SPT（被験者実演課題）と体制化による分詞の学習効果

近　山　和　広

要旨　本研究では体制化を取り入れた指導に被験者実演課題を加えることが、英語の分詞学習をより促進するかを検証する。体制化とは学習要素を相互に関連づけることであり、通常、授業では体制化された情報を口頭や教材による文章説明や図を用いる指導法により教授される。今回、分詞の指導にあたり、この従来の指導法に被験者実演課題を加えてみた。被験者実演課題については、多くの研究によって、情報の体制化を促し、その結果記憶を促進することが明らかにされている。しかしながら、被験者実演課題が英語の文法の学習に効果があるのかという研究はほとんど行われていない。そこで分詞の学習において、松沼 (2007) が指摘する体制化された指導に被験者実演課題を加えることがどのように影響するのかを研究するに至った。今回、実験を行い、78名の大学生が参加した。参加者は事前テストの結果により実験群と統制群とに振り分けられた。2つの群に対し体制化に基づいた授業を文章による説明とイメージ画を用いて行った。2つの群の違いは現在分詞と過去分詞の違いの学習に実験群は被験者実演課題を用いたということだけであった。その結果現在分詞と過去分詞の違いの問題において、実験群が統制群を上回った。これらの結果から、英語の分詞学習において従来の体制化方略に基づいた指導法に被験者実演課題を加えることでより効果が現れるということが分かった。

キーワード　被験者実演課題、分詞、体制化方略

1. Introduction

It is crucial to recall and use what we learned when it is needed. When learning foreign languages, when we have conversations or take examinations, we need to recall the knowledge of grammatical terms, vocabulary, or phonological concept learned in a classroom. However, in many cases, it seems difficult because we cannot effectively recall what we learned. There are two possible causes: (1) the process of encoding, and (2) loading a lot of information (grammatical meanings or uses). Learning means to get new knowledge and connect it to the knowledge we have already learned. After we learn some information or techniques, we retain them as memory. According to psychologists, the term “memory” covers three important aspects of information processing: 1) encoding, 2) storage, and 3) retrieval. Encoding means to process and combine the information received from outside. Storage means to record the

encoded information in short-term or long-term memory. Retrieval means to recall the stored information in response to a certain cue for use in a process or activity. If encoding is insufficient, the information will not be retained longer. In a classroom, EFL teachers need to consider the best way to encode the amount of information. Therefore, the role of the teachers is to use various teaching methods to help students encode the information and retain it longer. In addition, teachers must consider not only which teaching method they use, but also how the lesson will be managed because if the information is well organized in advance, the teaching method can become more effective. In this paper, I will focus on teaching participles and examine how the methods based on cognitive psychology can help students learn them effectively. This study chose English participles because understanding participles encompasses a lot of information to study and many students make mistakes about how to use them.

2. Organization Strategy for EFL

For teachers, planning a new teaching method is very important. Nowadays, there are numerous kinds of teaching materials, which we can get from not only books, but also the Internet. Although useful materials are available easily, it is difficult to retain the grammar rules for long and retrieve them whenever needed. The cause of this may not be materials, but methods to teach. Teaching methods based on educational psychology are important. Kitao (1981) suggests that it is necessary to find a relation when combining new information with stored information, and one can activate to refine by visualizing it. Along with refining, the process of organizing new information is important for a course of study. For learning effectively, a lot of new information needs to be categorized and organized. To organize information has two merits: 1) recall of long-term memory will become easy through networking knowledge and 2) processing and retrieval of information will become easy through reducing the items of information. As for teaching, it is important for teachers to organize the information in advance and plan a better way to teach it. This process is called the organization strategy. As the role of the organization strategy is important for learning foreign languages, some research has been conducted to prove the effectiveness of the organization strategy in teaching English grammar. Matsunuma (2007) reported that using the organization strategy was effective for

learning the present perfect tense. In his study, 161 high school students (freshmen) participated and were divided into either the experimental group or control group. For the experimental group, he used the word "present" as a keyword, and gave a lecture by relating definition, meaning, and grammar rules with one another. The students were also instructed to draw a diagram to understand the present perfect tense. For the control group, he used different handouts and only gave a lesson without focusing on the keyword, "present" and relating the above three terms. They were instructed to look at a diagram compared to drawing a diagram. After the lecture, the first posttest was conducted, and the second posttest was conducted one month later. The experimental group outperformed the control group on both posttests. Goto (2012) also reported that the lesson based on the organization strategy was effective for studying the subjunctive. She conducted an experiment in a university class, and sixty-three university students participated. She organized the information by focusing on two parts: 1) the difference between real and unreal situation, and 2) the difference between the basic rule of verb tenses and the verb tenses in the subjunctive mood. She categorized each teaching point in the handout with pictures so that the students were able to refine the information to memorize. Following the lecture, the score on the posttest was higher than that on the pretest. The teaching methods of their lessons based on the organization strategy were to teach organized information by verbal instructions and to use visual aids. According to Level of processing effect, the level of process will be deep and memory will be promoted from organizing information and using visual aids. The students focused on a keyword or key phrase to combine new information with the information they had retained, received text information by both listening to oral explanation and reading the handout, and finally refined the information by looking at pictures or drawing diagrams.

3. Subject Performed Task

Actions and linguistic information are related. Memorizing linguistic information with simultaneous actions will be effective when one tries to recall that information later (Tulving, 1983; Tulving & Thomson, 1973). In the beginning of 1980, SPT (Subject Performed Task) was developed as an experimental paradigm for episodic memory. Regarding the correlation between

actions and memory, numerous studies on SPT have been conducted. In SPT, the subjects are instructed to perform a series of miniature actions for a subsequent memory test (Cohen, 1981). For example, the subjects are required to enact the verbal to-be-remembered (TBR) items, which consist of instructions or action phrases, by performing tasks (for example, point at the door). After that, the subjects are asked to recall the sentence without performing actions. A comparison with Verbal Task (VT), such as a repetition of utterance, shows that the recall effect of SPT is higher than that of VT. It is called SPT effect. Masumoto (2008) found that SPT improves recall effects and does not apply to some memory laws seen in VT so that SPT effect has attracted many researchers' interest. He gave the following examples of these memory laws:

1) Forgetting effect

Nyberg, Nilsson & Bäckman (1992) reported that the reduction of recall rate in SPT effect is smaller than that of VT after time has passed. Nilsson, Cohen & Nyberg (1989) also reported that the difference of recall test between SPT and VT did not change after 2 minutes, 24 hours, and 1 week.

2) Primacy effect/Recency effect

When the list of words to be memorized is shown in order, the recall rate of the word at the beginning and the end is higher than the words at the middle. It is called primacy effect or recency effect. Bäckman & Nilsson (1984) reported that VT shows primacy and recency effect, while SPT does not.

3) Level of processing effect

Level of processing effect means that deep processing (for example, the meaning or sound of words) is superior to shallow processing (for example, the form of words) on memory tests (Craik & Lockhart, 1972). In VT, deep processing effect was recognized, while it was not in SPT.

4) Generation effect

For some subjects, generating own materials and encoding by themselves can result in higher score on recall test than receiving materials and encoding. This phenomenon is called the generation effect. Kausler & Lichty (1988) conducted an experiment. Two groups were compared. The first group was instructed to

perform using objects as an experimenter directed. The second group was instructed to perform using objects as usual. As a result, there was no significant difference for the recall test between these two groups, and they reported that there was no generation effect on SPT.

5) Metamemory

Metamemory refers to the knowledge and conviction about memory processing or memory capacity (Umeda, 2002). Cohen (1988) reported that the participants of VT predicted the score on memory test, while those of SPT could not.

6) Aging

There is a difference in the scores on memory test between the old and the young in VT, while there is no difference in SPT. Cohen, & Stewart (1982) conducted an experiment on the relation between aging and free recall. Among children aged 9, 11, and 13 years, older children marked higher score on recall test in VT, but there was no difference in SPT.

7) Mental faculties

It is said that there is a positive correlation between mental faculties and memory. Cohen & Bean (1983), however, reported that there was a difference between mentally retarded children and non-handicapped in terms of VT, while there was no difference in terms of SPT.

Some theories explain SPT effects. For example, in the multimodality theory, Bäckman & Nilsson (1984, 1985) proposed that enactment during encoding activates auditory and visual sense so that the characteristic information of objects or events (color, texture, shape, size, et cetera) is stored. It may cause different results of recall between SPT and VT because VT activates either auditory or visual sense. Subsequently, Bäckman, Nilsson, & Chalom (1986) proposed the duel encoding theory. In this theory, SPT is superior to VT in terms of recall because encoding of SPT uses both verbal component and motor component, while VT uses only verbal component. Engelkamp & Zimmer, (1984, 1985) focused on the motor component and claimed that motor encoding is more efficient than verbal and visual encoding. There is a finding supporting this. Encoding SPT led to higher recall than did visualizing oneself perform the action or watching another individual perform the action (Engelkamp & Zimmer, 1985,

1997).

Although there are considerable studies on SPT effect, there are few studies on SPT related to the grammar of foreign languages. Suzuki & Awazu (2009) examined whether SPT facilitates Japanese students' learning of English indefinite pronouns and proved that SPT was effective for learning English pronouns. Since it is said that SPT is superior to VT in terms of free recall, they arranged two groups. One group studied English indefinite pronouns through images. This process is called imagery task (IT). The other group studied the same thing as IT group through SPT. Twenty university students were assigned to either of these two groups and the scores on grammar test in both groups were compared. The group with SPT outperformed the group with IT. This result supported that SPT can be effective for not only recalling words or sentences, but also learning the grammar rules. Effective memorization requires something related to the information at the stage of encoding. Tulving (1983) proposed that if some cues promote the recollection of a target word, they must be encoded together. This is called Encoding specificity principle. In other words, if students try to do something special when encoding new information, they can recall it effectively.

4. Problems with learning participles

In an English class, many teachers notice grammatical mistakes made by students. Regarding participles, there are three points to make it difficult to use participles. First, many students do not know or remember the role of participles. The second point is the influence of the first language. Many students, for example, say or write, "I am boring." Concerning this problem, there are different concepts between English and Japanese. When learning a foreign language, people are influenced by their first language. When learning participles, students make mistakes because of their first language. Matsui (1979) categorized three types of mistakes Japanese students make: 1) careless mistake, 2) conditioned reflex, and 3) mistake due to Japanese thought. The most common cause of making mistakes about participles is (3). In daily conversation, a subject which means one takes actions (agent) is sometimes omitted in Japanese language. For example, Japanese students may say "*Nanika kattekuru*" *(Something will buy.)*. This sentence has no agent who takes actions.

In English, a subject is required at the beginning of the sentence and who takes actions is very clear, so people say "I (We) will buy something." In addition, Japanese language sometimes uses inanimate subjects and intransitive verb together so that it sounds as if the inanimate subject is performing the action. Consequently, thinking about the relation, for example, between "a car" and "park (verb)," students tend to use present participles, not past participles. The reason Japanese students make such a mistake is that they follow the English sentence pattern, "A is B" without recognizing the concept of subjects (agents) varying in English and Japanese. Mizushina & Magara (2007) reported that Japanese students' understanding of a subject in English is affected by the knowledge of Japanese language. The third point is the form of participles. There are two forms of participle: present participle and past participle, and both are used as adjective and verb (Araki, Arimura, Amano, 1987). Present participles take "−ing" form and are in the same form as gerunds. According to Celce Murcia & Larsen-Freeman (1983), one of the best ways to avoid making such mistakes is to remember each function. For example, gerunds work as nouns, while present participles as adjectives. They summarized the major functions of gerunds and present participles (−Ing participles):

The functions of gerunds:

1. Nouns functioning as subjects, objects, or predicate nouns following *BE*:
   i.e., *Seeing* is *believing*.
2. Compound nouns:
   i.e., a *sleeping* bag (a bag used for sleeping)
3. Gerund clauses functioning as subjects, direct objects, or objects of prepositions:
   i.e., I enjoy *taking* a walk after dinner.
4. Gerund clauses following a passive determiner or possessive noun:
   i.e., I dislike his *saying* things like that.

The functions of−Ing participles

1. Adjective + noun combinations:
   i.e., the *sleeping* child (the child who is sleeping)
2. −ING forms that resemble - but cannot possibly be derived form - reduced relative clauses (i.e., adjectival function):

i.e., The Johnsons have bought a house *resembling* a barn.

3. −ING adjectives in predicate or attributive position:
   i.e., Joe tells *exciting* stories.
4. −ING forms as complements of sensory perception verbs:
   i.e., I saw Mark *running* across the street.
5. −ING adverbial clauses:
   i.e., *Approaching Ensenada*, we were stopped by two Mexican highway patrolmen.

To summarize, it is most likely effective to teach participles with the three points mentioned above. Since the process of learning participles requires memorizing and organizing much information, it cannot be denied that there is a strong need for effective teaching methods for learning participles.

5. Aims

Although Matsunuma (2007) and Goto (2012) proved that organized lessons were effective for learning the present perfect tense and subjunctive, they pointed out that the percentage of correct answers was not high enough. The cause of this may result from the teaching methods they used. Verbal instructions is considered as VT, and visual aid is considered as IT. Based on SPT effect, a higher effect will be expected by performing actions. This study examined whether the teaching methods based on the organization strategy plus SPT can better promote learning of English participles.

6. Method

6.1 Participants

The participants of this study comprised of first-year students of a university in Tokyo (n = 78, Male = 32, Female = 46). All participants were native speakers of Japanese. None ever lived in a country where English is the first or second language. They were taking two 90−minutes English classes in a week to improve their reading skills. The participants of this study received a verbal explanation of the following points: 1) the purpose of this study, and 2) all the information about the participants must be confidential.

6.2 Materials

(1) Handout. By focusing on two key points; 1) the basic role of participles is adjective, and 2) how the relation between subjects (or objects) and verbs affects participles, information was organized. For students, learning involves combining new information to the knowledge they already have. To this end, information must be organized or images should be used. In this handout, information was divided into three parts: 1) the basic information of participles, 2) the difference between gerunds and present participles, and 3) the difference between the active voice and passive voice. All parts included some sample sentences to explain how to use participles correctly. Some illustrations were used regarding the difference between the active and passive voice.

(2) Pretest. It consisted of three categories of questions: 1) fill-in question (the basic role of participles), 2) two-selection question (gerunds versus present participles), 3) two-selection question (present participles versus past participles). The total number of the questions was 24. All questions were based on the three books (Phillips, 2001, Toyonaga, 2003, Ishiguro, 2006). The score on each question was 1 point and the total score on the test was 24. As this study

Table 1. Examples of the Pretest

1. 下記の文を読んで（　　）に入る語句を答えなさい。
分詞には（　①　）分詞と（　②　）分詞があり、その働きには（　③　）詞的な働きと（　④　）詞的な働きの両方の性格を持っています。分詞がbe動詞やhaveと一緒に用いられると（　③　）詞的な働きをし、（　④　）詞的な働きの際は名詞の前後に置かれて、その名詞を修飾する。

---

2. 次の下線部が分詞である文を選び、その文の数字に○を書きなさい。
1. **Playing** tennis is fun.
2. Brush your teeth before **going** to bed.
3. **Barking** dogs do not bite.

---

brush... 磨く　　bark... 吠える
3. 次の（　　）に入る適切な語句を選び、○で囲みなさい。
1. What are we going to do tonight? I'm so (bored / boring) just sitting here watching TV.
2. He was very (disappointed / disappointing) with the results of his exam.
3. You look (worried / worrying) Do you have any problem?

examined whether students understood participles correctly or not, the Japanese definitions were given for some words to prevent mistakes through mistranslation. The test time was 20 minutes. The examples of the pretest are described in Table 1.

(3) Posttest. The posttest was conducted on the same day as the pretest after the study. The contents and the time of the posttest were the same as those of the pretest. The order of questions was changed.

6.3 Procedure

Two groups participated in this study. First, all the participants took the pretest for 20 minutes to check their knowledge of participles. The pretest revealed no significant difference between the two groups ($t(76) = 1.96$, $p < .0.5$). Based on this result, the two groups were divided into either the experimental group (n = 39) or the control group (n = 39). One week after they took the pretest, both the experimental group and the control group received the lecture on participles with the handout. To the experimental group, the author gave an oral lecture on participles, which the participants listened to while looking at the handout. The information given in this lecture was taught by relating it to participle: how the difference between intransitive verb and transitive verb relates to participle, and what is the difference between gerunds and participles, by giving examples of each usage. While learning present and past participles, the participants looked at the pictures and learned about the subject (doing action), verb (indicating the effect of action), and the object (receiving the effect of action). The picture of arrows was used for indicating how the verb indicated the effect of action. The arrow from left to right when showing the subject indicated the effect of action on the object. On the other hand, when showing the object receiving the effect of action, the arrow moved from right to left. After grasping the image, the participants of the experimental group were asked to perform the task based on the eight given sentences. For example, regarding the sentence, "*Pan ga yaketa*" (Bread is baked.), they were asked to imagine themselves as bread. At the same time, they were asked to speak out "*Jibun wa pan*" (I am bread.) to recognize themselves as an inanimate subject. Then, to reproduce the image that they had on the handout, the participants were asked to turn left and stretch their hands and make human figures as if there were someone (the object). They spoke out "*Hito ga pan wo yaku*" (A person bakes

bread.), and moved their hands back from the position of the object toward themselves. This direction of moving hands indicated the same direction of the arrow on the picture. This implies that the subject ("the bread") receives the effect of action from the object ("someone"). Next, the participants spoke out "*Pan ga hito wo yaku*" (Bread bakes a person.), stretching their hands again and "*Pan wa hito wo yakanai*" (Bread does not bake a person.) to recognize that in this sentence, the subject (bread) does not affect the object (someone), instead the subject receives the effect from the object. After they understood the relation between things that gave effects of actions and received them, they spoke out "Bread is baked." The instruction for SPT in the experimental group is shown in Figure 1. When the participants did not use actions as they did not know how to or were shy, the author demonstrated repeatedly or performed with them together. In the control group, the participants received the same lecture as the experiment group except for performing the task. After the lecture, the participants of the control group reviewed the difference between the active voice and passive voice for 10 minutes while the experimental group permed actions. Both groups took the posttest for 20 minutes.All the participants were instructed to put the handout in their bags while taking the posttest.[(1)]

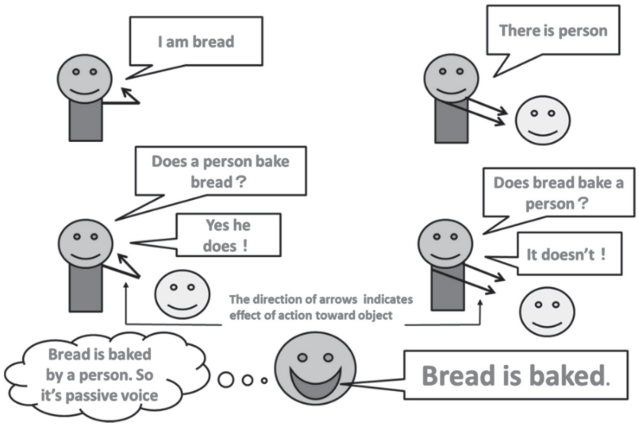

Figure 1. Procedure of SPT in the Experimental group

6.4 Result

The mean scores, standard deviations, and the result of the *t*-test of the posttest are shown in Table 2.

Table 2. Means, Standard Deviation of the Posttest and the Result of *t*-Test

Control group (n = 39)		Experiment group (n = 39)		
M	SD	M	SD	*t*-test
14.5	3.10	16.8	2.52	3.56*

*p < .05

A *t*-test was conducted in the posttest. There were significant differences in the posttest between the two groups ($t(76) = 3.56$, $p < .0.5$). The average of the posttest of the experimental group ($M = 16.8$, $SD = 2.52$) was significantly higher than that of the control group ($M = 14.5$, $SD = 3.10$). The comparison of the results of the posttest revealed that the experimental group understood participle after the study. A *t*-test was also conducted in the difference of each question between the pretest and posttest in the two groups. The mean scores, standard deviation, the percentage of correct answers, and the result of the *t*-test of each question (pretest and posttest) are shown in Table 3.

In the experimental group, the difference of all questions (Question 1, 2, and 3) was significant [(Q1: $t(38) = 5.07$, $p < .01$), (Q2: $t(38) = 2.33$, $p < .05$), (Q3: $t(38) = 5.70$, $p < .01$)]. In both groups, the difference of the pretest and posttest was significant: $t(38) = 3.78$, $p < .05$ (the control group), $t(38) = 8.06$, $p < .01$ (the experimental group). In the control group, the difference of Question 1 and 2 between the pretest and posttest was significant [(Q1: $t(38) = 5.47$, $p < .01$), (Q2: $t(38) = 2.45$, $p < .05$)]. However, the difference of Question 3 between the pretest and posttest was not significant: $t(38) = 1.42$, $p < .05$. The result revealed that both groups could get higher score on the posttest, but the score of the experimental group was higher than that of the control group because there was no significant difference of Question 3 in the control group.

Table 3. Means, Standard Deviation, Percentage of Correct Answers (POCA) and the Result of *t*-Test of each question

	Experimental Group						
	Pretest			Posttest			
	M	(SD)	POCA	M	(SD)	POCA	*t*-test
Q1 (4 questions)	2.2	−1.2	55%	3.3	−1.2	82%	5.07**
Q2 (5 questions)	2.8	−1.2	57%	3.4	−1.2	67%	2.33*
Q3 (15 questions)	8.2	−1.8	55%	10	−1.8	68%	5.70**

**p<.01 *p<.05

	Control Group						
	Pretest			Posttest			
	M	(SD)	POCA	M	(SD)	POCA	*t*-test
Q1 (4 questions)	1.8	−1.2	46%	3.1	−1.2	76%	5.47**
Q2 (5 questions)	2.3	−1.2	47%	2.9	−1.2	58%	2.45*
Q3 (15 questions)	7.9	−2.0	53%	8.6	−2.4	57%	1.42

**p<.01 *p<.05

7. Discussion

This study revealed the effectiveness of the lesson based on the organization strategy plus SPT for learning participles. The result of Question 3 was different. The experimental group used SPT to distinguish between active and passive voice, while the control group learned the difference between them by listening to the lecture, reading the text, and looking at the pictures. The fact indicates that teaching methods are a key factor for learning. This study chose SPT as an additional method and its effectiveness was proved. The control group tried to memorize the information about participles either visually or aurally. On the other hand, the experimental group encoded it verbally and actively. One of the theories supporting the SPT effect is Duel-coding theory, and according to Bäckman et al., (1986), the reason SPT is more effective than VT is that VT uses only verbal encoding, while SPT uses both verbal encoding and active encoding. The motion information through active encoding is retrieved automatically when recalling verbal information. The result of Question 3 affirmed this Duel-coding

theory. Although this experiment showed the possibility of learning participle effectively, I found three research tasks. The first task is to investigate whether the information encoded by SPT will be retained as a long-term memory. In this study, the experimental group outperformed the control group on the posttest conducted after the lecture. However, it is necessary to examine how the score will be changed weeks or months later to prove the effect of SPT on learning English grammars. The second task is to create and use SPT for explaining the difference between gerunds and present participles. In Question 2 (gerunds versus present participle), both groups got higher score on the posttest, but the percentage of correct answers was not high enough. If SPT proves the effectiveness for understanding the difference between gerunds and present participles, it will help students understand the use of participles more. The third task is to design a more effective lecture with the organization strategy. Although both groups understood the use of participles and got higher score on the posttest, the percentage of correct answers of each question in both groups was 61% (the control group) and 70% (the experiment group). The result shows that the participants in both groups could not understand participles perfectly. The cause lies in how the lecture was conducted. The participants got the information mainly by reading materials. Productive tasks such as making sentences by themselves, or doing exercise and group activities were not included in this lecture. I expect that if the process of integrating perceptive and productive tasks is introduced in a lecture, the percentage of correct answers will be higher.

References

Araki, K., Arimura, K., & Amano, M. 荒木一雄、有村兼彬、天野政千代（1987）.『英語の文法』*英潮社新社*

Bäckman, L., & Nilsson, L. G. (1984) Aging effects in free recall: An exception to the rule. *Human Learning*, 3, 53–69.

Bäckman, L., & Nilsson, L. G. (1985). Prerequisites for lack of age differences in memory performance. *Experimental Aging Research*, 11, 67–73.

Bäckman, L., & Nilsson, L. G., & Chalom, D. (1986). New evidence on the nature of the encoding of action events. *Memory and Cognition*, 14, 339–346.

Celce-Murcia, M., & Larsen-Freeman, D (1983) THE GRAMMAR BOOK. *HEINLE & HEINLE PUBLISHERS*.

Cohen, R. L., (1981). On the generality of some memory laws. *Scandinavian Journal of*

Psychology, 22, 267–281.
Cohen, R. L., (1988). Metamemory for words and enacted instructions: Predicting which items will be recalled. *Memory and Cognition*, 16, 452–460.
Cohen, R. L., & Bean, G. (1983). Memory in educable mentally retarded adult: deficit in subject or experimenter? *Intelligence*, 7. 287–298.
Cohen, R. L., & Stewart, M. (1982). How to avoid developmental effects in free recall. *Scandinavian Journal of Psychology*, 23, 9–16.
Craik, F. I., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior*. 11. 671–684.
Engelkamp, J., & Zimmer, H. D. (1984). Motor programme information as a separable memory unit. *Psychological Research*, 46, 283–299.
Engelkamp, J., & Zimmer H. D. (1985). Motor programs and their relation to semantic memory. *German J. Psychol*. 28, 239–254.
Engelkamp, J., & Zimmer H. D. (1997). Sensory factor in memory for subject-performed tasks. *Acta Psychologica*, 96, 43–60.
Goto, Y. 後藤由佳（2012）.『仮定法を学習する難しさと効果的な学習援助方法の検討』*早稲田大学大学院教育学研究科紀要 別冊*　19号–2
Ishiguro, A. 石黒昭博（2006）.『総合英語Forest 4th Edition』*桐原書店*
Kausler, D. F., & Lichty, W (1988). Memory for activities: Rehearsal-independence and aging. In M. L. H. Howe & C. J. Brainerd (Eds.), Cognitive Development in adulthood: Progress in cognitive development research (pp. 93–131). *New York: Springer*
Kitao, N. 北尾倫彦（1991）.『学習指導の心理学　教え方の理論と技術』*有斐閣*
Masumoto, K. 増本康平（2008）.『エピソード記憶と行為の認知神経心理学』*ナカニシヤ出版*
Matsui, E. 松井恵美（1979）.『英作文における日本人的誤り』*大修館書店*
Matsunuma, M (2007). How Can Classroom Instruction in English Help Japanese High School Students to Learn the Present Perfect tense? *Japanese Association of Educational Psychology*, 55,　414–425.
Mizushina, E., & Magara, K. (2007). Rectifying Japanese students' misconceptions about the subject of English sentences: Interference from Japanese particle「は」(wa). *Japanese Journal of Educational Psychology*, 55, 573–583.
Nilsson, L.G., Cohen, R. L., & Nyberg, L. (1989). Recall of enacted and nonenacted instructions compared: Forgetting functions. *Psychological Research*, 51, 188–193.
Nyberg, L., Nilsson, L.G., & Bäckman, L. (1992). Recall of actions, sentences, and nouns: Influences of adult age and passage of time. *Acta Psychologica*, 79, 1–10.
Phillips, D. (2001). Longman COMPLETE COURSE FOR THE TOEFL TEST: Preparation for the Computer and Paper Tests. *Longman*.
Suzuki, A., & Awazu, S. (2009). Subject-performed Tasks to Facilitate Japanese Students' Comprehension of English Indefinite Pronouns. *Toyo University Keieironshu*, 74, 47–62.

Tulving, E. (1983). Elements of episodic memory. New York: Oxford University Press
Tulving, E., & Thomson, D.M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review*, 80, 352–373
Toyonaga, A. 豊永彰（2003）.『英文法 ビフォー＆アフター』*南雲堂*
Umeda, S. 梅田聡（2002）.「展望的記憶」 井上毅・佐藤浩一（編）『日常認知の心理学』*北大路書房*, 18–35.

Note

（1）To counterbalance the inequality of the lecture, what the experimental group did for learning the difference between present and past participles in the lecture was informed to the control group one week later and the participants of the control group learned how SPT works to recognize the difference between present and past participles.