

DEAF CHILDREN'S UNDERSTANDING OF JAPANESE TRANSITIVE AND INTRANSITIVE VERBS

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ABSTRACT

In Japanese, there are two types of the same meaning verb often referred to as transitive and intransitive verbs. Some previous studies have suggested that understanding and usage of these verbs is difficult for Japanese deaf children. The purpose of this study was to investigate the some features of understanding Japanese transitive and intransitive verb in deaf children. Participants were 25 children with hearing impairments who were enrolled in elementary classes of a Japanese school for the deaf. They were presented the sentences that the verb was deleted. They were shown test animations depicting an event and required to fill a verb in the blank of test sentence to be corresponded to the event that the animation showed. Target words were 8 transitive and intransitive verb pairs (e.g."otosu"-“ochiru” means “to drop”). These verbs were divided into two groups according to the intentionality of the meaning. The half of these pairs means intentional action and others mean non-intentional action. A 2 (intentionality) × 2 (verb type) within subjects ANOVA revealed significant main effects of intentionality and significant interaction. The mean score of non-intentional transitive verb was found to be lower than other types of verb. Furthermore, there were many errors which substituted transitive verb for intransitive verb and vice versa. The results of this study suggested that the semantic and pragmatic information of verb affects the syntactic processing of Japanese sentences by deaf children.

INTRODUCTION

Previous research on grammatical ability of deaf students has suggested that there are a lot of syntax errors in the production of sentences. Especially, it has been pointed out that students who were deaf have difficulty using Japanese intransitive and transitive verbs distinctly (Aizawa, Sato, and Yokkaichi, 2008; Saito and Kanno, 1972). A feature of Japanese is the large number of intransitive and transitive verb pairs which share the same root. In addition to their morphological similarities these verbs are also related to one another both syntactically and semantically (e.g. yakeru (intransitive) /yaku (transitive) “to roast”). Aizawa, Sato, and Yokkaichi (2008) suggested that the cause of confusion intransitive verb with transitive verb in Japanese deaf children was the difficulty linking the form of each verb with the meaning. Sawa (2003) examined how children who were deaf use intransitive and transitive verb pairs properly depending on the intentionality of verb meaning. In the Sawa (2003) study, participants were presented some pictures, and were asked to complete a sentence by filling the

blank with verb that they thought, from the context of the picture, were appropriate. Sawa (2003) suggested that children who were deaf tend to use transitive verbs when test picture showed the situation of intentional act. However, significant difference was found between the production rate of intransitive and transitive verb depending on the each target pair. In the Sawa (2003) study, there was a possibility that the participants were not able to understand the intentionality of act because the stimulus picture showed the stop motion. Therefore it was assumed that intentionality of act could be understood by employing an animation as a stimulus.

PURPOSE

The purpose of this study was to examine the feature of understanding in hearing-impaired child's intransitive and transitive verb from the viewpoint of the intentionality of act.

METHOD

1. Participants

Twenty-five children with hearing impairments in a Japanese school for the deaf participated in the research. The number of children in the 3rd to 6th grades was 7, 6, 4, and 8 respectively. None of the children was reported to have additional disabilities or other sensory problems. The total communication method was used for daily communication in this school. The mean of aided hearing threshold of participants was 49.6dB (range: 24dB-69dB).

2. Test of Verb Production

Target words were eight intransitive and transitive verb pairs (e.g. ochiru (intransitive) / otosu (transitive) "to drop"). These verbs were divided into two groups according to the intentionality of the meaning. The half of these pairs mean intentional action and others mean non-intentional action. Participants were presented the sentences that the verb was deleted and replaced by blank as in (1) or (2).

(1) Osara-ga (). Target verb is "ochiru": intransitive verb
'A dish ().'

(2) Osara-o (). Target verb is "otosu": transitive verb
'() a dish*.' *: Ungrammatical sentence in English

In Japanese, case particle "ga" is a subject marker, and case particle "o" indicates the direct object. Then participants need to write an intransitive verb in sentence (1), and a transitive verb in sentence (2) for answer. In addition, it is possible to omit a subject of transitive verb sentence in Japanese, as sentence (2).

Participants were required to see the test animations depicting an event and required to fill in the blank with a verb to be corresponded to the event that the animation showed.

A person (as agent) was drawn in the test animations of which a transitive verb was required as an answer; on the other hand, the animation required an intransitive verb was unfigured. Test animations were made by the method of presenting some illustrations continuously by the computer software. The target verbs and an example of test sentences are shown in Table 1.

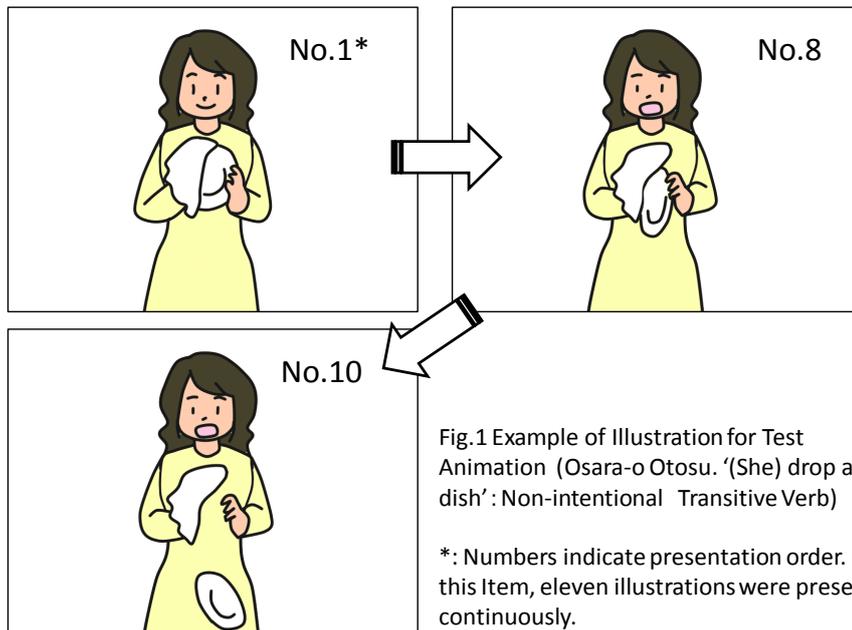
Table 1 Target Verbs and Test Sentences

Intentionality	Target Verbs(in English)	
	Intransitive Verbs	Transitive Verbs
Intentional Verbs	narabu okiru mawaru wareru *	naraberu (line up) okosu (get up) mawasu (spin) waru (break)
Non-intentional Verbs	ochiru yogoreru koboreru wareru	ochiru (drop) yogosu (get dirty) kobosu (spill) waru (break)
Example of Test sentence	Osara-ga()。 The dish drops.	Osara-o()。 (She) drop a dish**.

* : Japanese verbs *wareru / waru* ("to break") have both intentional meaning and non-intentional meaning by the context.

** : It is possible to omit a subject of a sentence in Japanese.

Example of illustration for test animation is shown in Figure 1.



3. Procedure

The test for all participants was conducted by two experimenters in the classroom setting. Participants see the test animations projected on the screen, as soon as they had finished seeing, they were asked to write a verb on the paper printed test sentences. The instruction was given to the participants using speech and written sentences, plus signing when necessary. It took about 10 min for finishing all items.

RESULTS AND DISCUSSION

Figure 2 shows the means of the scores on the Test of Verb Production. As shown in Figure 2, the score of non-intentional transitive verb was lower than scores of other verbs. A ANOVA with intentionality (intentional / non-intentional) and verb type (intransitive / transitive) as within-subjects factors revealed significant interaction between two factors, $F(1, 24) = 5.19, p < .05$, as well as a significant main effects of intentionality, $F(1, 24) = 4.69, p < .05$, and verb type, $F(1, 24) = 18.99, p < .01$. A simple main effect of intentionality was significant for the transitive verbs, $F(1, 24) = 11.34, p < .01$, but not for the intransitive verbs, $F(1, 24) = 0.37, p > .05$. Also, a simple main effect of verb type was significant for the non-intentional, $F(1, 24) = 15.27, p < .01$, but not for the intentional, $F(1, 24) = 0.56, p > .05$.

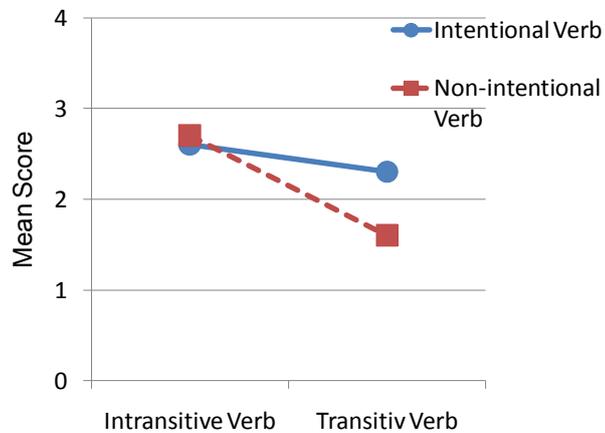


Fig.2 Mean Average Score of Test (Max=4)

All errors except for noreaction were classified into three types. “Confusion” is the error which wrote a transitive verb on which an intransitive should be written and vice versa. “Not Target” is the error on which a verb is not the target was written. “Non-Verb” is the error on which the word which is not a verb (e.g. adjective) was written. Each type of number of errors and percentage were shown on Table 2. Table 2 indicates that there were most errors of “Confusion”, and the percentage of this error exceeded 50%. In addition, the “Confusion” errors were more significantly in the test sentences in which target verb is intentional-intransitive and unintentional-transitive verb ($\chi^2=5.82, p<.05$).

Table 2 Number (in Percent) of Each Type of Error

Verb Type	Intentionality	Type of Error			Total
		Confusion	Not Target	Non-Verb	
Intransitive	Intentional	13 (61.9)	3 (14.3)	5 (23.8)	21(100)
	Non-intentional	7 (36.8)	4 (21.1)	8 (42.1)	19(100)
Transitive	Intentional	8 (47.1)	5 (29.4)	4 (23.5)	17(100)
	Non-intentional	19 (57.6)	8 (24.2)	6 (18.8)	33(100)
Total		47 (52.2)	20 (22.2)	23 (25.6)	90(100)

These results suggested that the production of intransitive / transitive verb was influenced by intentionality of meaning. In non-intentional context (when the test animation in which agent is not drawn was shown), the movement is more likely to be interpreted as occurring accidentally or spontaneously. Therefore, in such context, the deaf participants tended to produce an intransitive verb, although the test sentences required to produce a transitive verb. In the Sawa (2003) study, significant difference was found between the production rate of intransitive and transitive verb depending on the each target pair, however, in this study, there was not either a lot of production of intransitive or transitive verb extremely. In this regard, using animations as a stimulus might facilitate understanding of intentionality of act. The results of this study suggested that the semantic and pragmatic information of verb affects the syntactic processing of Japanese sentences of deaf children.

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