

Image-based Basic Verb Learning through Learner-centred and Teacher-centred Approaches —A Case Study on Japanese EFL Junior High School Students

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Abstract—This pilot study made comparisons on image-based basic verb learning through learner and teacher-centred approaches. To this purpose, 121 Japanese EFL junior high school students participated. In a learner-centred activity, they just engaged in a card game in which they were able to pay attention to relationships between situational images and forms of the targeted basic verbs. In a teacher-centred instruction, the participants were explicitly taught how given definitions of another basic verb were motivated semantically from situational-images. Immediately after each treatment, post-tests were administered. A week after each immediate post-test, delayed post-tests were given. Analysis of the results found that only high proficiency learners were capable of image-based basic verb learning through either the card game activity or the explicit instruction alone. Considering the results and a SLA model, the authors concluded that image-based basic verb learning should be implemented through learner-centred activity first, followed by teacher-centred explicit instruction.

Index Terms—core images, image-based basic verb learning, EFL, teacher-centred approach, learner-centred approach

I. INTRODUCTION

Nobody will take issue with the importance of learning vocabulary nowadays. A famous example is that one can communicate with others if one knows a certain amount of words, but insufficient knowledge of grammar. On the other hand, even if one is relatively proficient in grammar, one can easily fail to communicate without a sufficient vocabulary because one cannot convey content information (Folse, 2004; Lightbown & Spada, 2006; McCarthy, 1990). The Japanese ministry of education (MEXT) increased the quantity of vocabulary words required in English classes for Japanese junior high school students in 2008. Behind this trend is the desire to improve students' communication competence. In addition, it must also be noted that this new course of study sheds light on practical expressions such as multi-word units and idioms. In fact, some multi-word units and phrasal verbs are shown in the MEXT guidelines as examples. However, in order to use them effectively, students should have appropriate lexical competence (Tanaka, 2012). Tanaka proposes that, with proper lexical competence, learners can properly use seemingly complex basic verbs such as PUT and SET. Though there are many definitions for lexical competence (Meara, 1996; Richards, 1976), Henriksen (1999) claims that the semantization process plays one of the most important roles in fostering lexical competence. According to her, the semantization process involves both mapping onto form and network building processes. The mapping onto form process is regarded as beginning with a "labelling stage": creating a link with a concept and a linguistic feature. Subsequently, this stage moves on to the "packaging stage" where learners obtain an appropriate range of meanings of a word: from central meanings to peripheral meanings. Finally, learners can categorize semantically related words in their word schema. This stage is called networking. Though basic verbs frequently appear in practical expressions, learners seem to have difficulties using them appropriately. Therefore, what Tanaka calls lexical competence is identical to the packaging stage defined by Henriksen (1999). The present study, thus, explores how Japanese EFL junior high school students can learn basic verbs effectively to take advantage of lexical competence in fluent communication in English.

II. PREVIOUS STUDIES

Basic Germanic verbs, known as *bring*, *carry*, *sit*, *stand*, *cut*, *kick*, *give*, *get*, *make*, *let*, and so on describe motion events (Nieda, 2006). Biber, Johansson, Leech, Conrad, and Finegan. (1999) also propose that these basic verbs are frequently incorporated into phrasal verbs. Though these basic verbs are introduced to students at a relatively early

stage (Altenberg & Granger, 2001), mastering them has been regarded as a frequent source of difficulty because basic verbs generally tend to have multiple meanings according to given contexts (Akamatsu, 2010; C'sabi, 2004). To complicate matters, because learners often rely on mechanical memorization strategies for mapping L1 equivalents to L2 words, they cannot understand their meanings properly (Nesi & Meara, 1994).

Recently, however, many researchers have demonstrated the positive impact of a cognitive linguistic approach to teaching and learning polysemous words. Although native speakers of English do not have difficulty in understanding metaphorically extended uses of a word because they have been exposed to English since they were born, the same is not true of EFL learners; they often fail to interpret peripheral meanings of a word (Tomasello, 2003). Cognitive linguists revealed that metaphorically extended meanings of a word are not arbitrary in nature, but semantically motivated (Lakoff, 1987; Taylor, 1988). This means that cognitive linguistic insights could illustrate how seemingly unrelated definitions of a word are motivated through the underlying concepts, making learners obtain deeper memory traces. For instance, Csabi (2004) reports that his participants were able to learn polysemous verbs such as KEEP and HOLD by introducing their semantically schematized information. Additionally, current studies show us that such information can be consolidated with accompanying visual images. There is a consensus that second language words are firmly stored in one's memory when they are presented through both images and the forms of words (Paivio, 1986).

In the field of cognitive linguistics, schematic drawing (image schema) is known to be useful for describing how linguistic information is built on our cognition in general, such as human perceptual interactions and bodily movements in the physical environment (Lakoff & Johnson, 1980; Johnson, 1987). Similarly, Farsani, Moinzadeh, and Tavakoli (2012) mention that image schemas work to map real world structure onto conceptual linguistic structure (Fauconnier & Turner, 2002). From the perspective of language learning, Boers (2009) supports the use of mnemonic techniques in learning vocabulary because mentally processed images can create additional cognitive pathways for later recall of a word. Similarly, through vivid imagery, it is assumed that learners are able to understand the semantic range of given definitions of a word in more meaningful ways (Sökmen, 1997). Indeed, recently, Morimoto and Loewen (2007) investigated the effects of an image-elucidation technique for teaching the polysemous words BREAK and OVER, indicating the underlying potential of visual elucidation for vocabulary learning. Though the advantage of image-based instruction did not seem to be significant, they finally suggested that image-based instruction can be maximized through learner-centred activities. Therefore, the authors decided to compare the effects of image-based basic verb learning through both learner and teacher-centred approaches. This led us to the following three research questions:

RQ.1 Compared to both immediate and delayed post-tests on each treatment, do Japanese EFL junior high school learners show differential outcomes?

RQ.2 Compared to both the treatments on each post-test, do Japanese EFL junior high school learners show differential outcomes?

RQ.3 How does learners' proficiency influence the retention of basic verbs in each treatment?

III. THE STUDY

From February to March in 2014, 121 Japanese EFL junior high school students participated in the research. They had been taught English for a year in Japanese EFL junior high school classroom at that time¹. The number of boys and girls were about equal. To examine the RQ.3, the participants were divided into three groups according to their placement test scores². For targeted basic verbs, eighteen basic verbs which are describable by core and specific images³ cited from Tanaka, Takeda, and Kawade (2007) were selected. Below is the list (Figure 1).

break	give	leave	make	open	pass	put	see	take
carry	draw	hit	hold	keep	meet	miss	run	turn

Figure 1. Targeted basic verbs

The nine items above were allocated to each treatment. Also, thirty-six specific situational images were generated based on the core-images and the definitions of each basic verb (see appendix).

In the first class, the participants were explicitly taught that English basic verbs have core-images, referring to the nine basic verbs with their abstract visual stimuli (Tanaka et al., 2007). In the explanation, how the central sense of each verb is given according to a core-image was briefly explained. This short instruction was implemented to prompt participants' noticing (Schmidt, 1990), because noticing or apperceived input (Gass, 1997) is regarded to be a prerequisite for L2 learning to take place. Subsequently, with the simple explanation of a card game activity, the participants were divided into groups of four, and directed to enjoy a student-centred card game activity. During the activity, they had to guess appropriate basic verbs corresponding to the core-images and situational images of each verb depicted on both sides of picture-cards (p-card).

First, one of the members in a group drew a p-card on which a core-image and a situational image of a basic verb were depicted. Referring to the information on a card, they discussed which verb on the verb-list would suit to the card. After deciding a verb, one of the members drew another card on which a corresponding number with the p-card they drew was printed. By doing so, they were able to confirm simply whether their guess was successful or not. Finally,

they kept a record of whether their guess worked correctly or not by putting ○ or × on a recording sheet. Also, the discussion was carried out in Japanese because although they had experienced foreign language-learning activities in elementary schools for a few years, and a structural language course conducted mainly in Japanese for almost a year at the time, it seemed still difficult for them to talk about metalinguistic information in English, and discussion in English might have inhibited their deeper processing of the basic verbs. This was the sequence of the card game activity (Figure 2).

The procedure of the card game
▪ Explicit explanation of core-images of every basic verb
▪ Rule explanation of the card game
▪ Form groups of four
▪ Guess an appropriate basic verb from a list after watching a core and a situation of images described on a picture card
▪ Confirm whether their guessing was correct or not by drawing a feedback sheet on which the same number with the picture card was printed
▪ Put ○ or × on a recording sheet

Figure 2. Procedure of the card game activity

Immediately after the fifteen minutes card game activity, a post-test was administered. The test consisted of three parts: receptive, productive, and picture-form mapping tests. In the receptive test, it was required that participants isolate two appropriate definitions for the targeted basic verbs from distractors. The next section was a productive stage where they had to fill out blanks with correct basic verbs in sentences accompanied by Japanese translations. Taking participants' linguistic level into account, it was necessary to put the translations below the sentences. Finally they moved on to the picture-form mapping test in which they had to choose an appropriate basic verb which best described each image of definitions from three distractors. Also note that the maximum score of each test was 18, so the maximum score of the completed test ranged from 0 to 54. Two weeks later, at the beginning of the class, a delayed post-test was implemented to measure their retention of the targeted basic verbs. In order to avoid rote-memorization effects, the sequence of questions was jumbled. Both of the tests took around fifteen minutes to finish.

After finishing the delayed post-test, core-images of another nine basic verbs were instructed in the same fashion as the former session. Then the participants received explicit instruction of how other given definitions of basic verbs were semantically motivated through situational images. In this session, another eighteen situational images were explained, which also took fifteen minutes to go through. Note that the explanation was done in Japanese for the same reason as for the card game. To homogenize time on the task, participants were given three minutes as a memorization period. In this memorization period, the author gave them memorization sheets on which images and corresponding definitions were shown. Subsequently, they were given an immediate post-test in the same format as the tests they had already taken, and a delayed post-test followed two weeks later. Test materials will be shown at appendix. Below is the research design (Figure 3).

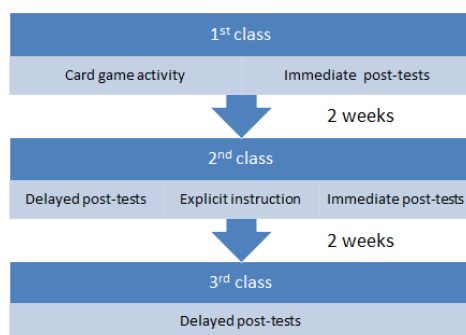


Figure 3. Overview of the research design

IV. RESULTS AND ANALYSES

Due to a number of absences among participants, we analysed data which was derived out of the each test on 100 participants. Tables 1 and 2 summarize the scores and retention rates of each test.

TABLE 1
OVERVIEW OF EACH TEST AFTER THE CARD GAME ACTIVITY AND THE EXPLICIT INSTRUCTION

Card game activity									
Test part	Immediate post-test				Delayed post-test				
	Overall	Receptive	Productive	Mapping	Overall	Receptive	Productive	Mapping	
Mean	49.17	16.50	15.80	16.87	43.66	14.48	13.05	16.13	
SD	4.78	1.43	2.57	1.43	8.62	2.68	4.74	2.29	

Explicit instruction									
Test part	Immediate post-test				Delayed post-test				
	Overall	Receptive	Productive	Mapping	Overall	Receptive	Productive	Mapping	
Mean	48.72	16.54	15.37	16.81	43.19	14.50	13.12	15.57	
SD	6.27	1.79	3.12	2.17	10.11	2.94	4.59	3.57	

n = 100

TABLE 2
RETENTION RATES OF EACH TEST AFTER BOTH TREATMENTS

Test type	Card game activity				Explicit instruction			
	Overall	Receptive	Productive	Mapping	Overall	Receptive	Productive	Mapping
Immediate post-tests	91.06	91.67	87.78	93.72	90.22	87.67	85.39	93.39
Delayed post-tests	80.85	80.44	72.50	89.61	79.98	80.56	72.89	86.50

The score on each test and retention rates from the card game activity and explicit instruction show a slight ceiling effect. Moreover, they are on a declining trend in an analogous way. For further analysis, the authors employed a repeated two-way ANOVA with Bonferroni post-hoc tests to answer the following RQs.

RQ.1 Compared to both an immediate and delayed post-tests on each treatment, do Japanese EFL junior high school learners show differential outcomes?

RQ.2 Compared to both the treatments on each post-test, do Japanese EFL junior high school learners show differential outcomes? The descriptive statistics results are displayed in Table 3.

TABLE 3
MEANS, STANDARD DEVIATIONS, NUMBER, MINIMUM AND MAXIMUM SCORES OF THE TWO TESTS IN IMMEDIATE AND DELAYED POST-TESTS

		<i>M</i>	<i>SD</i>	<i>N</i>	<i>Min</i>	<i>Max</i>
		Immediate post-tests	Card game activity	49.17	4.78	100
	Explicit instruction	48.72	6.27	100	23	54
Delayed post-tests	Card game activity	43.66	8.62	100	21	54
	Explicit instruction	43.19	10.11	100	6	54

The ANOVA showed that there was no interaction between the treatment types and the tests, $F(1, 99) = .001, p < .001, \eta^2 p = .000$. To answer RQ.1, post-hoc Bonferroni test showed that the scores on the immediate post-tests were significantly higher than those on the delayed post-tests in both the card game activity and explicit instruction based on the .05 probability levels, $p < .00, \eta^2 p = .552$ and $p < .00, \eta^2 p = .535$ respectively. Therefore, for RQ.1, one can conclude that Japanese junior high school students were unable to retain what they learned through both treatments.

Subsequently, for RQ.2, comparing both treatments on each post-test, Bonferroni post-hoc test results at .05 probability levels did not reveal any significant differences. Therefore, responding to RQ.2, it is clear that neither the card game activity nor the explicit instruction showed any superiority in this research.

Consequently, RQ.3 “Does learners’ proficiency influence the retention of basic verbs in each treatment?” demonstrates which levels of participants performed especially well with the card game activity and the explicit instruction on the other respectively. In order to answer this RQ, two-way ANOVA with repeated measures for both the treatments were conducted. The results of the card game activity are shown in Table 4 and Figure 4. The ANOVA showed the statistically significant interaction between the levels of participants and the tests, $F(2, 97) = 5.34, p = .006, \eta^2 p = .099$. At the same time, Bonferroni post hoc analysis revealed that significant difference was found between high and low proficiency participants on the delayed post-test at .05 probability level.

TABLE 4
DESCRIPTIVE STATISTICS FOR THE CARD GAME ACTIVITY

Immediate post-test		<i>Mean</i>	<i>SD</i>	<i>N</i>
		High	50.55	3.70
	Intermediate	49.71	4.45	34
	Low	47.24	5.52	33
Delayed post-test	High	46.94	6.45	33
	Intermediate	44.24	8.28	34
	Low	39.79	9.54	33

Note. Max. = 54, Min. = 21.

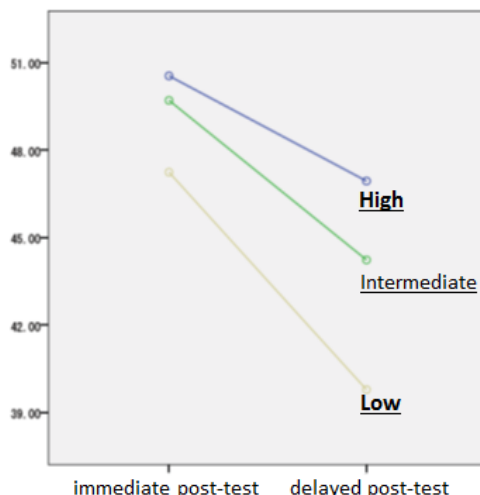


Figure 4. Retention shift from immediate to delayed post-tests on the card game activity

Subsequently, Table 5 and Figure 5 show also a statistically significant interaction between the levels of participants and the tests, $F(2, 97) = 5.34, p = .006, \eta^2_p = .099$. Though Bonferroni post hoc analysis did not reveal any significant difference among the levels of participants at the immediate post-test stage, it turned out that there was a significant difference between high and intermediate proficiency participants on the delayed post-test at .05 probability levels.

TABLE 5
DESCRIPTIVE STATISTICS FOR THE EXPLICIT INSTRUCTION

		Mean	SD	N
Immediate post-test	High	50.27	6.22	33
	Intermediate	47.56	7.35	34
	Low	48.37	4.83	33
Delayed post-test	High	47.06	9.32	33
	Intermediate	41.00	11.72	34
	Low	41.58	8.11	33

Note. Max. = 54, Min. = 6.

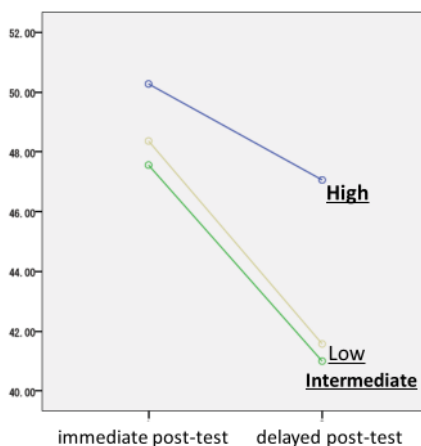


Figure 5. Retention shift from immediate to delayed post-tests on the explicit instruction

Data derived from the above analyses was interpreted by the authors to mean that the intermediate proficiency participants in particular could not benefit from the card game activity alone. Moreover, the explicit instruction saliently turned out to be beneficial for only high proficiency participants; intermediate and low proficiency participants did not profit. Though the statistically significant difference was only observed between high and intermediate proficiency participants, the tendency were remarkably similar to that of low proficiency participants as well. The next section will explain why such results were obtained.

V. DISCUSSION AND PEDAGOGICAL IMPLICATIONS

Though seemingly sufficient lexical retention in whole was observed through both the learner and teacher-centred methods (Table 1 and 2), it was noted that only high proficiency learners showed a loosely-declined forgetting curve;

the rest experienced further decline on the delayed post-test as a result of engaging in both the image-based card game activity and explicit instruction. Going back to the card game activity, in spite of the fact that feedback information on whether their guessing was correct or not was available to the participants, the information must not be so qualitatively effective that especially low proficiency participants were unable to retrieve their lexical knowledge appropriately on both the immediate and delayed post-tests. At the same time, the image-based explicit instruction uncovered the weakness: intermediate and low proficiency learners were not capable of retaining through the instruction though they seemed to memorize the targeted verbs as well as high proficiency learners did at the outset. Therefore, one could conclude that image-based basic verb learning has only limited effects to relatively high proficiency learners. Directing our attention to the field of second language vocabulary learning theory, one can see that little consensus should have been met in this research.

The first factor is frequency. Nation (2013) points out that words generally requires more than single meeting so that they can be stored in learners' mental lexicons. Depending on a context, it is commonly-suggested that learners meet targeted vocabulary six to twenty times at least (Rott, 1999; Waring & Takaki, 2003).

The second factor is closely related to the first. File and Adams (2010) investigated whether vocabulary should be taught isolated, integrated, or incidentally, claiming that vocabulary learning should include various kinds of instruction. Their findings indicate that preparatory vocabulary instruction raises learners' awareness, and thus the effectiveness of subsequent instruction is strengthened. Based on the suggestion above, it could be hypothesized that EFL teachers might employ both types of the treatments used in this research, learner-centred activity and teacher-centred explicit instruction in tandem, especially for low and immediate proficiency learners to gain lexical knowledge more efficiently. However how to integrate both the treatments must be clarified.

As EFL teachers, what we should keep in mind is to stand firmly on SLA theory to elaborate daily classroom instruction. Gass (1997) proposed a model of cognitive perspective SLA theory. Though her original model seems to be based on grammar acquisition of second language learners, later, Gass (1999) restates that the model can be applied to vocabulary learning as well. Looking back at her original theory of SLA, the L2 learning process can be divided into five elements: apperceived input, comprehended input, intake, integration, and output⁴ (Gass, 1997). As has been shown, language learning takes place only after some linguistic information is apperceived. After it is apperceived or noticed, according to Gass, learners try to analyse how a given meaning is expressed by a form through meaning comprehension. This stage is called comprehended input. Then, subsequently, by being exposed to various kinds of linguistic input, learners are able to move on to the next stage, intake.

During intake, it is agreed that psycholinguistic processes such as hypothesis formation, testing, rejection and confirmation for given linguistic data play crucial roles in second language development. Though starting a class with explicit instruction of how given meanings are semantically motivated from a situational image and formal information could make learners notice some linguistic information, it is not likely that they would move on to the intake stage because they do not have to analyse spontaneously the relationships between the given images and forms. There is no need to deeply process the lexical information anymore because learners are spoon-fed through teacher-centred explicit instruction. In light of Gass's theoretical account, as far as the basic verbs are concerned, it seems better that learners spontaneously process basic verbs within a learner-centred activity first, in which they need to process linguistic hypotheses related to targeted basic verbs deeply, and then be given qualitatively sufficient feedback through teacher-centred explicit instruction, rather than being instructed explicitly how given meanings with images of targeted basic verbs are semantically logical from the very first, followed by learner-centred activity later. What is important here is that giving linguistic feedback is integral because learners' linguistic hypotheses would often be imprecise regardless of how deeply they could engage in a learner-centred activity. Some participants could successfully induce underlying rules of the targeted basic verbs; however, most junior high school learners do not seem to be capable of inducing completely the embedded lexical rules only by themselves: what it takes is teacher-intervention for their misinterpretations for lexical regularity after all. Similarly, learners should have trouble in understanding why individual definitions of same basic verbs are related to each other during intake and integration processes. Gass (1999) suggests that learning be facilitated when learners' readiness is satisfied by their noticing the gap between their current inter-language and authentic L2 systems. Her account is that recognizable knowledge gap is necessary in spite of the facts that it is teacher or learner driven. In that way, teacher-centred explicit instruction works well as feedback information which strength learners' current language system by explaining how seemingly unrelated items are in fact connected to each other. As a consequence, strengthening knowledge should be fully utilized or internalized as acquired knowledge.

To conclude this section, the authors can propose one abstract pedagogical implication which teachers should keep in their mind (Figure 6). Firstly, learners' attention should be directed to the relationship between core and situational images as apperceived input stage. Secondly, during the sequence of comprehended input to intake stages, learners should form linguistic hypotheses for a situational image and a formal aspect of targeted basic verbs. Lastly, from intake to the integration stages, explicit instruction conducted by teachers should consolidate their current linguistic systems.

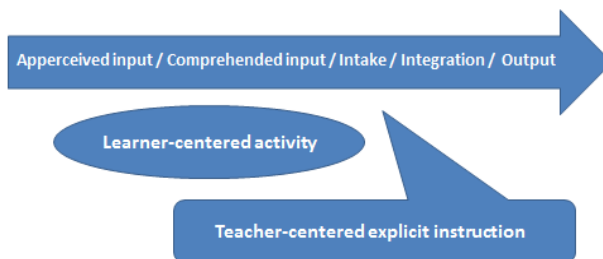


Figure 6. A model of basic verb acquisition in EFL classroom

VI. CONCLUSION

This study aimed at describing how teachers can empower developing Japanese EFL junior high school students’ lexical competence. For that purpose, the authors compared the effects of learner and teacher-centred approaches of image-based basic verb learning. As a result of analyzing the retention rates on both the card game activity and the explicit instruction, only high proficiency participants were able to retain the basic verbs that appeared in both treatments. Given the findings and Gass’s second language acquisition theory, it was indicated that image-based learning of basic verbs should be conducted through a learner-centred activity first where learners are supposed to process the relationships between situational images and formal aspects of basic verbs, and followed by teacher-centred explicit instruction through which learners are able to elaborate their second language lexical knowledge properly for low and intermediate proficiency participants to benefit. Finally, it is necessary to replicate this study within a structured curriculum.

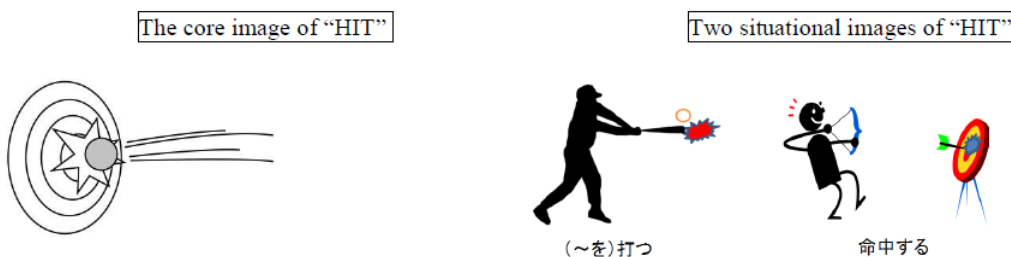
Notes

- (1) Even though students have experienced a certain amount of input in English while they were elementary school students at the time this research was implemented, most grammar and lexis are introduced just after they enrolled in junior high school.
- (2) The placement test consisted of grammar and vocabulary, listening, writing, and reading sections. In telling contrast to mid-term and final examinations, the participants could not prepare for the test.
- (3) Core-image reflects itself on an abstract schematic image that every basic verb or prepositions hold in it. All definitions are related to the core-image (Tanaka et al., 2007).
- (4) Output can be two sides of the same coin. This means that learners are able to produce targeted items or structures at the output stage and it also functions as a bridge between the rests of the processing stages (Gass, 1997).

APPENDIX

An example material and every part of the tests are provided here.

The core image of “HIT” and the situational images employed in this research



An example of the receptive test administered in this research

hit

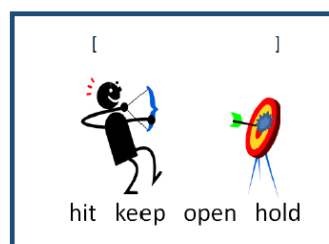
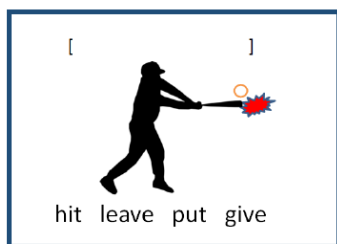
- 1) (~を) 買う 2) 叫ぶ 3) (~を) 打つ 4) (~を) 持つ 5) (~を) かぶせる
- 6) (~を) 売る 7) (~を) 狙う 8) (~に) 命中する

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An example of the productive test administered in this research

- The bomb _____ the target.
“その爆弾は標的に命中した”
- He always _____ home run at the end of the game.
“彼はたいていゲーム後半にホームランを打つ”

An example of the picture-form mapping test administered in this research



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