L1 Metalinguistic Ability and Foreign Language Learning: The Case of Japanese Secondary School Students

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Abstract

This study had two aims: (1) to investigate the relationships among individual difference variables in foreign language learning (FLL), with a focus on L1 metalinguistic ability (MA), and (2) to consider the effect of explicit instruction providing metalinguistic knowledge on foreign language performance of young students. The participants were 48 Japanese students who were 13 or 14 years old and had been learning English for 1.5 years. They attended two classes; one was designed to explicitly teach the concept of word class (e.g. noun, adverb) and the other to deal with grammatical relations (i.e., subject, object, and modification). Each class lasted about 80 min on two separate days. Before the classes, they answered a questionnaire that used a 5-point scale to evaluate their motivation (i.e. motives and self-efficacy) and learning strategies. Also, they took pretest and posttest to evaluate their MA and English performance. We conducted multiple regression analysis by taking English performance as the objective variable and selecting exploratory variables among ones that were significantly correlated to English performance. The result revealed that MA and self-efficacy significantly predicted English performance. With regard to MA, there was no significant difference between pretest and posttest. However, English posttest score was significantly higher than English pretest score. The finding suggests that MA has a significant influence on FLL independently of strategy-use and motivation. Meta-syntactic concept seems to be too abstract for young students but this study shows that explicitly teaching metalinguistic knowledge is effective for them to improve their foreign language performance.

Keywords: Metalinguistic ability, Foreign language learning, Motivation, Learning strategies, Japanese students

Introduction

Abilities to be aware of language structures and functions have been recognized as a significant factor predicting success in foreign language learning (FLL) or second language acquisition (SLA)[1]. As pointed by Kusube (1986), poor learners of English who are native speakers of Japanese tend to be weak in recognizing modification relations and to be insensitive to the functions of words in sentences. When learning a new word, phrase or sentence pattern, typically they simply memorize it without understanding its structure or function. Besides, they are apt to have difficulties in reading or writing complex sentences such as ones including a relative clause. As Schmidt (1990) has stated, subliminal language learning is impossible and noticing is necessary for sufficient condition for converting input to intake. Rutherford and Sharwood-Smith (1985) have referred to the fact that consciousness-raising, making learners pay attention to formal properties of language, fosters their learning process.

Considering their works, it appears that these last few decades have seen a renewal of interest in the role of metalingiuistic ability in FLL or SLA. Metalinguistic ability can generally be defined as "the ability to think about and reflect upon the nature and functions of language" (Pratt & Grieve, 1984, p. 2). To be more precise, Pratt and Grieve (1984) give the definition to the term "metalinguictic awareness". Some researchers also define "metalinguistic awarenesss" as some kind of "ability" (e.g., Cazden, 1974; Tunmer & Herriman, 1984). Which term (metalinguistic awareness or metalinguistic ability) is adopted seems to depend on researchers. In the present study, we restrict these two terms to their different respective uses.

We adopt the term "metalinguistic ability" as the ability to monitor and control one's linguistic comprehension and production by referring to his or her linguistic knowledge (in the sense of competence), and to represent clearly the process or outcome of monitoring and controlling such linguistic comprehension and production. The knowledge should be explicit so that it can be accessed. To put it the other way around, if it remains implicit or tacit, one cannot access it. On the contrary, it does not need to be explicit when one is just aware of it. In this sense, the term "metalinguistic awareness" is used in this study. To put it more concretely, "metalinguistic awareness" covers just monitoring or reflections on one's linguistic behaviours, including relatively unsophisticated control in some cases.

There are some previous works examining the relationships between L1 metalinguistic ability and FLL. Lasagabaster (2001) performed one of the most remarkable studies. His study targeted bilingual students learning English as the third language, and showed that L1 metalinguistic ability had significant positive correlation with English proficiency (speaking, listening, reading, grammar, and

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[1] We sometimes come across studies in which no clear distinction between "second language (L2)" and "foreign language" is mentioned. However, there is a need to give a clear distinction between the two words in order to make our arguments explicit. In the current study, the term "L2" refers to the target language to be acquired in the situation where it is commonly spoken or given the status of an official status. On the other hand, the term "foreign language" can be defined as the target language to be studied in the situation where it is not used in everyday life, and it is learned as a school subject or a business tool in many cases.

writing). The works of Nagai (2012) and Fujita (2013) should also be considered. Nagai (2012) experimented on monolingual Japanese students, which demonstrated that metalinguistic ability more strongly predicted foreign language proficiency than IQ. Fujita (2013) conducted a longitudinal research on early stage learners, and then she verified that metalinguistic ability was a causal factor of foreign language proficiency.

Of course, there are several studies that shed light on the close relation between L2 metalinguistic knowledge and L2 proficiency (Alderson, Clapham, & Steel, 1997; Roehr, 2008). Still, I would like to focus on metalinguistic ability of mother tongue rather than that of a foreign language since every language user has intuition to his or her mother tongue and the intuition can be easily connected to language awareness.

As we saw above, more and more researchers working on language learning have been interested in metalinguistic ability. However, as pointed by Igarashi (2014), motivation and learning strategies have been traditionally verified as important factors in the field of FLL. Similarly, Skehan (1991) presents a model of influences on language learning, in which learner strategies have an intermediate position between motivation and outcome. If so, can we really say metalinguistic ability plays a distinctive role from these relevant variables? Anyway, when learners don't have very high metalinguistic ability, language teachers may well have to provide learners with metalinguistic knowledge to supplement their ability. However, do such lectures really help learners to effectively study the target language? Strangely, research on metalinguistic ability often fails to grasp the relationship between metalinguistic instruction and foreign language performance.

Purposes

Now, the questions we have to ask here are

Q1: How important a role does MA play in FLL, compared to other factors such as motivation and learning strategies?
Q2: Does metalinguistic instruction for learners enhance their foreign language performance?

Given these questions, the purposes of this study are as follows:
(1) To investigate the relationships among factors in FLL with a focus on L1 metalinguistic ability
(2) To consider the effect of explicit instruction providing metalinguistic knowledge on foreign language performance

Experiment[2]

Firstly, participants answered a questionnaire and took the pretests of metalinguistic ability and English. Then, they attended two different classes. Each class lasted about 80 min on two separate days. Finally, they took posttests of metalinguistic ability and English.

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[2] SPSS 22 was used as the statistical tools.

Participants

A total of 60 Japanese students from one national and several public junior high schools participated in the present study, ranging in age from 13 to 14 years. Sixty people were too many for one class, so that they were divided into two groups. Each group consisted of 30 students respectively. Among the participants, twelve students (six from each group) reported to the researcher that they had lived overseas or did not take every class. Hence, the data of 48 samples (23 females and 25 males) were available to analyze.

Materials and Procedures

Motivation and Learning Strategies

Participants completed a 5-point Likert scale questionnaire consisting of self-evaluation items aimed at examining their motives, self-efficacy and learning strategies for learning English. Motivation has traditionally been regarded to be composed of two variables: *expectancy* and *value* (Atkinson, 1957). Expectancy may be restated into *self-efficacy*, which "refers to an individual's judgment of his or her ability to perform a specific action" (Dörnyei, 1994, p.277). On the other hand, value may be equivalent to be *motives*, which refer to an individual judgment of how important and meaningful a specific action is for him or her. In this experiment, we adopted these two variables as motivational factors: self-efficacy and motives.

As for self-efficacy, we used a scale that was adopted by Mori (2004) and Igarashi (2014), and it originated from the work of Pintrich and de Groot (1990). Pintrich and de Groot (1990) showed the internal consistency of the scale was sufficiently high (α = .93). Igarashi (2014) also indicated its reliability (α = .93) in her study. Regarding motives, we adopted a revised version of the scale developed by Igarashi (2014). The scale has been especially inspired by *Two-Axes Model* (Ichikawa, 1995). In his model, learning motives are divided into six categories: *fulfillment, training, utility, relation, self-esteem, and reward*.

In spite of a slight difference, the present scale agrees with his model. *Linguistic interest* in the present scale can be regarded as equivalent to *fulfillment,* which has been defined as a typical intrinsic motive derived from curiosity, that's, enjoying learning "itself". Linguistic interest is a motive specific to language learning. This interest is straightforwardly directed toward the object of learning (i.e., English language "itself"), not the further goals which can be achieved through the medium of English. *Utility value* is, of course, accorded with *utility* in the preceding model.

Here, it should be pointed out that the extrinsic motives such as studying English in order to pass the entrance examination of university are not included in utility value. Some items that are grouped into this factor describe motives related to clear visions of English using situation. Others describe interest in cultural - social aspects of English. *Relation* and *self-esteem* in the Two-Axes Model are grouped into one identical factor in the present scale. Both are derived from consciousness about "other people", therefore, this grouping makes sense. All of these five subscales showed sufficiently high coefficients of Cronbach's alpha (α = .68 ~ .86).

The data of learning strategies were gathered via the scale developed in reference to Strategy Inventory for Language Learning (SILL) by Oxford (1990). Our scale examining strategy-use consisted of 19 items. The scale consists of four factors: *metacognition, metalinguistics, problem-solving, and performance* ($\alpha = .61 \sim .83$). *Metacognitive strategies* can be defined as strategies monitoring and controlling his or her own behavior as a learner. *Metalinguistic strategies* are considered as strategies that can be applied through a certain or high level of metalinguistic ability. *Problem-solving strategies* refer to strategies trying to solve learning difficulties when one confronts them or to avoid them before they occur. Lastly, we use the term of performance strategies in the sense that the strategies play an immediate role in language performance, to put it another way, practical language behaviors (i.e. speaking, listening, reading, and writing).

Hours Spent Learning English

Additionally, the data on how much time the students learn English were gathered simply by asking each student an average number of hours per day spent in learning English, excluding the number of hours of English classes at school.

Metalinguistic Ability

L1 metalinguistic ability test consists of two parts: ambiguity detection task and grammatical relation perception task. Let us show examples of these tasks. Consider this sentence 親戚の訪問はめんどうになる. Participants were asked to give the two possible meanings of the sentence. This sentence might have two different meanings, based on the viewpoint of the visitor and the receiver of the visitor. This type of ambiguity is called deep structure ambiguity (Foss, Bever, & Silver, 1968; Hoppe & Kess, 1980; Nagai, 2012). Ambiguity detection task involves another type of ambiguity: surface structure ambiguity (Foss, et al., 1968; Hoppe & Kess, 1980; Nagai, 2012).

Now let us see the two sentences A and B below. A is the key sentence and B is the target sentence.

A)　次郎にもらった<u>指輪は</u>とっくの昔に捨てた。
　　 [Long ago, I threw out <u>a ring</u> that Jiro gave me.]
B)　(道を)間違えて遅刻してしまった。
　　 [I mistook (the road) and ended up being late.]

Participants were asked to find a word or phrase in sentence B, whose grammatical relation is the same as the underlined word or phrase in sentence A. Then, they were also asked to indicate it by bracketing. You see the particles are different, 指輪<u>は</u> and 道<u>を</u>, yet their grammatical relations are the same, both have an object relation in each sentence. Grammatical relation perception task consists of two more types of items: subject and modification relation. The reliability of the two tests based on Cronbach's alpha coefficient is as follows: .59 for the pre-test and .72 for the posttest. Each has 20 items with a corresponding one point, for a total of 20 points. involves 20 items in total.

English Performance

The English performance test also consists of the two parts: an exercise on scrambled sentences and another on sentence correction. To answer the scrambled sentence exercise, participants were shown Japanese sentences that are supposed to translate into English. Then, they were asked to unscramble English words according to the meaning of the Japanese sentences. To answer the sentence correction exercise, participants were given grammatically incorrect sentences and were asked to identify, explain and correct the errors. In this exercise, one point is given when the participant is able to identify the error, and another point is given when an explanation is correctly given. The reliability of the two tests based on Cronbach's alpha coefficient is as follows: .89 for the pre-test and .86 for the posttest. Each has 12 items with a corresponding one point, for a total of 12 points. Some examples of the items can be seen in the Appendix.

Metalinguistic Instruction

After completing a pre-questionnaire and pretests, participants attended two classes. We basically gave a lecture to them in Japanese. We started each class by showing the students the goals of the lecture, and then we proceeded to the giving of the lecture. After that, students worked on the excersices related to the lecture. And finally they reviewed what they have learned during the lecture. The first class was designed to deal with grammatical relations (i.e., subject relation, object relation, and modification relation) by referring to word order, sentence structure, and semantic role. The other class was deigned to explicitly teach the concept of word class, in particular, noun, verb, adjective, and adverb. We referred to functions and morphological forms of each word class and students were told to be aware of how word class is connected with grammatical relations, which the students have learned the previous day.

Additional Condition: Japanese vs. English

As previously stated, the present study focuses on the role of "L1" metalinguistic ability in FLL. Therefore, we decided to set up an additional experimental condition relevant to our focus. As mentioned above, there were two groups of our participants. The exercises given to Group A emphasized the importance of being aware of and thinking about the nature and functions of the Japanese language. We were able to do so by instructing the participants to analyze the structure of the Japanese sentences that they are to translate in English. For the second group, the exercises were aimed at stating the advantages of being conscious about the word classification and grammar. However, the importance of being aware of L1 was not mentioned. It may reveal our concern to compare these two groups.

Results and Discussion

Correlation coefficients between English pretest and the other variables are shown in Table 1. Unexpectedly, none of the motives were significantly correlated with English performance.

Table 1.
Correlations between English Performance and the other variables (N = 48)

		L	U	T	SR	R	MC	ML	PS	P	SEF	H	MA	E	mean	df
Motives	Linguistic interest (L)	-	.509**	.548**	.449**	.131	.275	.391**	.388**	.329*	.290*	-.045	.018	.114	2.806	.815
	Utility value (U)		-	.153	.341*	.169	-.092	-.006	.051	.126	.216	-.115	.006	.248	3.530	.850
	Training (T)			-	.529**	.372**	.301*	.350*	.219	.076	.102	.081	.004	.112	2.882	.966
	Self-esteem / Relation (SR)				-	.467**	.409**	.304*	.256	.136	.254	.014	-.125	.053	2.927	.824
	Reward (R)					-	.181	.100	-.039	-.017	-.018	-.188	.139	-.100	3.451	1.014
Learning strategies	Metacognition (MC)						-	.740**	.714**	.525**	.366**	-.245	.184	.087	2.617	.947
	Metalinguistics (ML)							-	.809**	.715**	.571**	-.241	.220	.180	2.983	.891
	Problem-solving (PS)								-	.663**	.522**	-.157	.194	.298*	3.354	1.033
	Performance (P)									-	.693**	-.406**	.258	.293*	3.448	.884
	Self-efficacy (SEF)										-	-.365**	.281	.583**	3.029	1.150
	Hours (H)											-	-.117	.017	.902	.668
	Metalinguistic ability (MA)												-	.517**	10.270	2.930
	English (E)													-	4.980	3.461

Note. **p < .01 *p < .05

Motives have been traditionally considered as one of crucial factors in SLA or FLL and a lot of preceding studies have highlighted its impact on language proficiency (e.g., Dörnyei, 2010; Gardner, 1985; Ushioda; 2011). The current strange result might be brought because our English test dealt with only specific items: unscrambling and correcting sentences. If the test contains other different problems such as listening and reading comprehension, we might obtain results corresponding previous findings. On the other hand, problem-solving and performance strategies among learning strategies significantly correlated with English performance. Self-efficacy and metalinguistic ability showed much higher coefficients than the other variables ($r = .583$ and $.517$, respectively), which suggests that these two variables have a notably close relation to foreign language performance.

Figure 1 summarizes the result of multiple regression analysis. English performance was taken as an objective variable and the other variables that were significantly correlated to English performance were selected as exploratory variables: self-efficacy, problem-solving strategies, performance strategies, and metalinguistic ability. As seen in Figure 1, metalinguistic ability and self-efficacy significantly predicted English performance.
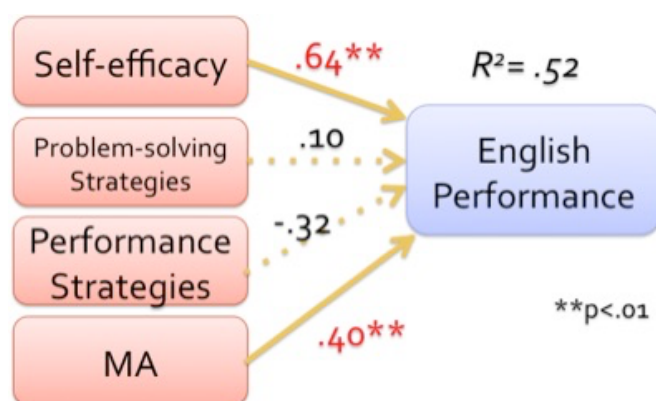

Figure 1: *The Result of Multiple Regression Analysis*

Regarding metalinguistic ability, there was no significant difference between the scores of pretest and posttest both in Group A and Group B. In contrast, English posttest score was significantly higher than English pretest score in both groups. However, we didn't find a significant difference between groups. Table 2 and Table 3 summarize descriptive statistics of MA and English performance. Table 4 indicates the results of ANOVA regarding comparison between English pretest and posttest.

According to the results of multiple regression analysis, it can be said metalinguistic ability has a significant influence on FLL independently of strategy-use and motivation. We can recognize from this finding that metalinguistic ability is one of considerable factors in FLL as well as strategy-use and motivation. On the other hand, the result of comparison between pretest and posttest of English performance suggests explicitly teaching metalinguistic knowledge is effective to improve foreign language performance. What we may notice here is that there were no significant difference

between groups. One possibility is to assume that the time allocated for intervention was too short to generate a distinctive difference. Another possibility is that Group A had less time to reflect upon and discuss the target English sentences than Group B since we spent much time explaining syntactic structure of Japanese sentences in Group A.

Table 2.
Comparison between Pretest and Posttest of Metalinguistic Ability

Group	pre - post	*mean*	*SE*	Min.	Max.
A Experimental (N= 24)	pre	10.750	.599	5	15
	post	9.250	.741	3	18
B Control (N = 24)	pre	9.833	.599	0	16
	post	10.542	.741	2	17

Table 3.
Comparison between Pretest and Posttest of English Performance

Group	pre - post	*mean*	*SE*	Min.	Max.
A Experimental (N= 24)	pre	5.000	3.284	0	10
	post	6.042	3.407	0	11
B Control (N = 24)	pre	4.958	3.701	0	11
	post	6.292	3.394	0	11

Table 4.
The Result of ANOVA

		df	*MS*	*F*	*P*
Between Samples	Group	1	.26	.01	.912
	Error (a)	46	20.99		
Within Samples	Pre - Post	1	33.84	12.06**	.001
	Group × Pre -Post	1	.51	.18	.672
	Error (Pre - Post × a)	46	2.81		

Turning now to metalinguistic ability, we must draw attention to no difference between pretest and posttest. It is possible to make the following assumption to this result. The students of Group A were given explicit explanations about Japanese particles such as が*(-ga)* and を*(-o)*, so that these language forms made a striking impression to them. Hence, taking the posttest of metalinguistic ability, they might have concentrated on formal features of words or phrases instead of following their intuition about language expressions.

In addition, it is supposed that the time allocated to intervention was too short similarly to the first possibility that was described with regard to the result of comparison between pretest and posttest of English performance.

We have some other limitations on our findings. Firstly, we could not clear results about the relationship between metalinguistic ability and motivation but also between metalinguistic ability and learning strategies. There is need to inspect these relationships more closely. The results may be different when we conduct the same experiment with a larger number of participants or older participants like high school and university students. Secondly, although this study focuses on syntax awareness (ambiguity detection and grammatical relation perception), it may be important to note the role of other metalinguistic factors in FLL: morphological awareness, phonological awareness, and pragmatic awareness. Considering these limitations, we need to refine the design of our experiment for future research.

Conclusion

Let us conclude this paper by giving answers for research questions asked in the section of "purposes". Recall the questions here,

Q1: How important a role does MA play in FLL, compared to other factors such as motivation and learning strategies?
Q2: Does metalinguistic instruction for learners enhance their foreign language performance?

For the first questions, our finding suggests L1 metalinguistic ability plays a significantly important role in FLL as well as motivation and learning strategies. We should not ignore its role on the grounds that L1 metalinguistic ability significantly predicted independently of the other variables. Cummins's (1978, 1979) Developmental Interdependence hypothesis is in agreement with our argument. His theory states that L2 proficiency partly depends on L1 linguistic knowledge and skills that has already been acquired. Also, his model shows that there is a common underlying basis that the L1 and the L2 share. More specifically, if the L1 is sufficiently developed prior to the extensive exposure to the L2, a positive process of L2 learning can be expected.

Furthermore, we obtained a meaningful answer for the second question. The answer is "yes", that's, explicit instruction on meta-syntactic concept positively affects learners' performance. The progress in English performance test proves it clearly. Our results support previous findings that explicit instruction leads to increment in some aspects of the target language (Macaro & Masterman, 2006; Nazari, 2013). Though one might argue that meta-syntactic concept seems to be too abstract for young students, yet our results show that explicitly teaching metalinguistic knowledge is effective for them to enhance their foreign language performance. In Japan's educational environment, each word class is generally taught individually, so to speak, *asunder* (e.g., "Today's class will treat *noun*, the next class *adjective*, and the class after the next *adverb…*"). However, language teachers should treat all of word classes comprehensively at the same time so that their students can build up structured knowledge about syntactic and semantic concept.

With regard to grammatical relations, language teachers should make learners aware of them whenever possible, in particular, when their students read or write complex sentences.

Acknowledgement

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Appendix

➢ Examples of scrambled sentence tasks
- エマは髪が短くて、きれいな目をしている。(Japanese target sentence)
  (has / eyes / and / Emma / short / is / hair / beautiful / are).
  ※ Two words are unnecessary.

- 彼女の親切が忘れられないから、お礼の手紙を書くよ。
  <div align="right">(Japanese target sentence)</div>
  Because (her / I / I / kindly / kind / kindness / forget / write / a thank-you letter/ to her / can't / will).
  ※ Use a comma in the sentence.
  ※ Two words are unnecessary.

➢ Examples of sentence correction tasks
- 「田中先生はどこ？」「田中先生は教室ですよ。」
  <div align="right">(Japanese target sentence)</div>
  "Where is Ms.Tanaka?" "Ms. Tanaka (She) is the classroom."

- ジャックは私に幸せをくれる。(Japanese target sentence)
  Jack gives happy to me.

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