use of the first year students who entered the college by taking the exam and those who did not take the exam. The differences would reveal the nature of the washback effects of the entrance examination.

Second, the entrance examination seems to affect the strategy use in that it might narrow down the range of strategy types students use by having them rely on some specific strategy types which are considered effective for them to pass the examination. Thus, the exam students will report using narrower range of strategy types than do the recommended students. These exam specific strategies might include, in terms of Oxford (1990a)'s categorization, memory, cognitive, and metacognitive strategies,

but not more communicatively oriented strategies such as social, and affective strategies. Details of each of these strategies will be described in the next section.

Third, it is presumed that the effects of the entrance examination on language learning strategies will decrease in the case of second year students since as the study of Berwick and Ross (1989) shows, attitudes and motivation change as the study at college progresses. Saljo (1979) also suggested that the students' conception of learning changes as they continue to study at college, which induces changes in learning strategies as well. Thus, it seems to be quite reasonable to hypothesize that the use of language learning strategies is different in the first year and the second year.

### 3.3 INSTRUMENTATION

Strategy Inventory for Language Learning (SILL) was used as a tool to elicit learning strategies of the present subjects. The SILL was "originally developed for the Language Skill Change Project, which periodically assesses the amount of change found in language skills after the learner's foreign language training has been completed" (Oxford 1990a: 255). Among several versions of the SILL, version 7.0 was chosen for the present study. This SILL consists of 50 items and is intended to examine the strategies employed by learners of English as a foreign language. Each item asks the respondent to indicate his or her frequency of using a certain learning strategy on five-point scale (from 1, "almost never" to 5, "almost always"). The internal consistency reliability of SILL (version 7.0) measured by Cronbach alpha is .95 (Oxford 1990b), which indicates that this inventory provides highly consistent and accurate information on the use of language learning strategies.

The items of the SILL are classified into six groups: *memory* (items 1 through 9), *cognitive* (10-23), *compensation* (24-29),

*metacognitive* (30-38), *affective* (39-44), and *social* (45-50) strategies. These strategies come from two major classes: *Direct strategies* (memory, cognitive, and compensation strategies), and *indirect strategies* (metacognitive, affective, and social strategies). Direct strategies, which are related to language, take charge of remembering and retrieving new information (memory strategies), understanding and producing the language (cognitive strategies), and using the language despite knowledge gaps (compensation strategies) (Oxford 1990a: 14-15). On the other hand, indirect strategies deal with general management of learning (metacognitive strategies), regulating emotions (affective strategies), and are in charge of learning with others (social strategies) (Oxford 1990a: 15).

For the present study, the English version of SILL was translated into Japanese in order to minimize the effects of individual differences in reading ability in English among the students. In the process of translation, every effort was made to maintain the same proposition of each item, although a circumlocution was used for some items which were quite difficult to be translated literally into Japanese. After that, two Japanese who are proficient in English were asked to try out the translated version of the SILL, and to reproduce the propositional content in English. The items which were found to be distorted were corrected<sup>1</sup>. (This procedure, suggested by Allwright, 1990, helps keep the inventory as reliable as the original version.)

SILL was employed for the present study for the following reasons. First, the inventory is based on a more comprehensive and detailed system of language learning strategies than any other system that has been proposed so far. And second, because SILL is a questionnaire type inventory, it is suitable to elicit a large amount of data; that is, it is less time-consuming to be administered compared with other elicitation procedures such as think-aloud and retrospective account.

SILL was administered in an English class during the middle of April, 1990, about two months after the entrance examination, and one week after the new term started.

### 3.4 DATA ANALYSIS PROCEDURE

Data analysis followed largely the one employed in Oxford and Nyikos (1989). The steps taken were as follows: 1) extracting the underlying factors of the SILL through factor analysis; 2) calculating descriptive statistics such as frequencies in each factor discerned above for each of the groups of students defined in the section above; 3) examining the statistical significance of differences in strategy use in these groups of students for each factor through ANOVA (or analysis of variance). ANOVA permitted the analysis of the effects of the two variables on strategy use at the same time. In addition, through the analysis, the interaction effects of the variables could be obtained. In other words, it could be shown, for example, whether the entrance examination affected the strategy use of the first-year students but not the second year students, and so on.

The data were first analyzed through factor analysis in order to tailor the classification system of learning strategies to the present subjects. The system developed by Oxford (1990a) is ingenious and inspiring for theoretical as well as practical purposes. However, as she admits, it is "still in its infancy," and "any existing system of strategies is only a proposal to be tested through practical classroom use and through research" (pp. 16-17).

Finally, note that missing data were excluded from the analyses. That is, in cases where the respondents left questions blank, I excluded the items from my consideration.

## 4. RESULTS

### 4.1 RELIABILITY AND CLASSIFICATION VALIDITY OF THE SILL

Before going into the details of the present analyses, let us

look at the reliability of the present SILL. The internal consistency reliability measured by Cronbach's alpha was .93 for the 156 students. This coefficient largely corresponded to the one which has been reported in Oxford (1990b), who reports the reliability of the English version of SILL (version 7.0) is .95. Thus, the reliability analysis revealed that the translated version of SILL is highly reliable as well as the original English version, providing consistent and accurate information on the use of language learning strategies.

In order to attest the classification validity of SILL, factor analysis based on principle components analysis (with Varimax rotation) was employed among others. As a result, although there were some overlaps with Oxford's system, a very different picture emerged for the present subjects, overall<sup>3</sup>. For example, item 3 (i.e., I connect the sound of a new English word and an image or picture of the word to help me remember the word.) belongs to "memory strategy" in Oxford's system, while it belongs to a strategy group labeled "communicative learning strategy" in the present result. However, because the present classification of learning strategies is more empirically based, it was employed for further analyses instead of Oxford's. Below are the characteristics of each strategy group according to the present results.

*Communicative learning strategies* (Factor 1) are related to "learning through communication" or "learning by using the language." The examples include: seeking an opportunity to use English, trying to use it without being afraid of making mistakes, and trying to obtain as much authentic input as possible through various media. *Compensation and guessing strategies* (Factor 2) are employed when the knowledge of English is not enough and needs compensation. "Guessing" could be regarded a a part of the compensation strategy in that it can be conceived as "compensating for the lack of knowledge by guessing." The specific items included are guessing the meaning of unfamiliar words, predicting

what comes next while listening and reading, making up for the deficiency of knowledge of the target language by using the first language, paraphrasing, and gestures. *Socio-affective strategies* (Factor 3) are characterized as focusing on the social aspects of language, and managing affective factors in language learning. Examples include asking for help from native speakers, cooperating with other students, managing feelings about learning by trying to relax when speaking, and giving a reward or treat for improvement. *Formal learning strategies* (Factor 4) are related to learning language in a formal setting such as learning English as a school subject: Practicing the sounds, memorizing new words by writing them several times, reviewing lessons, and planning schedule for learning. *Mental operational strategies* (Factor 5) are related to mental operations. Examples are putting a new word in a sentence, remembering the word with the situation where it appears, summarizing the information, creating a mental linkage between new knowledge and information, and imagining when remembering new words.

#### 4.2 STATISTICAL ANALYSES OF STRATEGY USE

Before examining the results concerning the hypotheses, we will first look at the overall frequencies of strategy use for each of the five factors. As Table 1 shows, the order of frequencies of strategy use according to its total means are: F2 (Mean=3.920), F4

Table 1 Overall frequencies of strategy use

	F1	F2	F3	F4	F5
N	143	147	143	148	147
Mean	2.4865	3.3920	2.7951	3.2720	3.0839
SD	.7148	.7418	.6722	.7911	.7455

F1=Communicative learning strategies; F2=Compensation and guessing strategies; F3=Socio-affective strategies; F4=Formal learning strategies; F5=Mental operational strategies

(3.2720), F5 (3.0839), F3 (2.7951), and F1 (2.4865). However, in order to examine whether the differences between these strategy factors were statistically significant, "repeated measures analysis of variance" was carried out, through which five means (of the five factors) for the same (related) subjects could be compared at the same time (Norusis 1988). The result of the analysis is given in Table 2. The differences among the five

Table 2 ANOVA design 1: Average tests of significance for factors using unique sum of squares

Source of Variation	SS	DF	MS	F	Sig of F
Within Cells	167.45	556	.30		
Factors	78.76	4	19.69	65.38	.000

factors for the related subjects were found to be significant ( $F=65.38$ ;  $p<.000$ ) overall. Then the Ryan test was administered for each pair to see where the differences lie. The results are given in Table 3. Further, the rank order of the five factors was tabulated in Table 4 according to the results of the Ryan test.

Table 3 Ryan test of differences of frequencies in each factor

Factor	F1	F2	F3	F4	F5
1					
2		10.458 *	3.540 *	9.087 *	6.900 *
3			6.894 *	1.398	3.583 *
4				5.517 *	3.335 *
					2.191

\* =  $p<.05$

It can be seen that the subjects used communicatively oriented strategies such as socio-affective and communicative learning less than other strategies which are presumed to be used in formal learning settings. This result is consistent with that of Oxford and Nyikos (1989), who also reported that their American students

tended to "employ strategies ... likely to be useful in a traditional, structure oriented, discrete point foreign language instructional environment geared toward tests and assignments" (p. 293).

Table 4 Rank order of strategy use

Rank Order	Strategy Factors	
1	F2 (Mean=3.3920) Compensation and guessing	F4 (Mean=3.2720) Formal learning
2	F4 (Mean=3.2720) Formal learning	F5 (Mean=3.0839) Mental operational
3	F3 (Mean=2.7951) Socio-affective	
4	F1 (Mean=2.4865) Communicative learning	

Let us now examine the results of analyses concerning the hypotheses. Details of the frequencies of strategy use in each factor by each of the four groups of students (1st-year exam students, 2nd-year exam students, 1st-year recommended students, and 2nd-year recommended students), and the results of ANOVA are given in Table 5. Looking at this Table, overall, no significant effects of years of studying at college on the types of strategy use were found, while the method of entering college had significant effects in all factors except Factor 3, the socio-affective strategies. No significant interaction effects between the two variables were observed in any of these factors. It can be said from these results that the students who took the entrance examination reported using four out of five strategy groups (the communicative learning strategies, the compensation and guessing strategies, the formal learning strategies, and the mental operational strategies) more frequently than those who did not take the

Table 5 ANOVA for strategy use in each strategy group

Factor 1: Communicative learning strategies					
Method Year	Examination		Recommendation		Sig of F
	1st	2nd	1st	2nd	
N	37	35	35	36	
Mean	2.5985	2.7510	2.2714	2.3234	
SD	.8410	.6636	.6381	.6045	
Source of Variation	SS	DF	MS	F	Sig of F
Main Effects	5.436	2	2.718	5.545	.005
Method (A)	5.051	1	5.051	10.304	.002
Year (B)	.468	1	.468	.955	.330
2-Way Interactions					
A x B	.100	1	.100	.203	.653

  

Factor 2: Compensation and guessing strategies					
Method Year	Examination		Recommendation		Sig of F
	1st	2nd	1st	2nd	
N	37	36	37	37	
Mean	3.7399	3.6632	3.1014	3.0709	
SD	.5998	.6627	.8228	.6142	
Source of Variation	SS	DF	MS	F	Sig of F
Main Effects	13.427	2	6.713	14.614	.000
Method (A)	13.236	1	13.236	28.811	.000
Year (B)	.111	1	.111	.242	.623
2-Way Interactions					
A x B	.005	1	.005	.010	.920

  

Factor 3: Socio-affective strategies					
Method Year	Examination		Recommendation		Sig of F
	1st	2nd	1st	2nd	
N	37	34	35	37	
Mean	2.9054	2.8559	2.7486	2.6730	
SD	.6472	.6720	.7110	.6623	
Source of Variation	SS	DF	MS	F	Sig of F
Main Effects	.794	2	.397	.886	.415
Method (A)	.652	1	.652	1.453	.230
Year (B)	.126	1	.126	.281	.597
2-Way Interactions					
A x B	.004	1	.004	.009	.925

  

Factor 4: Formal learning strategies					
Method Year	Examination		Recommendation		Sig of F
	1st	2nd	1st	2nd	
N	37	37	37	37	
Mean	3.4797	3.3514	3.2973	2.9595	
SD	.9060	.6051	.8597	.6910	
Source of Variation	SS	DF	MS	F	Sig of F
Main Effects	4.115	2	2.057	3.425	.035
Method (A)	2.367	1	2.367	3.941	.049
Year (B)	1.633	1	1.633	2.718	.102
2-Way Interactions					
A x B	.571	1	.571	.950	.331

Factor 5: Mental operational strategies

Method Year	Examination		Recommendation		
	1st	2nd	1st	2nd	
N	37	37	37	36	
Mean	3.3514	3.2613	2.8964	2.8194	
SD	.7326	.6878	.7611	.6824	
Source of Variation	SS	DF	MS	F	Sig of F
Main Effects	7.035	2	3.518	6.827	.001
Method (A)	6.618	1	6.618	12.845	.000
Year (B)	.328	1	.328	.636	.426
2-Way Interactions					
A x B	.008	1	.008	.016	.900

exam. However, there were no differences in the use of the socio-affective strategies between the two groups of students (i. e., the recommended and the exam students). And this tendency did not differ between the first and the second year students.

## 5. DISCUSSION

From the results above it can be said that Hypothesis one was confirmed. That is, the predicted effect of the method of entering college was observed. However, this was not the type of effect that had been predicted in Hypothesis two. The entrance examination did not narrow down the range of strategies employed by the students. Rather, compared with the recommended students, the exam students reported significantly more frequent use of four groups of strategies out of five.

Looking at these results, however, a question arises as to whether it was other factors that affected the strategy use rather than the single factor, the method of entering college. In other words, it might be that the exam students happened to have a higher proficiency and/or a higher motivation than the recommended students, thus resulting in the wider range of strategy use. This is a reasonable question, especially as some research results show that proficiency and motivation influence strategy use (Oxford 1990a; Oxford and Nyikos 1989). It is also possible that the exam students, in the process of preparing for the entrance exam, have



had more chances to learn various strategies outside school such as *juku* (or a supplementary preparatory school). Another study, perhaps based on a multivariate analysis<sup>4</sup>, would be needed to answer this question. Nevertheless, it should still be noted that the entrance examination did not have negative effects on the students' use of language learning strategies at least in that it did not narrow down the range of strategies the students used. Rather the students seemed to have tried out a wider range of strategies in studying for the examination. Having observed a positive effect of the entrance examination, however, it must be noted that the examination did not help increase the use of the socio-affective strategies. This might be one of the reasons why the students who entered the college can not always use English in actual communicative situations.

Whether the exam has positive or negative effects, it should be noted that the effect does not seem to have changed one year after matriculation; that is, no differences between the first and the second year students were observed in the types of strategies the students reported employing either in the case of the exam takers or the recommended students. (Hypothesis three was not confirmed.) In other words, the students, who had studied for one year at college, reported a similar tendency in their strategy use as the first year students did. The college education did not seem to be successful in encouraging the students to employ a wider range of strategies. Or it might be that the students themselves were not motivated to employ a wider range of strategies anymore after matriculation. It appears then that the washback effects of the entrance examination, which pervaded high school education, drove students to learn EFL only in order to pass the examination.

## 6. SUMMARY AND CONCLUSION

Let us summarize the main implications for future research and

for education. First, only a single variable, the method of entering college, was treated in the present study, being presupposed that the effect of the entrance examination can be seen more clearly in the case of the students who took the examination than in the case of those who did not. However, it could be said that teaching at high school as a whole is already influenced by the examination, which implies that even the recommended students are affected by the exam to a certain degree. Therefore, further in-depth research is needed which takes into consideration other factors such as attitudes towards the examination, classroom data, and length of time spent studying for the exam.

Second, those students who succeeded in entering college took part in this study as subjects. Especially when examining the far-reaching effects of the entrance examination in the society, however, to look at such students is insufficient. Rather it is also necessary to look into the strategy use of the students who failed in the entrance exam. The students who were successful in the entrance examination might have employed successful examination related strategies, which were not employed by the students who failed in the exam. And these strategies might have happened to be those examined in the present research.

Third, a longitudinal study is needed in order to clarify whether students change their strategies after entering the college. The present study suggested that the students do not change their strategies after entering college. Nevertheless, since it was a cross-sectional study, where the first year and second year students were different subjects, it is necessary to examine the same subjects to see the long-term effect of the entrance examination.

Fourth, the present research has been rather prescriptive in that the strategies investigated were restricted to those included in the fifty items of the SILL. More descriptive and/or qualitative methods of data elicitation such as think-aloud and interview

might reveal other effects of the entrance examination.

Despite several limitations, the present study has some educational implications. First, a result suggested that the students overall used the communicative learning strategies less frequently than other strategies. Although it is still not clear whether or not this is an effect of the entrance examination, it could be important to provide them with more chances to learn through communication. Otherwise, students might be in danger of viewing language learning only as a kind of mental exercise, which is performed at a desk. It should be remembered that communication provides students with good opportunities to learn a foreign language (Faerch and Kasper 1983; Oxford 1990a).

Second, from the result which showed that the entrance examination did not seem to have encouraged the students to employ the socio-affective strategies, it could be proposed that the entrance exam should include a section which tests this aspect in some way or other, because these strategies seem to be essential in using language in actual communication. Including an interview section is perhaps most preferable. The examinees will make their best efforts in preparing for the interview section of the entrance examination. However, it might not be practical to interview hundreds of examinees in a limited time every year. Then, the students should at least be recommended to employ the socio-affective strategies in the preparation stage for the entrance examination, and be aware of the usefulness of these strategies to pass the exam as well as to develop their communication skills. Usually in teaching students to get ready for the entrance exam, teachers seem to tend to stress the importance of using strategies related to formal learning such as "compensation and guessing strategies", "formal learning strategies", and "mental operational strategies" as defined in the present paper. Besides, maybe because of the extreme competitiveness of entering university the examinees tend to be unwilling to cooperate with other students.

Yet the items included in the socio-affective strategies such as group learning, asking for help from English speaker being aware of socio-affective state, etc., should also be rewarding in preparation for the entrance exam. The relationship between the test-taking and the socio-affective factors is still unclear. In order to induce a better washback effect of the entrance examination, however, teaching the socio-affective strategies seems to be essential. The basic philosophy underlying teaching methods such as the silent way, counseling-learning, and suggestopedia (e.g., Stevick 1980), which stress this aspect of learning, will provide valuable insights.

Third, looking at the result which showed that there were no statistically significant differences in the strategy use between the first and second year students, it could also be recommended that more attention should be paid to strategy training. What the teachers should note in teaching learning strategies is that they should try to let the students be aware of the importance of having a clear purpose of learning EFL. In other words, as mentioned above, it is probable that the students, whether they are exam-takers or recommendees, learn EFL as a tool for entering college. This might be one of the reasons why many students stop learning more just at the time when they have entered college. As Saljo (1979) has suggested, however, students do not change learning strategies until they change their conception about or purpose of learning. Therefore, as long as the students stick to learning EFL as a tool of entering college, they will not change their learning strategies, nor will they try to employ new strategies. When the teachers teach strategies, they should remember that the strategies can be effective only when they are used to achieve a certain goal. Without such awareness, teaching learning strategies is likely to be sterile.

It has long been recognized that the entrance examination has a significant effect on the whole educational process in Japan, and

many comments have been made especially on its negative aspect. However, the results of the present study have shown that the entrance examination has a beneficial effect on their use of learning strategies, at least in that the students who took the examination of the type currently given to the students of the college reported using a wider range of strategies than those who did not take the exam. These results, of course, do not guarantee that the test was reliable and valid, since even "a 'poor' test could conceivably have a 'good' effect if it made teachers and learners do 'good' things they would not otherwise do" (Alderson 1991: 4). In addition, there are several limitations on the results, which have already been pointed out above. And yet it would seem that no useful generalizations can be made on effective teaching of EFL until the nature of the effect of the examinations is empirically proved. As Pilliner (1973) correctly pointed out, "the most important requirement of a good exam is that it should be educationally beneficial" (p. 4). Therefore, in an attempt to improve the entrance examinations, a systematic inquiry should be done not only on how to measure the examinees' ability correctly, but also on how to induce a better washback effect.

This paper is a report of preliminary investigation into the effects of the entrance examination on language learning strategies, and more questions were raised than settled. However, such research will provide useful information to EFL practitioners and researchers which will help them make an informed decision about the entrance examination.

#### ACKNOWLEDGMENT

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#### NOTES

1 The translated version of SILL is given in Watanabe (1991).

- 2 For factor analysis on the original version of the SILL, see Oxford (1986b).
- 3 The five main factors employed in the present study were with their eigenvalues above 1.000, and 46% of the total variance was attributable to these five factors. For further information of factor analysis of the present study, see Watanabe (1990) and Watanabe (1991).
- 4 "Multivariate analysis is a general term used to describe a group of mathematical and statistical methods whose purpose is to analyze multiple measure of N individuals ..." (Kerlinger, 1986, p. 524). For the analysis based on ANOVA with covariates of the relationship between the self-ratings of proficiency levels of English and strategy use of the present subjects, see Watanabe (1990).

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