

A Preliminary Report of Crosslinguistic Evidence on Efficacy of Semantic-Complexity Based Naming Treatment in Korean Aphasics

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Abstract

The current study investigated the efficacy of semantic-complexity based naming treatment in Korean participants with aphasia. Results suggested that both participants showed small to medium effect sizes in the trained items. However, generalization effects were greater in the participant who received treatment on the atypical items first, than the participant who was initiated on the typical items. These results are consistent with the previous findings in English-speaking aphasic participants (Kiran & Thompson, 2003; Kiran, 2008). Preliminary findings of two Korean participants with aphasia added crosslinguistic evidence on efficacy of the semantic complexity based naming treatment.

Introduction

Naming difficulties are one of the most common language deficits in persons with aphasia. Many studies have been reported on efficacy of naming treatments for persons with aphasia. Among many, several researchers employed semantically based treatment protocol to facilitate lexical-semantic access by focusing on semantic features of target items (e.g., Kiran & Thompson, 2003). Semantic-complexity based naming treatment is a novel approach in which treatment begins with complex stimuli rather than simple items. Semantic-complexity hierarchy is based on the item typicality. Typical items consist of core and prototypical semantic features, whereas atypical exemplars compose core and more distinctive features than the typical exemplars (Kiran, 2007). The hypothesis of the semantic complexity based naming treatment is that the generalization of untrained items is maximized when atypical items are treated first based on the assumption that treatment of atypical items would facilitate further semantic network than that of typical items would. This hypothesis was examined in several ways across different types of aphasia in both animate and inanimate semantic category in participants who speak English as their native language. The current study investigated whether the semantic-complexity based naming treatment is effective in Korean participants with aphasia. It was predicted that the typicality of items may be influenced by linguistic and cultural contexts, but the complexity-based treatment applied to Korean-speaking persons with aphasia would be as effective as in English.

Methods

Two monolingual Korean-speaking individuals with aphasia participated in the study. Participants met selection criteria as follows: (a) a single left hemispheric stroke in the distribution of the middle cerebral artery, (b) onset of stroke at least 12 months previously, and (c) premorbid right handedness. Two 43-year old participants were

enrolled. Post-onset duration was 26 and 28 months for Participant 1 (P1) and Participant 2 (P2), respectively, and their years of education were 12 and 14, respectively. The type of aphasia based on the Korean-Western Aphasia Battery (K-WAB; Kim & Na, 2001) was Broca's aphasia (Aphasia quotient=62.7) for P1 and Anomia (Aphasia quotient=84.1) for P2. Their performance on Korean-Boston Naming Test (K-BNT; Kim & Na, 1997) was 18 and 47 (out of 60) for P1 and P2, respectively.

Treatment items were obtained from a preliminary study (Sung & Kim, 2011), in which elderly adults generated items in each semantic category and each item was rated for its typicality using a 7-point Likert scale. Among the 4 animate and 4 inanimate semantic categories, "birds" were selected as a target category to be treated consistently with Kiran and Thompson (2003). Eight stimuli were selected for each typicality (Typical, Intermediate, Atypical), resulting in a total of 24 items.

A single participant multiple baseline design across participants was used to examine the treatment efficacy of trained items and generalization effects to untrained items within a semantic category. Both P1 and P2 received four baseline probes prior to treatment. The eight atypical items were treated first for P1, whereas the eight typical items were treated first for P2. When participants achieved criterion level (7 out of 8 correct naming for two consecutive sessions), treatment was shifted to the intermediate items. The untrained items (typical for P1 and atypical for P2) served as the control items. Both participants were treated approximately for 1.5-2.0 hours, two times per week. Treatment protocol was modified to Korean following the procedures in the previous studies (Kiran & Thompson, 2003; Kiran, 2008).

Results

Effect size (ES) was calculated comparing the mean of the data points in the maintenance phase to the baseline mean divided by the standard deviation of the baseline. The generalization effects (GE) were calculated comparing the mean of the data points from the untrained items in the treatment phase of the trained items to the baseline mean of the untrained items divided by the standard deviation of the baseline based on Beeson and Robey (2006).

P1, who was treated on atypical items first, improved to criterion within 4 sessions (ES=3.67, GE=1.67). Treatment was shifted to the intermediate examples, and P1 also improved to criterion (ES=3.44, GE=1.61) within 6 sessions (Figure 1).

P2, who was treated on typical items first, improved to criterion within 5 sessions (ES=6.25, GE=0.17). Treatment was shifted to the intermediate examples, and P2 also improved to criterion (ES=3.18, GE=0.52) within 6 sessions (Figure 1).

Changes in the AQ from the K-WAB were negligible (Table 1) for both participants. However, P1 showed improvement of 10 points in the K-BNT (18→28), whereas P2 showed only 4 points improvement on the same test (47→51).

Discussion

Results from the current study suggested that both participants showed small to medium effect sizes in the trained items. However, their generalization patterns did differ in that a participant, who received treatment on the atypical items first, showed greater generalization effects than a participant, who was initiated on the typical items. These results are consistent with the previous findings in English-speaking aphasic participants

(Kiran & Thompson, 2003; Kiran, 2008). These preliminary findings of two Korean participants with aphasia may add the crosslinguistic evidence on efficacy of the semantic complexity based naming treatment. Further studies are needed to explore the effect of various stimuli in different languages to examine overall generalization effects of the complexity based treatment protocols.

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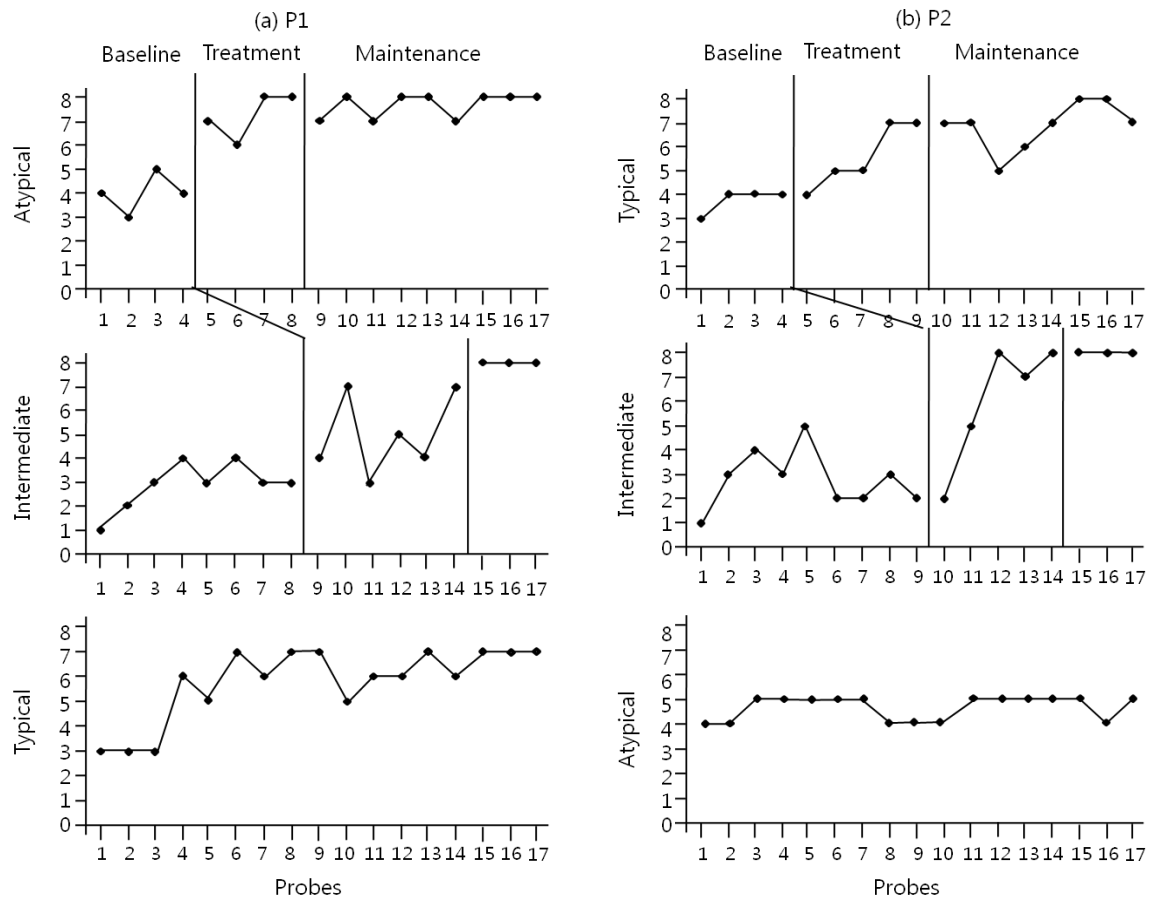
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Table 1. Individual performance on the K-WAB (Kim & Na, 2001)

	P1		P2	
	Pre	Post	Pre	Post
AQ	62.7	59.5	84.1	83.7
Fluency	4	4	7	7
Repetition	6	4.5	9	8.6
Comprehension	7.15	7.15	8.55	8.85
Naming	6.2	5.5	9.5	9.4

Note: K-WAB=Korean version-the Western Aphasia Battery; AQ=Aphasia Quotient.

Figure 1. Naming accuracy for (a) for participant 1 and (b) for participant 2



Note: P1=Participant 1; P2=Participant 2.