How Do Learners Incorporate the Metacognitive Strategies Taught in the Classroom into their Strategy Repertoires?

研究論文

How Do Learners Incorporate the Metacognitive Strategies Taught in the Classroom into their Strategy Repertoires?

メタ認知方略はどのように習得されるのか？

IKEDA, Maiko

池　田　真生子

要　旨

　本研究では、授業中に指導されたメタ認知方略を、⑴学習者が習得していく過程、および⑵習得を妨げる要因について調査した。対象は、日本人大学生英語学習者８名であった。データは、授業外学習の記録日記（約2.5ヶ月間分）、刺激提示による回顧法、そして６ヶ月後の回顧的インタビューにて収集した。分析の結果、⑴学習者は、自身の英語学習を何とかしたいという強い感情を有し、さらにメタ認知方略の有用性を再認識する（足場）過程の中で、メタ認知方略を習得していくことがわかった。さらに、⑵他者からの強制（他律的学習）がないことや、方略使用時に感じる心理的負荷（コスト）も、習得を妨げる要因となることが明らかとなった。

キーワード
メタ認知方略、方略指導、学習記録、他律

1 . Literature Review

The importance of self-regulated learning and metacognitive strategies in foreign language learning was argued for, as early as 1980s（Wenden, 1987）and in many recent studies（e.g., Cohen & Macaro, 2007; Vandergrift, 2005; Zhang, 2008）. Self-regulated learning is considered to be especially important in the contexts where learners have few opportunities to use the target language in the society and their independent learning outside of the classroom is crucial to the improvement of their language ability（e.g., Cotterall & Murray, 2009）. These arguments have been supported by much empirical evidence reporting that more proficient language learners

use a greater number of metacognitive strategies more effectively（e.g., Goh, 1998; Malcolm, 2009; Vandergrift, 2003）.

Metacognitive strategies are one of two components of metacognition, which refers to one's abilities to control various cognitive activities（Brown, Bransford, Ferrara, & Campione, 1983; Wenden, 1998）. Metacognitive strategies are strategies or actions taken to improve one's own learning, and include（ⅰ）goal setting,（ⅱ）reflecting,（ⅲ）evaluating, and（ⅳ）revising （O'Malley & Chamot, 1990；Oxford, 1990）. In a recent study, Oxford（2011）modifies the notion of metacognitive strategies arguing that they only guide the use of cognitive strategies and that other types of metastrategies should be introduced for affective and/or social strategies. In her new definition, Oxford uses the term "metastrategies" as well as metacognitive, meta-affective, and metasocial strategies for subcategories of "metastrategies." The present study mainly follows Oxford's classification and defines metacognitive strategies as those that control English learning by guiding the use of cognitive strategies. Metacognitive knowledge is, on the other hand, another component of metacognition and is an important base for the better deployment of metacognitive strategies（e.g., Wenden, 2001）. Three different types of metacognitive knowledge were introduced by Flavell（1979, 1981a, 1981b）: person knowledge, task knowledge, and strategic knowledge（see Ikeda, 2010 for details）.[1]

An increasing number of empirical studies on metacognitive intervention have been conducted in a variety of contexts（Cross, 2010; Kemp, 2009; Sanprasert, 2010; Vandergrift, 2007, among others）. Graham & Macaro（2008）, for instance, investigated the effects of metacognitive and cognitive strategy intervention in the listening skills of lower-intermediate learners of French in England. They reported that the program was effective in terms of learners' improved listening proficiency and confidence about listening. In Lam's study（2009）, an intervention of metacognitive strategies was carried out in a secondary school oral English class in Hong Kong. Her study showed positive results in terms of the students' performance in a group discussion task. Conclusive findings about the value of strategy intervention are, however, yet to be established, as the context of the interventions implemented varied according to the contents and length of the intervention, types of criteria used, language proficiency level of the participants, and so on. Furthermore, despite the importance of metacognitive strategies for individual learning outside of the classroom, the number of intervention studies pertaining to such contexts remains small. Many intervention studies focus on the efficacy of the metacognitive strategies used to undertake a specific task such as a listening or oral communication.

Timing of validation of intervention efficacy is another issue to be taken into account. Most

of the previous studies on metacognitive strategies examine its efficacy immediately after the intervention（e.g., González, 2009; Sanprasert, 2010）. The efficacy needs, however, to be validated against long-term outcomes, as the "effective" deployment of metacognitive strategies should mean their activation in learners' study habits, such as goal-setting and reflection, over the long term rather than at particular one time. The stability of intervention effects is thus an appropriate criterion for validation. The only study that investigates the stability of metacognitive strategy interventions over time is, to my knowledge, that of Ueki（2004）. She examined the effectiveness of metacognitive strategy instruction for Japanese senior high school students over time, confirming its stability seven months after the instruction. Her instruction was designed for content-based learning, and therefore future studies aimed at language learning are needed. At the same time, a longitudinal study that explores the process of incorporating metacognitive strategies intervened and identifies any possible obstacles is required. The present study attempts to address these issues. For this purpose, the following research questions are posed:

(1) By what process do learners incorporate the metacognitive strategies taught during the class into their strategy repertoire?

(2) What are the possible obstacles to learning metacognitive strategies?

2．Methods

2．1 Participants

Purposeful sampling was used to collect information-rich cases（Creswell, 2013; Saijo, 2007）. Purposeful sampling is commonly applied in qualitative research and refers to the selection of

Table 1
Participant Data

Participant	Major	Gender
PSMN1	Policy Studies	Female
PSZN2	Policy Studies	Female
PSLJ3	Policy Studies	Female
PSZS4	Policy Studies	Female
PSRS5	Policy Studies	Female
PSLG6	Policy Studies	Female
FLZJ7	Foreign Language Studies	Female
FLZJ8	Foreign Language Studies	Female

participants who meet some preselected criteria. The inclusion criteria for this study were university students learning English as a foreign language（EFL）, female gender, no prior experience of learning English overseas for more than one month, and a commitment to keeping study journals.[2] A total of eight Japanese students were selected（see Table 1）. All of them were the first-year students taking EFL courses as part of their study requirements. They had been learning English for approximately six years.

The participants majoring in Policy Studies（six participants）belonged to an "advanced" class for English courses of their choice（although the level of the class was rather intermediate）, while the remaining two participants majored in English Language Studies. It can therefore be said that all of the participants had an intermediate proficiency level of English and relatively high motivation for learning the language. The students enrolled in Policy Studies took two to four 90-minute English courses per week, while those in English Language Studies took five courses（one course every day）.

2.2 Metacognitive Strategy Intervention

In one of the English courses taught by the author, the participants received a metacognitive strategy intervention.[3] Over a period of nine weeks, the participants received a 30-minute session on explicit intervention in every class. In each class, one strategy was introduced to the participants as listed in Table 2. Three metacognitive strategies, reflecting, evaluating, and revising, were taught together in the context of instructional effectiveness as a flow（refer to

Table 2
Schedule of the Intervention

Week	Topic
Week 1	Metacognitive Strategy（Goal Setting in Studying）
Week 2	Strategies for Listening
Week 3	Metacognitive Knowledge（on Tasks, Learners and Strategies）
Week 4	Strategies for Speaking
Week 5	Metacognitive Strategies（Reflecting, Evaluating, and Revising One's Study）
Week 6	Strategies for Vocabulary
Week 7	Strategies for Reading（1）
Week 8	Strategies for Reading（2）
Week 9	Metacognitive Strategy（Ensuring Opportunities for Intensive Learning）

Week 5 in Table 2）. The strategy of "ensuring opportunities for intensive learning"（Week 9）was included in the list of metacognitive strategies instructed based on a previous study（Takeuchi, 2007）and in special consideration of the Japanese EFL context, where intensive learning is indispensable to learners improving their English. Its inclusion as a metacognitive strategy should be valid, as learners use and direct a variety of cognitive strategies while ensuring intensive learning opportunities.

In addition to these metacognitive strategies（i.e. goal setting, reflecting, evaluating and revising one's study, and securing opportunities for intensive learning）, cognitive strategies and metacognitive knowledge were also included in the intervention. This is because using cognitive strategies and having metacognitive knowledge are important aspects for the better deployment of metacognitive strategies. These metacognitive and cognitive strategies as well as metacognitive knowledge were selected based on（a）the common denominator strategies aimed at EFL learners（Takeuchi, 2007）and（b）the author's teaching experiences with a similar population.

For the remaining time of the class, that is, approximately 60 minutes, the participants were engaged in learning aural and oral English communication, with no special attention given to the use of strategies or activating the metacognitive knowledge of students.

During the weekly intervention session, the participants were provided with a handout prepared by the author（see Appendix A）. The handout included（i）the purpose and the benefits of using the strategy or possessing the knowledge,（ii）an explanation and example of the strategy or knowledge, and（iii）an activity using the strategy or knowledge that was taught during the lesson. At the end of each weekly intervention, the participants were also given a five-to-ten-minute activity in order to discuss with their classmates how to apply the strategy or knowledge taught to their own English learning.

2.3 Data Collection and Analysis

For data collection, information pertaining to the participants' study journals, stimulated recall interviews, and retrospective interviews was gathered（see Figure 1）. Over the course of the nine-week intervention period, participants were requested to keep study journals relating to their individual study outside of class. They were required to complete one journal entry every time they finished studying. The format of the study journal was predetermined in order to obtain specific data on the participants' learning trajectories（Hall, 2006）.

On a preformatted sheet, participants were expected to record retrospective accounts of what they studied, why they studied in a particular way, and what they thought afterwards. To
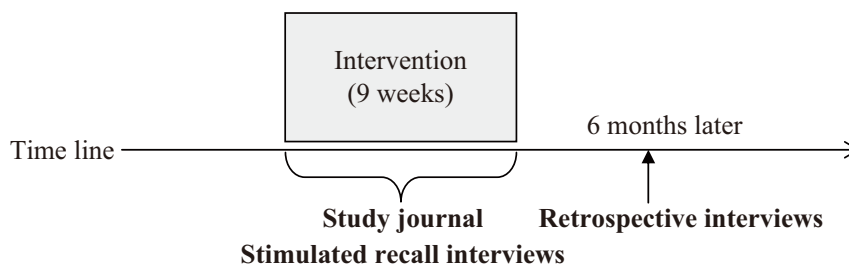
Figure 1. Procedure for data collection.

obtain accurate information on their strategy use while not overburdening the participants with L2 processing, their L1, i.e., Japanese, was used for entries into the study journals（Anderson & Vandergrift, 1996）. Excerpts shown in this article are therefore English translations made by the author.

Entries in the study journals（not the entire study journal of each learner）were submitted to the author and checked every week. When the descriptions included the deployment of metacognitive strategies taught during the class, stimulated recall interviews were conducted to confirm the influence of the intervention on their metacognitive strategy use. Stimulated recall interviews are a method used to collect data relating to the learners' introspections by presenting them with a stimulus, such as audio- or video-recording, and asking them to recall their thoughts when dealing with a specific task（Gass & Machey, 2000）. In this study, each participant was shown their own entries in the study journal and handouts given during the intervention sessions. They were then asked to report the reasons for utilizing a particular metacognitive strategy in their individual study. Some ambiguous descriptions in the entries were also clarified during the interviews. This process thus made it possible to give interpretations as to the interaction between contextual conditions and the participants' metacognitive strategy use.

Regarding the data analysis of the study journals and stimulated recall interviews, the basic principles of the modified grounded theory approach（M-GTA）were used in this study （Kinoshita, 2003）. For each study journal entry, any descriptions（i.e., sentence(s)）relating to the deployment of the metacognitive strategies were first detected and coded. Each entry was then carefully read and re-read by the author following the lapse of a certain period. Intra-rater agreement for detecting the deployment of metacognitive strategies was .90, while for coding it was. 89, which are considered to be acceptably high. Any discrepancies were resolved before starting the data analysis. After the detection and coding, each of these segmented descriptions

was analyzed in relation to the other descriptions in the study journals as well as to the participants' statements during the stimulated recall interviews in order to clarify how and in what context they were deploying the metacognitive strategies taught during the class. In this way, the process of learning the use of metacognitive strategies was explored.

In addition to the stimulated recall interviews, retrospective interviews were conducted six months after the intervention in order to gain insights into how the participants perceived the relative ease or difficulty of incorporating the metacognitive strategies into their studying habits. In the retrospective interviews, the elapses of time between the events and the later recalls are sometimes said to cause oblivion or fluctuations of learners' memory. Delayed retrospection, however, is known for its usefulness in providing an overall summary of learning experiences without going into too much detail（Mackey, Gass, & McDonough, 2000; Nakahama, Tyler, & van Lier, 2001）.

3．Results

3．1 Process of Learning Metacognitive Strategies

The analysis of the study journals and stimulated recall interviews revealed a common pattern in the students' process of learning the metacognitive strategies taught during the class. The participants at first reported their strong motivation for learning metacognitive strategies due to their distress suffered after negative experiences of learning English. One participant, for example, reported her deployment of the metacognitive strategy of "goal setting," as illustrated in Excerpts 1, 2, and 3:

Excerpt 1

［Describing how Participant FLZJ8 used the metacognitive strategy of "goal setting"］

For vocabulary building, I will start by checking the vocabulary that I could not remember well in the（in-class）quiz of the day.

［FLZJ8, from her study journal entry on April 27th］

Excerpt 2

［Describing what the same participant will do in the next study session］

Next time, I will study ten words every day and sometimes recheck them.

［FLZJ8, from her study journal entry on May 7th］

Excerpt 3

［Describing what the same participant will do in the next study session］

I will study vocabulary not only by writing down the new words but also by checking the pronunciation and repeating the words out aloud.

<div align="right">［FLZJ8, from her study journal entry on May 10th］</div>

In a stimulated recall interview, this participant reported the reason for incorporating this strategy of "goal setting" into her own strategy repertoire（Excerpt 4）. She pointed out her continuous failure in achieving her goals（first underline in the excerpt）.

Excerpt 4

［Describing why she deployed the metacognitive strategy of "goal setting"］

When we studied goal setting in class, I thought this was what I had to do for myself. Actually, when the teacher mentioned small steps, I was a little surprised, but realized that these were what I needed. This is because I used to think that I should set a big goal for myself, and I was always unable to achieve it as a result. I also studied in another class how to set goals for language learning. So, I remembered this strategy more clearly.

<div align="right">［FLZJ8, from a stimulated recall interview; underlines mine］</div>

In addition to her own negative learning experience, this student indicated the influence of a similar instruction that she had received in another course on learning metacognitive strategies（the second underline in Excerpt 4）. This means that the similar instruction given in another class played the role of scaffolding her learning of a metacognitive strategy. It can therefore be said that the process of incorporating metacognitive strategies into the participants' own strategy repertoires tends to involve at least two different steps. The experience of metacognitive failure further draws the students' attention to the contents of the intervention as a first step. With the scaffolding of the intervention in another course or in the past, students then proceed to incorporating the metacognitive strategies taught（see Figure 2）.

This same process was also identified when participants learned other metacognitive strategies. Participant PSLJ3, for instance, started to deploy the metacognitive strategies of "reflecting" and "evaluating" following the intervention, as shown in Excerpts 5 and 6.
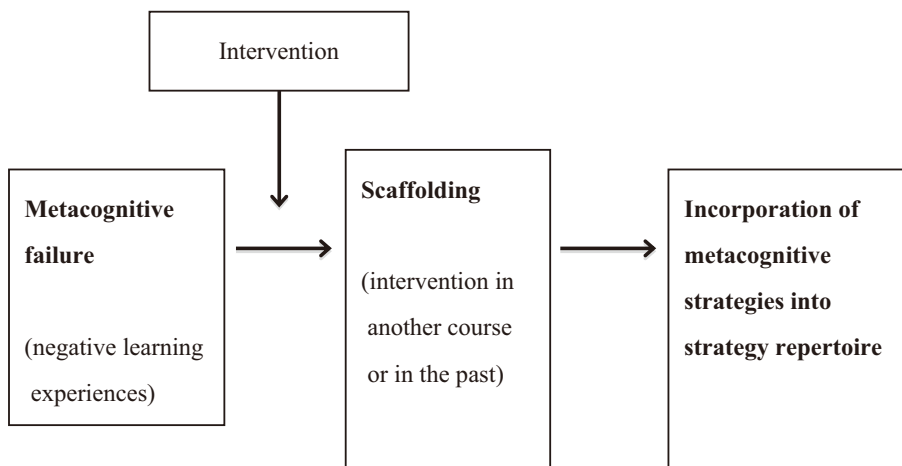
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Figure 2. Process of learning metacognitive strategies.

Excerpt 5

［Describing how PSLJ3 deployed the metacognitive strategies of "reflecting" and "evaluating"］

I studied vocabulary on my way to school this morning, and I reviewed it at night to reflect which words I did not remember. Then, I (evaluated my achievement and) tried to remember only these words again. If I did not review, I would forget what I had studied.

［PSLJ3, from her study journal entry on April 21st; parentheses mine］

Excerpt 6

［Describing how the same participant used these strategies again］

Today, I reviewed everything that I had studied this one week and checked (and evaluated) which words I did not learn well.

［PSLJ3, from her study journal entry on April 28th; parentheses mine］

This participant later replied in the stimulated recall interview that her recent negative experience of learning English (i.e., repeatedly looking up the same words in the dictionary) was a driving force behind the deployment of the metacognitive strategies intervened in the class (see Excerpt 7). Furthermore, her learning experience of being taught the same metacognitive strategies in the past facilitated her deployment following the intervention of the present study (see the first underline in Excerpt 7).

Excerpt 7

〔Explaining why the same participant had started using the metacognitive strategies of "reflecting" and "evaluating"〕

Previously I learned about these same strategies (i.e., reflecting and evaluating) and tried to check my progress on vocabulary learning, but I didn't do it so seriously. But I recently had the experience of looking up the same words several times, and I was upset. So, when I learned about reflecting in the class (of this study), I recalled my previous experience of learning these strategies and realized their importance once again. I thought my repetitively looking up the same words in the dictionary was because I didn't reflect, evaluate, and review constantly what I had studied. This is why I started a constant reflection on vocabulary learning and an evaluation of its achievement.

〔PSLJ3, from the stimulated recall interview; underlines and parentheses mine〕

3.2 Possible Obstacles to Learning Metacognitive Strategies

Contrary to the common patterns identified in the process of learning metacognitive strategies, possible obstacles were also found. An analysis of the retrospective interviews undertaken with the participants identified two of such possible obstacles.

3.2.1 Lack of Other-regulated Learing

One of the aforementioned obstacles related to the lack of other-regulated learning. As shown in Excerpts 8 and 9 below, participants were likely to want external reinforcement, such as assignments, quizzes, and in-class activities, in order to incorporate the metacognitive strategies into their strategy repertoire.

Excerpt 8

〔Explaining how external reinforcement was important for the Participant PSMN1's learning〕

To incorporate the new ways of learning (= using metacognitive strategies), I want to have quizzes, assignments, in-class activities, etc. through which I must use these metacognitive strategies taught. I need to put myself in the situation of "I must do."

〔PSMN1, from the retrospective interview, parentheses mine〕

Excerpt 9

〔Explaining why another Participant PSZN2 was unable to use the strategy of "setting goals" effectively〕

I sometimes set goals, but I usually don't do anything to achieve them or rather forget them. This is because there is nothing that pushes me to achieve the goals.

［PSZN2, from the retrospective interview］

3.2.2 Effort of Incorporating Metacognitive Strategies

Another possible obstacle identified was the effort required to incorporate metacognitive strategies into participants' strategy repertoires. As the students established their own habits for learning English over the years, the incorporation of the new metacognitive strategies may have required them to change their learning habits. This should especially be true in the case of incorporating metacognitive strategies as opposed to other types of strategies, since their deployment is strongly related to the participants' habit formation in learning the target language. Therefore, although the students realized the importance of the metacognitive strategies that were taught, without feeling the urgent need to change their learning habits on account of previous metacognitive failure, they may have been reluctant to incorporate the new metacognitive strategies（see Excerpt 10 and 11 below）.

Excerpt 10

［Explaining how the metacognitive strategy of "reflecting" was time-consuming for the Participant PSZS4］

I understand that reflecting is important for language learning, but I can't use it. Reflection takes time. You need to check what you have studied and what you haven't done well, and then you must study again what you didn't do well. So, it is time -consuming.

［PSZS4, from the retrospective interview］

Excerpt 11

［Explaining how the same strategy of "reflecting" was time-consuming for another participant, the Participant PSMN1］

Constant reflection is rather time-consuming and troublesome for me. So, I want to review all of what I have done in class in one or two days, for example, just before the exams.

［PSMN1, from the retrospective interview］

４．Discussion

４．１ Process of Learning Metacognitive Strategies

As illustrated above, the participants started to use the new metacognitive strategies only after experiencing strong feelings in connection with previous metacognitive failures in learning English. Learners' perceptions of the efficacy of metacognitive strategies taught during the intervention can be insufficient for learners to incorporate these strategies into their learning habits. A sense of urgency or a strong motivation for solving problems related to their learning seems to have encouraged the learners to incorporate the metacognitive strategies taught during the intervention. This could be due to the natural tendency of learners, considering that the integration of new strategies, especially metacognitive ones, into their strategy repertoire means changing their learning habits. Learners usually do not change their habits if they are satisfied with their present ones.

Furthermore, previous metacognitive failure was not a sufficient reason for motivating the participants of this study to regularly deploy the new metacognitive strategies. Along with a strong motivation to improve their strategy deployment, students also needed scaffolding or additional encouragement, such as intervention in another course or in the past. They were therefore more likely to be very cautious about incorporating new metacognitive strategies.

４．２ Possible Obstacles to Learning Metacognitive Strategies

These findings revealed two possible obstacles that affected the participants' incorporation of metacognitive strategies taught during the intervention: the lack of supervision by external sources, and the effort required to incorporate the strategies. The students' desire for outside supervision and regulation corresponds with Ikeda（2008）, in which Japanese university students participated in individual study sessions arranged by their teacher and later asked her to continue these sessions even after the data collection period was finished so that they could continue to manage their individual study. It is interesting to observe that such students with a high motivation to learn English as those in this study still depended on other-regulated learning rather than self-regulated learning. Even though the learners become aware of their own role in the learning process and perceive that "being responsible" is a key factor in successful learning（Sanprasert, 2010）, translating this perception into action may be difficult for them without any enforcement by external sources such as teachers, quizzes, and activities.

The findings relating to the students' perception of the effort required as a possible learning obstacle are in line with Takeuchi（2001）, in which a strong negative correlation was confirmed

between the participants' perception of the effort required to use metacognitive strategies and their actual use. In the present study, the participants indicated in the interviews that they were concerned with the effort needed to use metacognitive strategies even after the strategy intervention. This means that the students' perception of effort is very strong and difficult to change without, for example, repeated tasks in class（again, one example of other-regulated learning）in which they deploy the metacognitive strategies and realize the usefulness of these strategies for solving problems in their own English learning.

The role of other-regulated learning may be an indispensable prerequisite for the incorporation of metacognitive strategies into the students' strategy repertoire as well as for reinforcing self-regulated learning. Although the efficacy of the reading strategy intervention is reported to last at least three months after the intervention（Ikeda, 2007）, the efficacy of metacognitive strategy interventions may not remain for such a long duration and eventually diminish without the scaffolding for self-regulated learning.

5．Conclusion

This paper explored the processes of incorporating metacognitive strategies into learners' strategy repertoire as well as the possible obstacles to their incorporation. Before concluding, one limitation of the present study should be mentioned. Although study journals collected very valuable data of learners' voices over the course of this semi-longitudinal study, they may have encouraged the participants' reflection of their own learning, i.e., one of the metacognitive strategies taught in this study. With this limitation in mind, I would draw the following conclusion.

The students' strong emotions caused by previous metacognitive failures in English learning led to the incorporation of metacognitive strategies. Such emotions were therefore a driving force for the learners to deploy the strategies taught. Furthermore, the results identified the importance of scaffolding as the next step towards the assimilation of metacognitive strategies. Considering that the mode of deploying metacognitive strategies deeply influences the students' learning habits, they are understandably cautious about adding new metacognitive strategies to their strategy repertoires. Finally, by exploring the process of how the metacognitive strategies were assimilated, two possible obstacles were identified in this study:（a）the lack of other-regulated learning, and（b）the effort required by students to incorporate the strategies. Although the findings of the present study cannot be easily generalized to other situations, the students' own voices from study journals and interviews can still be used to reflect on and

reconsider the way of supporting learners to become autonomous.

Acknowledgements

Notes

1）Oxford（2011）expands on the notion of metacognitive knowledge and introduces a new term of "metaknowledge." According to her, metaknowledge includes three new categories（i.e., group or culture knowledge, whole-process knowledge, and conditional knowledge）in addition to the Flavell's three types of metacognitive knowledge.

2）All the participants in this study were female. As studies examining the influence of gender on strategy use report mixed findings（see Cohen & Macaro, 2007 for a review）, this study took the necessary precautions by including only female students to avoid the possible influence of gender on the participants' strategy use.

3）The participants enrolled in both Policy Studies and English Language Studies took the oral communication course（different classes）taught by the author.

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Appendix A. A Sample of the Handout Used in the Intervention

（Originally written in Japanese; translation mine.）

> Tips for Reading 1：Let's Set Small Goals and Make a Plan for Your Study

What is the purpose of your learning English? The answers may range from "I want to be able to speak English well," to "I just want to follow the English course at university," or "I want to study abroad in the near future."

To reach such a big goal, are you setting small goals? Small goals are important for your independent study in order to make it to the top of the mountain. You need to consider by when you will finish each task, how you will complete it, etc.

For example:

    Big Goal   : To read English books fluently without the aid of dictionaries

    Small Goals : To increase vocabulary by learning 500 new words by the end of the 1st year of the university

    Plan   : Memorize one or two words a day in a textbook

                 : Memorize one example sentence on my way to/from university, during lunchtime, at home, or in the bath time.

                 : Review the vocabulary learning for the week over the weekend

＊ Tip ＊

    A key point is to set small goals that you can easily achieve.

Let's try to set your big and small goals and make a study plan!

    Big Goal

    Small Goals

    Plan