Abstract

Semantic Feature Analysis (SFA) is a treatment technique designed to improve the naming abilities by increasing the level of activation within a semantic network and subsequently enable the individual to have easier lexical retrieval. This technique was first described by Boyle and Coelho (1995), where it was applied in a case with mild non-fluent aphasia, resulting in improved confrontation naming of trained and untrained items but not generalization to connected speech. In reduplication study by Coelho et al (2000), SFA was used in a case with moderate fluent aphasia. where gains were made in both trained and untrained items during a confrontation naming task, as well as in connected speech. The authors suggested that the improvement in the connected speech it might be influenced by not only the differences in severity but also type of aphasia. Furthermore, they suggest that the effect of SFA intervention is reflected in an increase in communicative efficiency. Boyle (2004) investigated further the efficacy of SFA treatement in another two cases with fluent aphasia, one with anomic aphasia and one with Wernicke's aphasia. In this study, she reported improvement in both cases in trained and untrained items, but no generalization effects on connected speech on the measures of mean words per minute, mean correct information units per minute or the percentage of all words that were correct information units. Conley and Coelho (2003) described a treatment approach in a case with chronic Broca's aphasia, where they combined SFA with Response Elaboration Training (RET). In this case, they reported that the combined approached resulted in improvement the individual's ability to retrieve noun words but it was unclear which approach contributed to the final outcome. However, they reported lexicality effects, as features of high familiarity words were more easily named than those of low familiarity words.

The present study describes an Elaborated Semantic Feature Analysis (ESFA) treatment approach which was applied to improved word retrieval of object nouns in a case with non fluent anomic aphasia. The approach was based on the SFA approach (Boyle and Coelho, 1995; Coelho et al, 2000; Boyle, 2004), but also allowed the individual to elaborate the features described to a sentence. The purpose of this approach was to enable the individual to transfer the naming abilities to connected speech.

Method

Individual with aphasia

The studies individual was AD, a 77 year old, native Greek speaking, right handed male, who was one year post onset of left CVA, which resulted in very mild right hemiparesis with moderate non fluent aphasia with anomia. AD was a secondary school educated and he was a retired civil servant. Aphasia evaluation was performed prior to the treatment with the Greek version of BDAE (Papathanasiou et al, 2004). Naming skills were moderate to severe impaired as he scored 24/60 in the Greek adaptation of the Boston Naming Test. During testing his responses were recorded and it was characterized by semantic errors, semantic paraphasia, and lexical retrieval difficulties as it was indicated by the presence of time fillers. His mean length of correct utterances (MLCU) on connected speech during a picture description task was 4 words per utterance.

Treatment material and Data collection and Analysis

The material used for training was the 260 set of pictures by Snodgrass and Vanderwart (1980). The pictures have been validated for familiarity and visual complexity in a Greek elderly population (Garitou & Tomara, 2004). From the 260 pictures in the first session he named correctly 134 pictures (55,2 % high familiarity 44.73% low familiarity, 47,01 high visual complexity and 52.99 % low visual complexity). The errors made in the remaining 126 pictures were semantics (19/126), phonological (16/126) , both semantic and phonological (3/126), while in 86 pictures he made no attempt to name them.

Therapy was delivered on 3 hourly sessions over a period of five weeks. During these

session 30 pictures of the set which he failed to name controlled for familiarity and visual complexity was used as the training material while the remaining 96 were used as controlled untrained items. His naming skills on the untrained control items and on the Boston Naming Test, and his MLCU on a picture description task, were reassessed at the end of the therapy period.
In the treatment sessions, we apply ESFA, where the clinician presented a picture to the individual. The individual was encouraged to produced as many as possible of the semantic features of the target item (superordinate category, use, action, physical properties, location and association). Then the individual was encouraged to elaborate to sentences by producing the target item into sentences containing also the semantic features. For example for the item "table", he was encouraged to produce the features: furniture, for dining, wooden, kitchen, chair and then he has to elaborate these features in sentences such as: the table is used for dining, the table is a furniture in the kitchen, etc. Treatment accuracy data for a session consisted of the percentages of pictures correctly on initial confrontation, prior implementation of the ESFA. In addition in each session, we recorded the MLCU of all the sentences produced post implementation of ESFA.
The sessions were conducted by the first author. The sessions were recorded and the data were transcribed by three speech and language pathologists,. The first author checked the transcriptions independently and disagreements were resolved prior to scoring.

Results

Following the period treatment, the individual made significant improvement in his naming abilities. Post treatment, he scored 40/60 in the adaptation of the Boston Naming Test, in the trained items his accuracy of naming reached at 93.33%,(9/30 the first week, 17/30 the second, 19/30 the third, 27/30 the fourth and 28/30 the fifth week), and in the untrained control items his accuracy of naming reached at 51.6% from 0%.items. From the untrained control items named there was no significant difference between high and low familiarity items (49% and 51% respectively), but there was significant difference between high visual complexity and low visual complexity (72% and 28% respectively).
Regarding his connected speech, there was a significant improvement on his MCLU in the picture description task over the five weeks of therapy, reaching at 7 words per utterance post therapy. This improvement reflects the improvement in the MCLU of the sentences produced post implementation of ESFA therapy during the treatment sessions which was 5,2 words in the sentences the first week, 5,26 the second, 5.86 the third, 5.94 the fourth and 6.52 the fifth.

Discussion

Results of this study indicated that the ESFA approach was effective in AD's naming of object nouns as it has previously reported for SFA treatment. In addition generalization effects were noted as there was improvement in the naming of the untrained items. This improvement on the untrained items was not influenced by the familiarity but only from the visual complexity of the items pictures and probably related to the fact that high visual complexity provides more information to the individual to access the semantic information network. Furthermore, there was an improvement on the connected speech as it was evident from the increase on MCLU. This was related to the fact that the elaboration process provided a communicative situation for the semantic features to be used in the connected speech. The theoretical explanations accounted for these improvement will be further analysed and presented