Brief Note

Effect of Different Methods of Presenting Drawings to Intellectually Disabled Adolescents in an Associative Word-Learning Task

Chie Miyadera*

Faculty of Education, Chiba University, Japan

Most individuals with intellectual disabilities (ID) have difficulty learning languages. Several studies have reported that mental imagery can be a powerful tool for supporting word learning in individuals with ID. This study investigated the effect of presenting drawings in an associative word-learning task and assessed how memorization could be facilitated in adolescents with ID. In Study 1, 10 adolescents with ID and 30 normally developing children completed an associative word-learning task under articulatory-suppression and control conditions. The adolescents with ID tended to have more difficulty learning familiar word pairs than the children in fifth grade. In Study 2, five adolescents with ID participated; this procedure was similar to that of Study 1, except that two methods of presenting drawings were used before an associative word-learning task. The interactive means of presentation of the drawings facilitated memorization; thus, the interactive means of the presentation was more effective than the separate presentation. We suggested that drawings affect the activation of mental images to facilitate the memorization of word pairs.

Key Words: intellectual disabilities, associative word learning, articulatory suppression, interactive drawings, mental images

Introduction

Most individuals with intellectual disabilities (ID) have difficulty learning languages through associative-learning tasks. Kee and White (1977) conducted a paired-associate learning task to examine the role of memory instruction in non-disabled children (mean age=7 years). The task involved 14 pairs of object drawings, in which all objects were highly familiar. The materials were presented under two conditions: standard and elaborated; the former presentation featured drawings side by side, and the latter presentation included interactive drawings. An example of an interactive drawing would be drawing a word pair of objects, for example, ship–buggy, which would feature a picture of a ship sitting in a buggy. Kee and White (1977) demonstrated that interactive drawing significantly facilitated the performance of the memorization of pairs of object drawings compared with the standard presentation.

In paired-word associative-learning tasks, use of strategies to memorize word pairs to enhance learning is essential. Several studies have suggested that mental imagery facilitates memorization. Investigations into effective strategies for word learning are vital, particularly with regard to enhancing the learning of individuals with ID. Lebrato and Ellis (1974) examined the effects of imagery mediaiton. They used pictures of numbers and rhymed objects as pre-training to enhance recall performance in young adults (18–24 years old) with ID. The training continued until the participants could repeat a rhyme five successive times correctly. Object recall among individuals with ID did not improve with verbal instruction only. However, recall was increased through the use of the imagery of mnemonic pre-training. Yarmer and Bowen (1972) compared three conditions of instruction for noun-paired and picture-paired associative-learning tasks in children with ID and non-disabled children from 8 to 13 years old. Their instructional conditions were intentional...
imagery, incidental imagery, and no imagery. Both imagery instructions had a greater effect on the recall of paired learning than the condition of no imagery in both sets of stimulus materials (noun pairs and picture pairs). Imagery instructions facilitated the recall of the children with ID in a manner equal to that of non-disabled children. Their results showed that instructions that use imagery made it easier for children with ID to memorize based on intentional and incidental learning. De la Iglesia, Buceta, and Campos (2004) observed that children (7–12 years old) and adults (mean age = 29 years) with Down syndrome had better recall performance in pair-association learning tasks with the use of mental imagery compared to repetition tasks. Regardless of age, the performances on paired association learning tasks improved among individuals with Down syndrome when they used a drawing strategy, for example, the word pair lion–hat would be accompanied by a drawing of a lion wearing a hat. Since the 1970s, much work has been performed regarding the effects of visual imagery or verbal mediation in the associative learning of word pairs.

Working memory plays an essential role in learning new words. Specifically, the phonological loop of working memory is strongly related to learning languages. Papagno, Valentine, and Baddeley (1991) found that articulatory suppression, which interferes with the function of the verbal working memory, affected the memorization of word–nonword pairs because the verbal strategy was available for word–nonword pairs rather than for word–familiar word pairs. Duyck, Szmalec, Kemps, and Vandierendonck (2003) investigated the potential for using visual codes in new-word learning. They showed that word imageability determined the degree of involvement of verbal working memory in paired-associate learning of familiar words. Those researchers observed that the availability of visual information in learning associations between new and familiar words determined the amount of resources for verbal working memory. Individuals with ID have specific difficulties with verbal working memory, namely, they have a relative weakness in the rehearsal of the phonological loop (Rosenquist, Conners, & Roskos-Ewoldsen, 2003). Participants with ID and participants without them recalled more dissimilar pictures than they recalled similar pictures, suggesting that all participants used visual codes to store pictures in working memory.

Rosenquist et al. (2003) demonstrated that individuals with ID do not have specific difficulties in the storage of visual codes in the visuospatial sketchpad. Research has indicated that images can be a powerful tool to support word learning in individuals with ID. Although Kee and White (1977) demonstrated that the presentation of interactive drawings affected the facilitation of the performance of memorization of the pairs of object drawings, they did not investigate the effects of using visual images as a strategy in individuals with ID. Lebrato and Ellis (1974) showed the impact of pre-training with the use of imagery in an associative-learning task, the pre-training for which continued until successive correct answers were obtained. Duyck et al. (2003) presented nonwords associated with visual images as pre-learning in an associative word-learning task and demonstrated that association with a visual image affects memorization.

This study investigated the characteristics of word learning in adolescents with ID and its effects on imagery corresponding to words in associative word-learning tasks. We investigated the conditions for facilitating memorization in individuals with ID by improving methods of presentation of drawings in associative word-learning tasks. Study 1 was a replication of experiment 1 performed by Duyck et al. (2003), which compared typically developing children with adolescents with ID by using an associative word-learning task with highly imageable words. We hypothesized that the performance of adolescents with ID would be lower than that of the control children because the adolescents did not use the imageable words as a visual strategy. In Study 2, we examined the effect of the teaching of the strategy of memorization by presenting drawings as pre-learning in an associative word-learning task. Although participants in Study 2 were different from those in Study 1, the adolescents with ID had the same performance as the low-performance group in Study 1. We applied the task developed by Kee and White (1977) (target mean age = 7 years) to the adolescents with ID. We hypothesized that individuals with ID could memorize word pairs through the process of presenting pictures before an associative word-learning task.

**Study 1**

This study investigated the effect of presenting
imagery with words in the learning of word pairs; this study used highly imageable word pairs in an associative word-learning task.

Method
Participants. The participants were 10 adolescents with mild ID of unknown etiology and 30 children without ID. The group of adolescents with ID (ID group) was 10 individuals with ID (4 males, 6 females); the age range was 15 to 18 years, and range of IQ score was between 52 and 79. The Wechsler Intelligence Scale for Children-III (WISC-III; Japanese WISC-III Publication Committee, 1998) was used to calculate the participants’ IQs. These individuals attended a special school for pupils with ID. No participants had been diagnosed with Down syndrome.

The typically developing group comprised 30 typically developing children (21 males, 9 females), aged between 7 and 11 years, who had been recruited through public elementary schools: 11 children in first grade, 9 children in third grade, and 10 in fifth grade. No attentional or learning problems were reported by their teachers. All participants had normal or corrected-to-normal vision.

We explained the purpose of our study and received consent from the participants and their guardians to participate in the study and presentation of the findings. The Chiba University Bioethics Review Committee approved this study.

Materials. The associative word-learning task used was based on the methodology used by Duyck et al. (2003). The participants were given words pairs for cue and target words. Both words were given in hiragana. All the words were chosen from Japanese texts for students in second grade. Two lists of word pairs were constructed for each of the two types of target words: one list for the control condition and the other for the articulatory-suppression condition. Each list comprised six word pairs (Appendix A), and each word pair comprised a cue and a target word. Both the cue and target words were two to five letters long. All the words were highly imageable and rated five or more points on the word-familiarity ratings of the Lexical Properties of Japanese (NTT Database series, 2008). The mean score for the familiarity of the cue words was 5.83 (standard deviation [SD]=0.44) and 6.03 (SD=0.20) in each condition. The mean score of the target words was 5.83 (SD=0.31) and 5.96 (SD=0.32) in each condition. The cue words and target words were not easily associated, either semantically or lexically.

Procedure
The participants were seated in front of a computer screen. Each task had two phases: the learning phase and the test phase. In the learning phase, six word pairs were presented in random order on the screen. The cue word was presented above the target word. A fixation point was presented at the center of the screen for 1,000 ms followed by the word pairs for 4,000 ms. The participants were instructed to remember the word pairs presented on the screen. No instructions were given concerning any memorization strategies. Each participant completed the phase in both the control condition and the articulatory-suppression condition. During the control condition, they completed the task without instructions. During the learning phase of the articulatory-suppression condition, they were asked to continuously utter the Japanese letters a, i, u, e, and o. Suppression started 3 s before the presentation of the first word pair.

We confirmed that the attention of the participants was on the screen and implemented the test phase immediately following the learning phase. During the test phase, a fixation point was presented at the center of the screen for 1,000 ms, and then the cue words were presented for 6,000 ms on the screen in random order. The participants were instructed to recall the target words from the test phase and were asked to answer orally (Fig. 1).

Each set of tasks comprised a learning phase and a test phase. Each participant completed five sets in both of the conditions. The experiment lasted for approximately 30 min.

Design
The experiment was a 4 (group: adolescents with ID, children without ID [Grade 1, Grade 3, and Grade 5])×2 (condition: control, articulatory-suppression)×5 (trial: one to five) design. Group was included as a between-subjects factor, and condition and trial were manipulated within the subjects. The dependent variable was the number of correctly recalled target words (from zero to six).

Results
The dependent variable was the number of cor-
directly recalled target words. The mean number of the correctly recalled target words was calculated for each group. All means are displayed in Fig. 2. The data did not show normal distribution; therefore, all means were compared by using Kruskal–Wallis tests for intergroup comparisons. First, we compared the performances about the condition and demonstrated a statistically significant difference in performances \((H=50.712, p<.01)\). Owing to the significance of the Kruskal–Wallis test, pairwise comparisons revealed the performance of the ID group was lower than that of children without ID (Grade 1, Grade 3, and Grade 5) groups in the articulatory-suppression condition \((p<.01)\), and that of the ID group was lower than that of Grade 5 group in the control condition \((p<.05)\).

Second, a Kruskal–Wallis test showed a statistically significant difference in performance about the trial \((H=150.201, p<.01)\). Owing to the significance of the Kruskal–Wallis test, pairwise comparisons revealed the performance of trial 1 was lower than that of trials 3, 4, and 5 in the Grade 1 group and the performance of trial 1 was lower than that of trial 4 and 5, in Grade 3 and Grade 5 group separately \((p<.01)\).

The results of the participants with ID were highly variable within the groups. The other dependent variable was the total amount of learning, which we calculated by summing the number of the correctly recalled target words (from 0 to 60) in both conditions. To control for individual differences, we divided the ID group into a high group and a low group, based on the total amount of learning. This amount in the high group was set higher than the average amount of the children in the Grade 1 and Grade 3 groups (average=32.36). The average
learning amount of the high group (\(N=4\)) was 36.75 (SD=6.29), and that of the low group (\(N=6\)) was 11.67 (SD=8.31).

**Discussion**

Study 1 investigated group difference and the effect of articulatory suppression in an associative-learning task of highly imageable words. This study used highly imageable word pairs in an associative word-learning task. In Study 1, adolescents with ID and elementary school children completed an associative word-learning task. The results of the study indicate that adolescents with ID tended to have more difficulty learning highly imageable word pairs than the typically developing children, especially the Grade 5 group.

Most of the participants with ID were students who had enrolled in upper-level courses at their special needs school and who hoped to find employment. They demonstrated academic ability similar to that of the elementary school children and carried out instructions properly. Nevertheless, they had difficulty learning certain new-word pairs and require more time for learning than children without ID.

The performance of the articulatory-suppression condition was not consistent with the finding of highly imageable word learning in Duyck et al. (2003). The differences in performances between the ID group and children without ID groups were remarkable in the articulatory-suppression condition, although we observed differences between only the ID group and Grade 5 group in the control condition. These results suggested that the mean number of the correctly recalled target words in the articulatory-suppression condition increased more than in the control condition in typically developing children. Some participants reported it was easier to memorize the word pairs in articulatory-suppression condition than in the control condition in the interview after conducting all sets. Articulatory suppression played a role in interrupting the rehearsal by using the phonological loop (Baddeley, 1986). We considered that ID group children were able to focus on the attention to learning word pairs, and typically developing children could activate visual imagery by interrupting the use of verbal rehearsal.

After they finished all the sets, we asked all the participants how they memorized the word pairs. None had been able to use the imagery of words to memorize the word pairs. Five participants with ID reported using strategies of their own to learn the word pairs. For example, “I just looked at the words” or “I memorized the initials of the words above and below.” On the one hand, in the typically developing group, four out of ten children in the Grade 5 group and four out of nine children in the Grade 3 group reported using the imagery as a strategy for memory learning. Because only one child used the image as a memory strategy in the Grade 1 group, we posit that the older children were more capable of using the image as a memory strategy.

**Study 2**

Study 2 examined what effect the interactive drawing of highly imageable word pairs had on the performance of adolescents with ID on associative word-learning tasks. In Study 1, adolescents with ID showing poor performance reported that they did not know how to relate word pairs, assign imagery to words, or use imagery as a strategy. For that reason, we focused on adolescents with ID with lower performance in the associative word-learning task of Study 1.

We hypothesized that an investigation into how participating in training can help individuals with ID improve their recall rates was essential. Studies have introduced training using imagery as a mnemonic strategy. Participants with ID who attended training that used pictures of the learning words also showed improvement in recall (Lebrato & Ellis, 1974). Other studies have found that the presentation of drawings could prompt the creation of a mental image. When drawings were used in associative word-learning tasks, the method of interactive presentation was more effective than that of the standard presentation (Kee & White, 1977; de la Iglesia et al., 2004).

In Study 2, we conducted the same associative word-learning task that we did in Study 1 (experiment 1). Next, we applied a task in Kee and White (1977) to the adolescents with ID to examine the effect of interactive drawing on learning words in this age group (experiment 2).

**Method**

**Participants.** Five adolescents with mild ID of unknown etiology participated in this study. None of them participated in Study 1. The participants were males aged 15 to 18 years with IQs between 52 and
The WISC-III or WISC-IV (Japanese WISC-IV Publication Committee, 2010) was used to calculate their IQs. These individuals attended a special school for pupils with ID in Japan. None of the participants had Down syndrome. All participants had normal or corrected-to-normal vision. We explained the purpose of our research and received consent from the participants and their guardians to participate in the research and presentation of the findings. The Chiba University Bioethics Review Committee approved the study.

Materials

The cue and target words used in experiment 1 of Study 2 were the same the words used in Study 1. In experiment 2, all the words were from Japanese elementary school texts for students in second grade, and all the words were two to five characters. All words were given in hiragana. Two lists of word pairs were constructed for each of the two types of word pairs: one list for the interactive presentation condition and the other list for the separate presentation condition. Each list comprised six word pairs (Appendix B). All the words were highly imageable and were rated as having five points or more in word-familiarity ratings in the Lexical Properties of Japanese (NTT Database series, 2008). The mean score of word familiarity for the cue words was 5.89 (SD=0.40) and 5.89 (SD=0.55) in each condition. The mean score of word familiarity for the target words was 5.92 (SD=0.24) and 5.95 (SD=0.41) in each condition. The cue words and target words could not be easily associated, either semantically or lexically. There was neither a control condition nor an articulatory-suppression condition in experiment 2.

In experiment 2, we used drawings. We use two conditions of presentation for drawings: separate and interactive. In the separate presentation, the drawings were presented separately, and in the interactive presentation, the drawings were presented as an interactive pair at the center of the screen, for example, a bear eating a piece of dango (bear–dango) (Fig. 3).

Procedure

In Study 2, experiment 1 was carried out by following the same procedure used in Study 1. After 3 weeks of experiment 1, all participants completed experiment 2, in which the participants were presented with the drawing before conducting the task (learning phase and test phase) as a drawing condition. There were two types in the drawing condition, and all participants completed the separate presentation condition after the interaction–presentation condition.

The participants were seated in front of a computer screen. First, the participants were asked to view the interactive drawings of each of the paired associates. The drawings were presented four times for a period of 4,000 ms each. No instructions on possible memorization strategies were presented to the participants. Next, they were instructed to remember the word pairs presented on the screen in the learning phase. During the test phase, the participants were instructed to recall the target words and to answer orally. Second, the participants viewed the separate drawings of each pair. The drawings were presented for a period of 4000 ms each. The drawings were presented four times for a period of 4,000 ms each. No instructions on possible memorization strategies were presented to the participants. Next, they were instructed to remember the word pairs presented on the screen in the learning phase. During the test phase, the participants were instructed to recall the target words and to answer orally. Second, the participants viewed the separate drawings of each pair. The drawings were presented for a period of 4000 ms each. The drawings were presented four times for a period of 4,000 ms each. Next, they conducted the learning and test phases in the same manner. The word pairs were all presented in the same order. The duration of each experiment was approximately 30 min.
Design
This study comprised two experiments. Experiment 1 was a 2 (condition: control, articulatory-suppression) × 5 (trial: one to five) design, which was the same as in Study 1. Condition and trial were manipulated within subjects. Experiment 2 was a 2 (drawing: interactive, separate) × 5 (trial: one to five) design. The dependent variable was the number of correctly recalled target words (from zero to six).

Results
The dependent variable was the number of correctly recalled target words. The mean number of the correctly recalled target words was calculated for experiment 1 and experiment 2. In experiment 1, the within-subjects factors were factor condition (control or articulatory-suppression) and trial (one to five). Figure 4 displays all the means in experiment 1. The Wilcoxon signed-rank test was used to analyze the factor condition. The results showed no significant differences between control and articulatory suppression ($p = .684$). The Friedman test was used to analyze the factor trials. The results indicated significant differences between trials in the articulatory-suppression condition ($p < .05$) and no differences in the control condition ($p = .587$).

In experiment 2, the within-subjects factors were factor drawing (interactive or separate) and the trial (one to five). Figure 5 displayed all the means in experiment 2. The Wilcoxon signed-rank test was employed to clarify the differences in the presentation of drawings. The results demonstrated that performances were significantly different between the interactive and separate presentation ($p < .05$), and performance related to the presentation of interactive drawings was better than in the separate presentation. The Friedman test was used to analyze the factor trial. The results indicated significant differences between trials in the separate presentation ($p < .01$).

Finally, we completed the analyses by calculating the total learning amount, which required summing the number of correctly recalled target words (from 0 to 60) in each experiment. The average total learning amount of experiment 1 was 13.2 ($SD = 6.65$), and that of experiment 2 was 47.2 ($SD = 9.20$). In Study 2, to examine the effects on learning with the presentation of drawings, we compared the performance of experiment 1 with that of experiment 2. The sum of each participant was analyzed through a Wilcoxon signed-rank test. The results demonstrated significant differences between experiment 1 and 2 ($p < .05$). We also compared the performance of Study 1 with that of experiment 1 in Study 2 in adolescents with ID. A Kruskal–Wallis test was conducted to examine the differences in the sum of total learning amount.
among the high group and low group in Study 1 and experiment 1 in Study 2. Owing to the significance of the Kruskal–Wallis test ($H=8.336, p<.05$), pairwise comparisons were used to examine differences among the three groups. The results of these tests indicated a significant difference between the performance of the high group in Study 1 and that of the low group in Study 1 ($p<.05$) and between that of the high group in Study 1 and that of experiment 1 in Study 2 ($p<.05$). The total learning amount of the high group in Study 1 was higher than the low group in Study 1 and experiment 1 in Study 2 significantly.

Discussion
In Study 2, we presented a drawing that corresponded to highly imageable word pairs in an associative word-learning task to investigate the effect on performance in adolescents with ID. These participants had the same performance level as the low group in Study 1 and difficulty memorizing even familiar word pairs. To provide the participants with imagery, we presented drawings that expressed words before conducting the associative word-learning task. We examined the differences in the effects of presenting drawings by comparing the interactive to the separate presentation. Most of the participants reported that they could memorize the word pairs more easily when presented with the interactive drawing rather than the separate drawing. The findings of Study 1 and Study 2 show that the number of correctly recalled target words increased significantly in Study 2, which suggests that adolescents with ID were able to use visual imagery as a strategy in the associative word-learning tasks. In other words, presenting drawings had an effect on the activation of mental images in adolescents with ID.

The results revealed that the presentation of the drawings facilitated the performance of memory. The performance was particularly enhanced with the interactive drawings. We obtained findings similar to Kee and White (1977) and findings regarding the use of mental imagery in individuals with ID (Lebrato & Ellis, 1974). These studies have illustrated that individuals with ID require imagery to support word learning, and our results were consistent with the findings of these studies.

Conclusion
The results of Study 1 indicate that adolescents with ID tended to have more difficulty learning highly imageable word pairs than the typically developing children. In Study 2, the results suggest the use of visual images to complement the weakness of the verbal working memory of individuals with ID is essential. This finding is also supported by research that indicates that individuals with ID do not have difficulty storing visual codes in the visuo-spatial sketchpad (Rosenquist et al., 2003). Duyck et al. (2003) showed that the more visual information available, the less the amount of verbal working memory resources required in the learning task of making associations between familiar and new words. Henry and MacLean (2002) indicated that individuals with ID had worse performance than control children in a word span, which could be related to the acquisition of vocabulary.

When teaching new words to children with ID, educators should employ visual images. This study limited itself to only highly imageable words. In daily life, including school, many abstract words are used that are difficult to express in drawings. New strategies must be considered to teach abstract words.

Acknowledgment
We are very grateful to all the adolescents, children, and their parents for the participation as well as the schoolteachers who cooperated in this study. We thank Ms. Haruhi Ishide and Ms. Kana Suzuki for drawing the pictures, Ms. Eiko Tsushima, Ms. Ayumi Ozawa, and Ms. Yuka Yagi for their assistance in data acquisition. We thank the anonymous referees for their fruitful comments. This study was supported by a Grant-in-Aid from the Japan Society for the Promotion of Science [Grant No. 25780540].

References
Baddeley, A. D. (1986) Working memory. Oxford University Press, New York.

de la Iglesia, J. C. F., Buceta, M. J., & Campos, A. (2004) The use of mental imagery in pair-associate learning in persons with down’s syndrome. British Journal of Developmental Disabilities, 98, 3–12.

Duyck, W., Szmalec, A., Kemps, E., & Vandierenock, A. (2003) Verbal working memory is involved in associative word learning unless visual codes are available. Journal of Memory and Language, 48, 527–541.
Effect of Different Methods of Presenting Drawings to Intellectually Disabled Adolescents in an Associative Word-Learning Task

Henry, L. A. & MacLean, M. (2002) Working memory performance in children with and without intellectual disabilities. *American Journal of Mental Retardation*, 107, 421–432.

Japanese WISC-III Publication Committee (1998) *Japanese version of Wechsler Intelligence Scale for children third edition.* Nihon Bunka Kagakusha, Tokyo. (in Japanese)

Japanese WISC-IV Publication Committee (2010) *Japanese version of Wechsler Intelligence Scale for children fourth edition.* Nihon Bunka Kagakusha, Tokyo. (in Japanese)

Kee, D. W. & White, B. R. (1977) Children’s noun-pair learning: Analysis of pictorial elaboration and memory instruction effects. *Child Development*, 48, 674–677.

Lebrato, M. T. & Ellis, N. R. (1974) Imagery medication in paired-associate learning by retarded and nonretarded subjects. *American Journal of Mental Deficiency*, 78, 704–713.

NTT Database series (2008) Lexical Properties of Japanese. NTT Communication science laboratories. (in Japanese)

Papagno, C., Valentine, T., & Baddery, A. (1991) Phonological short-term-memory and foreign-language vocabulary learning. *Journal of Memory and Language*, 30, 331–347.

Rosenquist, C., Conners, F. A., & Roskos-Ewoldsen, B. (2003) Phonological and visuo-spatial working memory in individual with intellectual disability. *American Journal of Mental Retardation*, 108, 403–413.

Yarmer, A. D. & Bowen, N. (1972) The role of imagery in incidental learning of educable retarded and normal children. *Journal of Experimental Child Psychology*, 14, 303–312.

### Appendix A

Word Pairs in Study 1
(English Translations between Brackets)

control
- hasami [scissors]–mamemaki [bean maki]
- ringo [apple]–kujira [wheel]
- kagi [key]–kyabetsu [cabbage]
- boushi [hat]–niwatori [chicken]
- kitsune [fox]–hondana [bookshelf]
- reizoko [refrigerator]–hashigo [ladder]

articulatory-suppression
- kuruma [car]–shokupan [bread]
- tamago [egg]–tsukue [desk]
- kaminari [thunder]–ongaku [music]
- hatake [field]–enpitsu [pencil]
- yubi [finger]–takeuma [stilts]
- takaramono [treasure]–choucho [butterfly]

### Appendix B

Word Pairs in Experiment 2 of Study 2
(English Translations between Brackets)

separate presentation
- sentakuki [washing machine]–hanabi [fireworks]
- origami [origami]–obake [ghost]
- kaigara [shell]–kokuban [blackboard]
- ookami [wolf]–tempura [tempura]
- megane [glasses]–ohisama [sun]
- tane [seed]–mushikago [bug basket]

interactive presentation
- kabutomushi [beetle]–boushi [hat]
- nawatobi [rope]–shimbun [newspaper]
- keshigomu [eraser]–ninjin [carrot]
- fusen [balloon]–tokei [clock]
- tansu [chest of drawers]–hikouki [airplane]
- kuma [bear]–dango [dango]