

**DEVELOPMENT AND VALIDATION OF ACTIVITY BASED MANUAL IN
SEMANTIC FEATURE ANALYSIS**

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Degree of Master of Science (Speech-Language
Pathology)**

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July, 2024

CERTIFICATE

This is to certify that this Dissertation entitled “**Development and Validation of Activity based Manual in Semantic Feature Analysis**” is a bonafide work submitted in part fulfilment for the degree of Master of Science (Speech-Language Pathology) student with Registration Number P01II22S123037. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru
July, 2024

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DECLARATION

This is to certify that this Dissertation entitled “**Development and Validation of Activity based Manual in Semantic Feature Analysis**” is a result of my study under the guidance of Dr. S P Goswami, Professor of Speech Pathology and Head – Tele center for persons with communication disorders, All India Institute of Speech and Hearing, Mysuru and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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CHAPTER 1

INTRODUCTION

Semantic feature analysis (SFA) is a treatment technique for word retrieval in persons with aphasia. The individual will identify significant semantic characteristics of the target word which is difficult to recall. SFA is believed to improve the word recall ability by stimulating the semantic network associated. Thereby increasing the probability to retrieve the word.

Semantic Feature Analysis (SFA) is an intervention technique that was created to improve the naming abilities within a semantic network by increasing the level of activation and thus allowing an individual to retrieve words in a simpler way. This technique was first explained by Boyle and Coelho (1995).

In a study done by Snodgrass and Vanderwart (1980), 260 black and white line drawings were found and standardized for name agreement, image agreement, familiarity and visual complexity. This was taken as a type of stimuli. Usage of this stimuli in the semantic feature analysis lead to improved confrontation naming skills. The effect of intervention even sustained for 2 months after the treatment was discontinued.

In a study, it explored the success of Semantic Feature Analysis (SFA) as an intervention for word retrieval difficulties in individuals with Broca's aphasia in individuals who speak Telugu. Three participants were involved, and a specific treatment protocol using pictures focused on animals and it was administered over 6 weeks. The study aimed to see if improvements in naming trained animals would generalize to naming untrained animals within the same category, as well as across different semantic categories like birds and vehicles. Assessments were conducted at

regular intervals (every 2 weeks) to measure progress, and the Western Aphasia Battery (WAB) was used to evaluate overall language abilities. Results indicated a significant improvement in WAB scores post-treatment, suggesting that SFA effectively strengthened associations between words and their semantic characteristics, thereby improving word retrieval in individuals with Broca's aphasia. Maintenance of the learnt words was assessed up to 18 weeks post-intervention. (Magesh and Patil., 2013)

Taking into account the above facts, we can see that Semantic feature analysis is a useful technique for improving the naming abilities in persons with anomia. Currently, a specific manual has not been developed to refine the naming skills in persons with aphasia.

Hence, there is a need to develop an activity-based manual which includes activities based on semantic feature analysis particularly to improve the naming skills. Such an activity-based manual will be more convenient to the clinicians, time saving and efficient.

Objectives of the study

- To develop an activity-based manual for speech language pathologists containing 100 activities using Semantic Feature Analysis.
- To validate the developed manual by SLPs experienced in management of PWA.

CHAPTER 2

REVIEW OF LITERATURE

As per a study done by Druks (2002), a significant lesson we need to know is that verb and noun differences are present in patients for various reasons. Verbs and sentences are usually so closely related, that it becomes difficult to separate them into two. However, some anomic patients who adequately use 'light verbs' in their conversations have not been studied beyond. One of the important factors identified for word finding is that the name agreement should be high. Age of acquisition and familiarity are also significant while considering the stimuli required.

A method that helps categorizing of verbal output and rises the amount of content retrieved is the feature analysis. (Szekeres et al., 1987). Feature analysis includes taking up a known concept and trying to explain it by using six predefined features related to the word. This is dependent on the theory of semantic network and how objects or nouns are stored and retrieved. (Anderson, 1983). In Massaro and Tompkins's study (1994) two subjects, a 24 year old male and a 28 year old female who underwent severe traumatic brain injury were taken. Three lexical categories were chosen and under each of it, three items were selected. Hence, a total of nine stimuli were chosen on the basis of the participant's most interested and knowledgeable area. This study revealed that feature analysis may be a handy tool to stimulate the already present semantic features. Participants who had extreme verbal memory issues were also able to recover many semantic features of a concept post training sessions. It was also

stated that feature analysis may be beneficial as a technique for aphasic patients with quality visual cueing systems.

According to another study by Peach and Katherine (2009), use of semantic feature analysis had shown a positive outcome in word retrieval tasks. SFA was used to treat the word retrieval difficulties at a discourse level. In this study, two participants were asked to describe pictures and to respond to procedural questions. After both the participants responded, failed lexical items were chosen as targets for training at discourse level. However, after training the noun and verb retrieval errors in the participants using SFA, it provided significant increases in their verbal productivity and enhanced the content of their discourse.

Two right-handed individuals, one with Anomic Aphasia and other with Wernicke's aphasia both participated in a study by Boyle (2004), where anomia was the major characteristic in their speech. 260 black and white line drawings were the stimuli for confrontation naming and two black and white complex drawings were used as the stimuli for discourse production. The individuals attended three classes per week which lasted for four weeks. The results of this study proved that SFA not only showed improvement in the target words but also generalised to untreated words as well.

Wambaugh and Ferguson conducted another study in 2007 where the participant was a 74-year-old Caucasian female. She underwent a cerebrovascular accident and had moderate anomic aphasia. Hence, she was identified as a potential candidate to undergo SFA. In this study, 100 black and white line drawings presenting with various actions were taken from OANB. (Object and Action Naming Battery). The patient was asked to name all of it. Out of the 100

actions, 40 were selected as the stimuli for confrontation naming. This study targeted not only the lexical semantic information; it also took into consideration the thematic roles of each action. A total of 12 treatment sessions were provided for the participant. At the end of the study, the result revealed a fair increase in the ability to retrieve action names. This extended beyond the familiar actions as well.

In a study done by Zingeser and Berndt (1990), ten patients with aphasia were tested. For the picture naming tasks, black and white line drawings were created by freehand drawing. It was done by undergraduates in University of Maryland. The results revealed that the patients were able to acquire verbs much quicker than nouns. This study also demonstrated that patients with agrammatic errors have a different pattern for retrieval of nouns and verbs when compared to anomorphic errors. When the length and frequency of a word is controlled, agrammatic patients face more challenge to name verbs than nouns.

According to a study done by Francis and Clark (2002), a 78 year old female had undergone an ischemic stroke and post this her family noticed that the patient had become vague in responding and would name people and objects inappropriately. However, this patient was able to describe any object well even though she was not able to name it. She was allowed to circumlocute an image until she was able to name the object. She was not provided with any external prompts. This approach was called as the circumlocution induced naming (CIN), which also hoped to increase the relation between the semantic system and phonological output lexicon. This type of training had improved the patient's naming abilities and it was generalised to untreated items as well. This type of training had first emerged in the 1970s, where it was stated that it may be useful

to anomic patients to actively take part in activities created to stimulate the phonological output lexicon.

Cueing is a common method that has made possible improvements in persons with naming problem. Positive effects have been recorded post using the semantic and phonological cueing methods. (Li & Williams, 1989). The semantic cueing technique was explored on three aphasic patients and semantic feature analysis was further done to induce generalization. The stimuli used for the study were a set of big picturable nouns. The nouns were depicted as black and white line sketching on cards with dimensions of 3x5. 36 nouns which was wrongly said during the assessment were selected as the stimuli items. Two out of the three participants had improved in their naming skills. With powerful generalization even to items that were not trained and it was preserved over seven days duration. Hence the method of semantic cueing had worked strongly for aphasic individuals with naming impairment and was put in to use even for trained and untrained items as well. (Lowell et al., 1995)

In a study conducted by Stimley and Noll (1991) , the semantic and phonemic pre stimulation cue effects on aphasics for picture naming tasks were tested. The sample had a total of 20 patients with aphasia with a mean age of 65.5 years. To derive confrontation naming answers visually , the stimuli consisted of 108 black and white line sketches. It had a name agreement of more than 90%. (Snodgrass and Vanderwart, 1980). The stimuli was made by pairing the 108 images with cues such as neutral auditory, phonemic and semantic. As the name suggests , an auditory cue would be provided right before the picture stimulus was presented. Similarly , a phonemic and semantic prompt would be given for the

other stimuli items. Towards the end of the study, it was found that irrespective of the type of cue presented, the aphasic individuals were able to produce word forms of high efficiency and adequacy. It was also implicated in the study that phonological word structure is influenced by the top down processing for phonemic cues and bottom up processing for the semantic cues.

The first phoneme cue is a method where the aphasic patient is given idea about how to start articulating the word. This method has seen many improvements in individuals with naming difficulties. However, the difference seen post the first phoneme method was only for a brief duration. (Howard et al., 1983). However, stimulating the semantic system can facilitate good naming skills that can last up to a year. The two techniques used for this study was the phonemic cueing and self cueing. Phonemic cueing is when the participant tends only to the phonological characteristics. Self cueing is based on understanding the word semantically. There were eight chronic patients with aphasia. The list of stimuli words consisted of 12 words that were paired with 12 symbols. Blissymbols were used, so that it does not look iconic at all. It was discovered in the study that while accessing the semantic form of the words, the target was achieved for a much longer duration than when compared to using the phonological form only. (Marshall et al., 1994). On conclusion, both phonemic and self cueing had a positive outcome for training novel words in aphasics.

Associative learning is the learning that occurs between two separate items or stimuli based on their relationship with each other. A study done by Freed and Nippold (1995) explored how aphasic individuals could benefit from associative learning of words. The two types of cueing strategies described in this

study are personalised cueing and provided cueing. When patients create an association or links for word-symbol pairs by themselves, it is referred as personalised cueing. And when a priorly developed association is present for a word-symbol pair, it is called as provided cueing. For college going students, learning disabled and mentally challenged children, associative learning has been used as a method of teaching. (Atkinson, 1975). This study included 30 aphasic individuals. Thirty English words were paired with a set of thirty abstract black and white symbols. Out of the 30 symbols, 20 of them were for provided cueing and the remaining 10 were where the patients had to themselves make cues for associating the word and symbol. The symbols used were Blissymbols, and in the study it was made sure that the symbols appeared as non iconic as possible. The outcome of the study showed both the cueing methods were able to bring out right responses from the participants. It also proved that a long term effect of two of the cueing strategies were present. The individuals were able to provide accurate response up to thirty days even after the training was stopped.

Bilingual aphasia is when a bilingual individual loses one or both languages when their hemisphere dominant in language has been damaged. This study conducted by Edmonds and Kiran in 2006 studies how semantic naming treatment can affect the crosslinguistic generalisation in Bilingual Aphasics. Three participants were taken and the languages spoken by them were English and Spanish. The stimuli for treatment were chosen based on a particular criteria. One fifty words were selected from a collection of 200 words that differed in the semantic groups. Cognates and words with fifty percent resemblance were removed from the list. The words that were picked were words between one and

four syllables. Confrontation naming task was done. For each of the word , six semantic features were created out of which the last feature was based on a personal experience of the patient. The results proved crosslinguistic generalization across all patients. Due to the different premorbid level of language mastery in each individual, the pattern or the way it was generalised was not similar across the participants. When the treatment provided was in their first language, generalization has occurred to other semantically related objects in their second language. However training the second language first did not reveal similar results, that is generalisation did not take place.

For the intervention of naming retrieval issues two methods were contrasted in 12 patients with chronic aphasia. The first method being the semantic treatment, the patients needed to process the concept consistent with the image name and the second method phonological treatment, where the patients were given details about the phonological structure of the word. The patients received eight classes over a time of two weeks. It was revealed that both the therapy ways had provided excellent boost in naming skills when it was tested a week after the treatment was completed. (D Howard et al., 1985). However, an additional benefit was evident in the semantic treatment as generalization was present for the items that were not treated.

In another study, it was understood that when subjects who provide more number of semantic features during the treatment of semantic feature analysis, they showed better outcome in naming tests. These outcomes were somewhat equal for the two groups, that is the treated and the untreated objects.

This gave an idea that concentrating on producing features might make possible treatment generalization. The next key point to this study was that the “patient produced features” were the prime predictor of better treatment response in this treatment. That is, if a patient was not able to generate semantic features on an average level then this meant the prognosis of the treatment would be poor. It was concluded in this study, that if a participant requires quiet a long time to produce new semantic features , then it is a better option to centralize on the repeated drill of the existing few features to boost the quantity of features over the diversity of features. (Evans et al., 2021).

A study was conducted to compare and contrast between semantic feature analysis (SFA) and melodic intonation therapy (MIT). It was done to see which treatment is more effective. Semantic feature analysis and Melodic intonation therapy are well known techniques for aphasic patients with language difficulties and both the techniques are known to bring out a beneficial outcome. Ten patients with non fluent aphasia were taken in the age range of 45 to 65 years. The patients had all undergone stroke and it was past one year. It was also made sure that none of the patients had taken SFA or MIT therapy previously. For SFA, 15-20 images were kept as the target for twenty therapy classes. They had decided to train 5-7 images in a single class. For MIT, the target was the same number of words to be learnt. However, post therapy sessions , it was understood that both the approaches provided with good results , but it was found that semantic feature analysis stood out as a more successful option. (Iftikhar et al., 2023)

This study probed into using SFA in connected speech for the treatment of aphasics and also served as a method of service delivery in treatment of

aphasia. Two women and one man were the subjects in this study. There was attrition and one subject had backed out. However, one of the patient had improved the informativeness in his speech and generated more correct information, correct names of objects and better usage of semantic circumlocutions which previously sounded empty. There was an enhanced ability to get the adequate semantic information to estimate the target lexical words. The next patient however improved in her communication skills, as there was more content to what she was speaking. She depicted an increase in the correct information that she spoke and there was a depletion in pauses during her discourse production. (Antonucci., 2008)

Generalization is a significant part of aphasia management. This has obtained immense attention among clinicians and researchers. To call an intervention effective, it has to be made sure that the effects of the intervention will last long and it should also generalize to various other situations and environments. Few methods to enable the generalization process is by **loose training approach**. This works in a way where the aphasic individual is encouraged to provide responses on his own and is not based on a set of rigid responses. Therefore, in this procedure the participant is expected to manipulate the stimuli, feedback or response used in the intervention and try to approximate it into suiting the current environment. (Thompson & Byrne., 1984)

The next method is **training sufficient exemplars**. The responses generated by an aphasic individual is trained across plenty of surroundings and situations until generalization is achieved.

Sequential modification is another method to increase generalization. In this method, it includes extension of the intervention across various surroundings and situations. The major difference between training sufficient exemplars and sequential modification is that, in training sufficient exemplars it needs training in only a few situations or conditions while in sequential modification, training is required for all the situations or conditions. The next one is **training mediational strategies**. In this method, generalization is mediated. A known set of words will be paired with another set of unknown or error words in a way that the known word will mediate or will help in accessing the unknown word. (Rosenbek, Collins & Wertz., 1976).

CHAPTER 3

METHODS

The current study mainly aimed to develop an activity-based manual for Semantic feature analysis (SFA) intervention in English language, which can serve as a valuable resource for SLP's by improving the naming skills in persons with aphasia.

The study was conducted in two phases.

1. Development of the Semantic Feature Analysis manual.
2. Assessing the adequacy of the developed material in terms of the content.

Phase 1: Development of the SFA manual

The following steps are involved in the development of the manual:

1. Review of existing literature
2. Identification of target stimulus
3. Preparation of a graphic organizer
4. Formulating the criterion to be used for the target lists
5. Preparation of patient data tracking form

Step 1: Review of existing literature

A thorough literature review was done to ensure how Semantic feature analysis (SFA) can be beneficial to patients having retrieval difficulties. A number of researches supported using Semantic Feature Analysis for improving the naming abilities in an individual with aphasia. Simultaneously it also highlighted the importance of cueing in stimulating the semantic network and supporting the Semantic activation theory. Existing literature also describes on how using Semantic Feature Analysis was also able to induce generalization of other novel words as well.

The key words included “aphasia”, “anomia”, “SFA”, “rehabilitation”, “mapping”, “naming”, “retrieval”. Using these terms , several academic databases including PubMed, Google Scholar, Sci Hub were searched. This provided a strong foundation for creating the manual.

Step 2: Identification of target stimulus

The identification of the target stimuli was an important step in developing this manual. The target stimuli in the manual included a total of Hundred words, fifty nouns and fifty verbs. The main aim was that the words chosen as stimuli must be relevant and of use to an individual with aphasia. Primary English class textbooks and English dictionary were also referred to choose the word stimuli. Pictures were selected from the “Google” platform. High quality pictures which provided visual transparency were chosen. The pictures were real images and it was ensured that the images chosen were straightforward to the individual to avoid any confusions. Animated or cartoon images were not chosen to preserve the naturality during the therapy sessions. The pictures selected were age and culturally appropriate too.

The nouns and verbs were then divided into two levels. The first level included words that an aphasic individual is more familiar with and second level with words less familiar. This would ensure that the individual learns the familiar words initially and then advance into the next level.

The nouns and verbs were divided into two levels based on how the aphasic individual is familiar with it.

For Nouns:

1. Level 1 – 25 most frequent nouns

2. Level 2 – 25 less frequent nouns

For Verbs:

1. Level 1 – 25 most frequent verbs
2. Level 2 – 25 less frequent verbs

Step 3: Preparation of a graphic organizer

The picture stimuli which is to be named by the aphasic individual is placed in the centre of the sheet which is surrounded by a set of six questions. Each of the question is asked one by one to the patient. The patient is encouraged to answer them which will lead to naming the stimuli presented.

When the target stimulus is a Verb, the set of six questions will be as follows:

- Subject/Doer – who does the action.
- Purpose – why do you do the action.
- How – what part of the body is used or what instrument is used.
- Location – where does the action happen.
- Association – what does it relate to.
- Properties – how does it look like.

When the target stimulus is a Noun, the set of six questions will be as follows:

- Group – in which group does it belong to.
- Function – what are the uses.
- Action – what does it do
- Location – where does the action happen.
- Association – what does it relate to.

- Properties – how does it look like.

For the question “what does it relate to”, the patient can speak anything that reminds him or her of the presented stimuli. It can focus more on the personal experience that an aphasic individual might have had with the presented stimuli, whether a noun or a verb. For example, if it’s the noun “Mango”, the person can express that it is “his favourite fruit”, “he eats it every day” or “he likes to drink juice with it” etc. This can be different for everyone.

Step 4: Formulating the criterion to be used for the target lists

This step involved creating a comprehensive treatment schedule stating the criteria required to progress into the next level for nouns and verbs. Each of the target item was scored based on the amount and type of cue given. The scoring criteria was set to record the patient’s progress.

- Named word with 3 or less features – 4
- Named word with 5 or less features – 3
- Named word with 6 features – 2
- Named word using phonemic/orthographic cues – 1
- No response – 0

A passing criterion of 75% of total score was needed to progress from level one to level two for both nouns and verbs. This would ensure that the aphasic individual was able to name words that are more frequent.

Step 5: Preparation of patient data tracking form

The administration of a patient data tracking form helps to ensure systematic documentation and regulating the patients’ progress throughout the SFA therapy. For

this manual, the treatment recording sheet by Goswami et al. (2012) adapted from the Manual for Adult: Non-Fluent Aphasia Therapy in Kannada, is used to track the patients' progress across sessions. (Appendix 1).

Phase 2: Assessing the adequacy of the developed material in terms of the content

Five Speech Language Pathologists who had worked with aphasic individuals for the last two years had assessed the developed manual. They were requested to validate the structure and contents of the manual created according to the grading form adapted from the “Manual for Adult: Non-fluent Aphasia Therapy in Kannada” (Goswami et al., 2012). Participants consent was obtained prior to the manual being validated.

The manual developed was converted into a PDF and was sent to the five SLPs along with a google form containing the feedback questionnaire. They were required to rate 19 parameters using a 5-point Likert scale , ranging from very poor to excellent.

CHAPTER 4

RESULTS AND DISCUSSION

The primary aim of the study was to create a manual for aphasic persons who have naming difficulties. Persons with naming difficulties would have their quality of life affected. This manual developed a comprehensive set of activities which targeted improving the naming deficits present in individuals with aphasia and thus improving their lives. The study was conducted in phases of two.

1. Development of the Semantic Feature Analysis manual.
2. Assessing the adequacy of the developed material in terms of the content.

Phase 1: Development of the SFA manual

The reviewing of literature before creating the manual included a thorough search through the existing literature in English Language. How SFA was used as an approach in improving retrieval was understood. Few of the keywords that were used for searching previous literature were “aphasia”, “anomia”, “SFA”, “rehabilitation”, “mapping”, “naming”, “retrieval” etc. Using these keywords, it was also searched in databases such as Google scholar, PubMed and Sci Hub.

Books such as Manual for Adult Aphasia Therapy (Goswami & Rachel, 2018), Manual of Aphasia and Aphasia Therapy (Helm-Estabrooks & Albert, 2004), Approaches to the treatment of Aphasia (Helm-Estabrooks & Holland, 1998) and Manual of Cooperative Group Treatment for Aphasia (Avent, 1997) were referred. Based on the search in literature, few articles such as The value of communication strategies in the treatment of aphasia (Holland, 2020), Aphasia treatment: Intensity, dose parameters, and script training (Cherney, 2012), Delivering for aphasia (Code & Petheram, 2011), A meta-analysis of clinical outcomes in the treatment of

aphasia (Robey, 1998) were reviewed. It was inferred that an intervention manual as such in the Indian context was not available for treating the naming deficits in aphasic individuals. Most of the literature described in general about how SFA can be carried out and various lexical categories can be taken up as goals for improving the naming deficits. There was lack of a readymade intervention manual with an in built list of words and pictures in Indian scenario which can solely be used for improving the naming skills. This manual developed was made user friendly and convenient to use by the Speech language pathologists. This will improve the scope of practice for the SLPs working in the field of Aphasia. Improving the naming abilities in individuals with aphasia will help reduce the burden in the individual's life and can make activities of daily living more independent for individuals with aphasia.

The activity-based treatment manual will address the current research gap by providing an intervention guide to enhance naming skills in aphasic patients. With its ready-made lists of words and corresponding pictures, the manual will also streamline the clinical process, saving time for clinicians.

Phase 2: Assessing the adequacy of the developed material in terms of the content

For developing a manual, Validation is a significant psychometric criterion. The developed manual was sent for validation to 5 speech-language pathologists working with aphasic patients for two years. The questionnaire for feedback (adapted from Manual for Adult: Non Fluent Aphasia therapy in Kannada.) Goswami et al., (2012) was modified and 19 parameters were analysed on a 5-point rating scale ranging from excellent to very poor. The responses from the judges were depicted in percentage which shows up to what extent the judges were satisfied with the structure

and content of the manual. Qualitative analysis was done and the data obtained is displayed below. (Table 1 & Table 2)

Table 1

Response of the judge regarding the manual

Sl. No	Parameters	Excellent	Good	Fair	Poor	Very Poor
1.	Simplicity	4	1	-	-	-
2.	Familiarity	3	2	-	-	-
3.	Size of the picture	3	2	-	-	-
4.	Color and appearance	3	2	-	-	-
5.	Arrangement	2	3	-	-	-
6.	Presentation	2	3	-	-	-
7.	Volume	2	2	1	-	-
8.	Relevancy	3	2	-	-	-
9.	Iconicity	2	2	1	-	-
10.	Accessibility	3	2	-	-	-
11.	Flexibility	2	3	-	-	-
12.	Trainability	3	2	-	-	-
13.	Stimulability	3	1	1	-	-
14.	Feasibility	2	3	-	-	-
15.	Generalization	2	3	-	-	-
16.	Scope of practice	1	4	-	-	-
17.	Scoring of pattern	1	4	-	-	-
18.	Publications, Outcomes and Developers (Professional Background)*	Yes-4 No- 1	-	-	-	-

19.	Coverage of parameters	5	0	-	-	-
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Table 2

Response of the judges regarding the manual in percentage.

Sl. No	Parameters	Excellent (%)	Good (%)	Fair (%)	Poor (%)	Very Poor (%)
1.	Simplicity	80	20	-	-	-
2.	Familiarity	60	40	-	-	-
3.	Size of the picture	60	40	-	-	-
4.	Color and appearance	60	40	-	-	-
5.	Arrangement	40	60	-	-	-
6.	Presentation	40	60	-	-	-
7.	Volume	40	40	20	-	-
8.	Relevancy	60	40	-	-	-
9.	Iconicity	40	40	20	-	-
10.	Accessibility	60	40	-	-	-
11.	Flexibility	40	60	-	-	-
12.	Trainability	60	40	-	-	-
13.	Stimulability	60	20	20	-	-
14.	Feasibility	40	60	-	-	-
15.	Generalization	40	60	-	-	-

16.	Scope of practice	20	80	-	-	-
17.	Scoring of pattern	20	80	-	-	-
18.	Publications, Outcomes and Developers (Professional Background)*	Yes-80 No-20	-	-	-	-
19.	Coverage of parameters	100	-	-	-	-

For the purpose of analysis, all the 19 parameters were analysed by dividing them into 4 main groups. As you can see, higher scores indicating good and excellent depicted a positive outcome of the activity-based manual for utilisation in a clinical setting. The 4 main groups into how the parameters were divided into is as follows:

1. Parameters related to the content of the stimuli – the parameters are Presentation, Familiarity, Similarity and Coverage of parameters.
2. Parameters related to selection of the picture stimuli – It included the size of the picture, Colour and appearance, Arrangement and Iconicity.
3. Parameters related to structural design of stimuli – involves Flexibility, Stimulability, Feasibility, Relevancy, Volume and Accessibility.
4. Parameters related to the output of the test – This includes Trainability, Generalization, Scope of practice, Pattern of scoring and Publications, outcomes and developers.

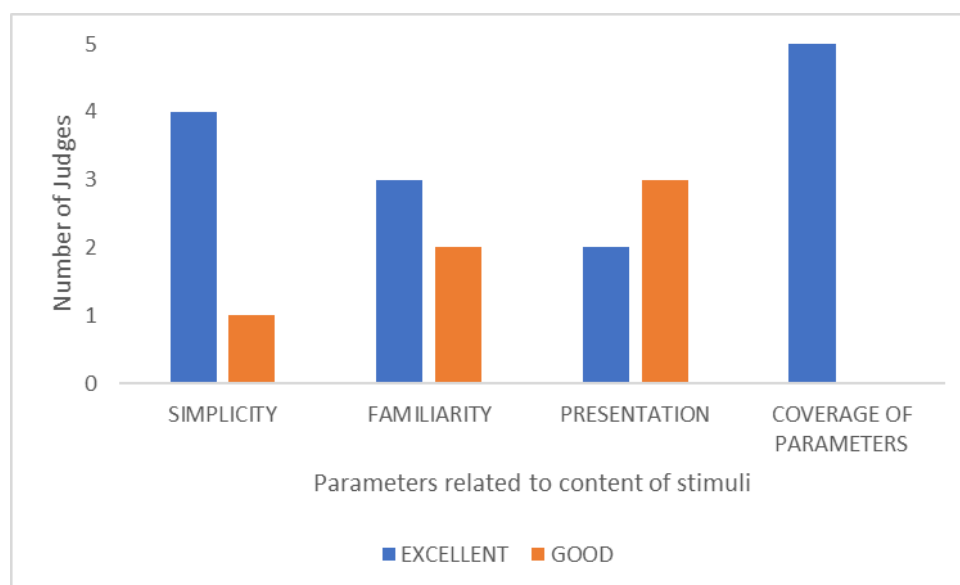
Parameters related to the content of stimuli:

These parameters were based on the target list of words for both nouns and verbs chosen for training the naming abilities in individuals with aphasia. It analysed whether the stimuli were culturally appropriate. The following provides the responses

from the five speech-language pathologists for parameters related to content of stimuli.

Figure 1

*Outcome scores of the qualitative analysis of the Activity-Based manual for SFA:
Parameters related to content of stimuli.*



Simplicity:

4 out of 5 judges rated the manual to be 'excellent' and the remaining 1 judge rated it as 'good'. The qualitative analysis depicted that 80% of the judges found the manual to be excellent and for 20% judges good in terms of it's simplicity. This shows that the manual is simple to comprehend.

Familiarity:

Familiarity was based upon what extent the target stimuli was known to the user. 3 out of 5 judges scored the manual as 'excellent' and 2 judges as 'good'. The

qualitative analysis revealed 60% of the judges found the manual to be excellent whereas 40% of the judges rated it good.

Presentation:

This parameter describes if the target word placed in each section is appropriate or not. 2 out of 5 judges rated the presentation of the activity manual as 'excellent', which is 40%. And the remaining 3 judges scored it as 'good', which is 60%. This reveals that more percentage of the judges rated that the word placed in each section is only 'good'.

Coverage of Parameters:

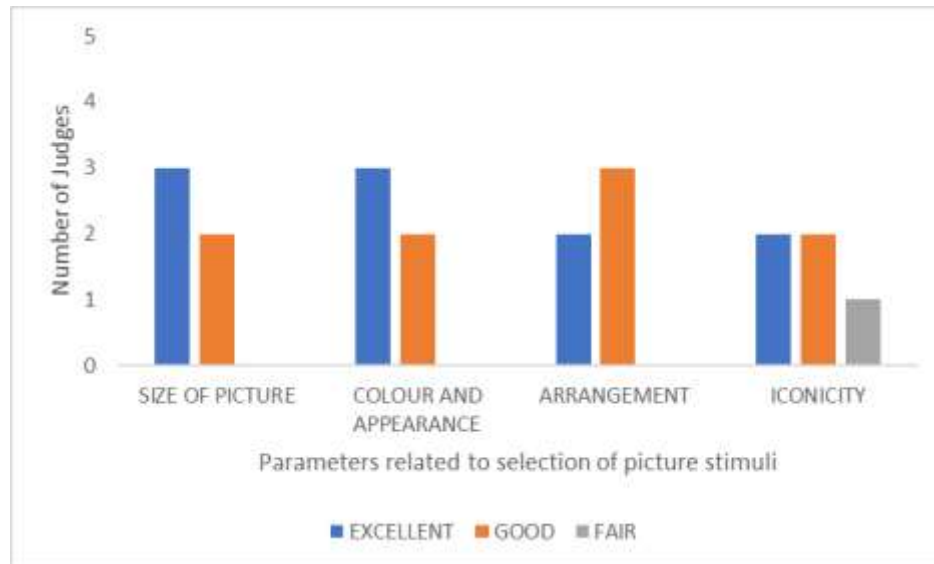
The developed manual must contain all the necessary target words from categories that is required for an aphasic individual's conversation in activities of daily living. All the five judges rated that the current manual covered most of the parameters needed to train an individual with aphasia.

Parameters related to the selection of picture stimuli:

These parameters were based on how adequate the chosen picture stimuli was. It included the size of the picture, iconicity, colour and the appearance of the picture. Following are the responses provided by the judges for selection of picture stimuli. It is graphically represented. (Figure 2)

Figure 2

*Outcome scores of the qualitative analysis of the Activity-Based manual for SFA:
Parameters related to selection of picture stimuli.*



Size of Picture:

This parameter describes if the size of the picture is appropriate or not. 3 out of 5 judges rated the picture size as ‘excellent’ and 2 out of them rated the size of the picture as ‘good’. This means that 60% percent of the judges found it excellent while 40% of the judges found the size of picture as good.

Colour and appearance:

This parameter is based on the colour and display of the picture stimuli. 60% of the judges rated the colour and appearance as ‘excellent’, which is 3 out of 5 judges. And 2 judges rated the colour and appearance as ‘good’ making it 40%.

Arrangement:

This parameter is based on whether the picture stimulus is placed adequately and if it was in the visual field of the individual. 2 out of 5 judges rated the arrangement of the manual to be 'excellent' and 3 judges rated the manual's arrangement as 'good'. That is, 40% of the judges rated it excellent and the remaining 60% as good.

Iconicity:

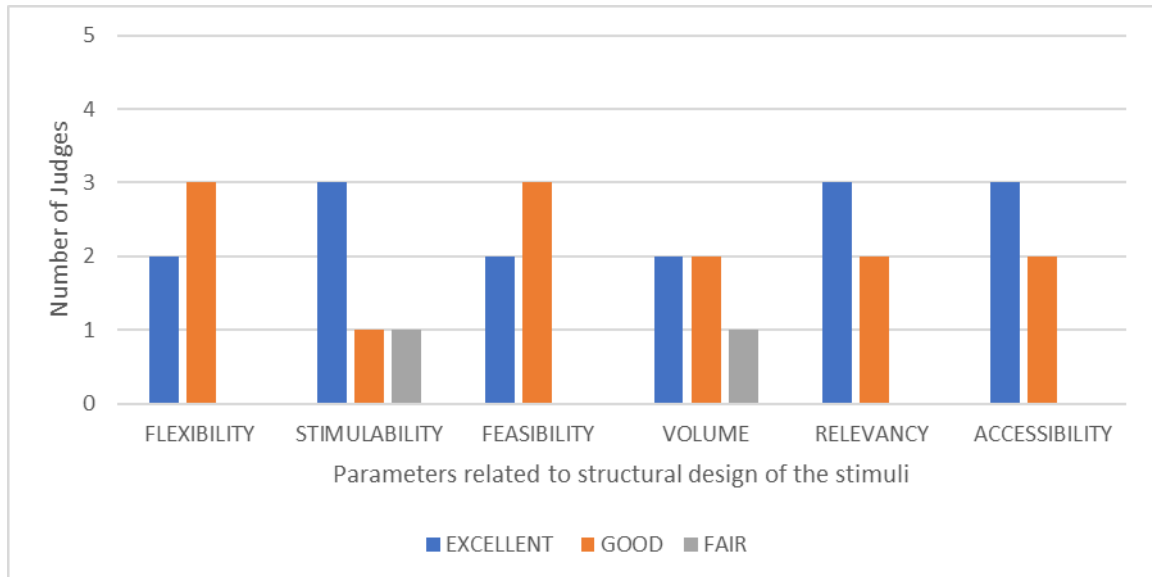
This parameter is determined by how recognizable and representable the pictures were. 2 out of 5 judges rated the iconicity to be 'excellent' and other 2 judges rated the pictures iconicity as 'good'. However 1 judge rated the iconicity as 'fair'. 80% of the judges provided a positive outcome for the iconicity of the picture stimuli as excellent and good. And 20% as fair.

Parameters related to the structural design of the stimulus:

The parameters are determined by how the stimulus was designed and up to what extent can it serve to prove its purpose for the manual. Following are the graphical responses from the different judges:

Figure 3

*Outcome scores of the qualitative analysis of the Activity-Based manual for SFA:
Parameters related to the structural design of the stimulus.*

**Flexibility:**

For a clinician to be able to use the manual conveniently, the manual should be adaptable. 2 out of 5 judges scored the manual as ‘excellent’ and 3 judges scored it ‘good’. That is 40% of the judges found it excellent and 60% as good.

Stimulability:

This parameter ensures that the stimuli have the capability of being able to elicit responses from the individuals undergoing the intervention. 3 out of 5 judges mentioned the stimuli in the manual was ‘excellent’ and 1 judge rated it as ‘good’. 1 judge also rated the stimulability of the manual as only ‘fair’. This reveals that majority of the judges found the stimuli as being able to elicit responses from the aphasic individuals.

Feasibility:

This parameter describes of how well the manual can be used practically in a clinical setting and easily can it be functioning. 2 out of 5 judges scored it with excellent feasibility while 3 out 5 judges rated it as good feasibility. This means that 40% of the speech-language pathologists found manual 'good' and 60% 'excellent' based on it's feasibility.

Volume:

This parameter refers to the overall size of the activity-based manual. 2 of the speech- language pathologists found the volume as excellent and another 2 speech- language pathologists found the size of the manual as good. However, 1 judge found the size of the manual as only 'fair'. This means that 80% of the judges found the volume of the manual as good and excellent and only 20% rated it as fair.

Relevancy:

This refers to the idea that if the stimuli developed was both culturally and ethically acceptable. 3 out of the 5 validators graded the manual with excellent relevancy and 2 of them graded it with good relevancy. 60% of the judges rated it as a manual with excellent relevant stimuli in the Indian context and 40% of the judges with good relevancy.

Accessibility:

This parameter determines if the developed manual is going to be easy to use and accessible. 3 out of the 5 validators graded it as excellent accessibility while 2 of

the validators graded it as good accessibility. This shows that 60% of the validators found the manual as excellent in accessibility and 40% found it as good.

Thus, the responses from the validators make it clear that the manual can be used practically in a clinical set up , it is user friendly , flexible and can be adapted according to the requirements of the individual with aphasia.

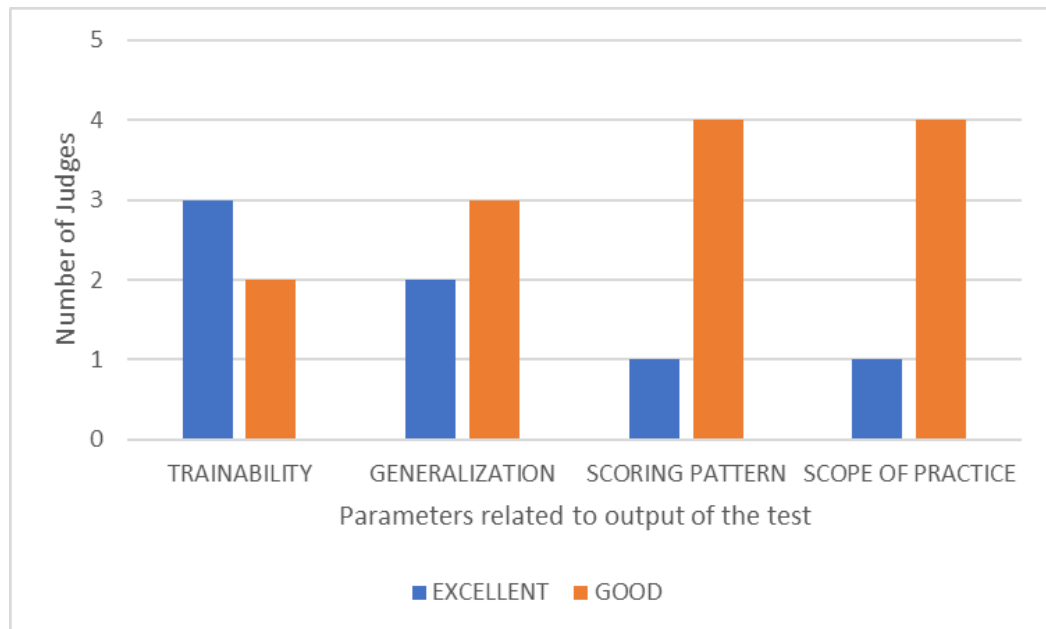
Parameters related to the output of the test:

The parameters were based on the organized use of the developed activity-based manual by the caregiver and clinician for guaranteeing generalization to other novel words as well in the natural environment of the person. Also, when the individual passes from level 1 to level 2, tracking the improvement of the person through the treatment schedules can be done systematically. Following were the responses from the 5 speech-language pathologists for the parameters related to the output of the test. It is also graphically represented. (Figure 4).

Figure 4

Outcome scores of the qualitative analysis of the Activity-Based manual for SFA:

Parameters related to the output of the test.



Trainability:

3 out of 5 judges graded the trainability as excellent. This means to say that 60% of the judges indicate that the manual can be used for intervention in different settings of the patient. 2 judges revealed that the manual's trainability as good, which is 40% of the judges.

Generalization:

This parameter is determined by the idea that if the developed manual can be used for adults with other language disorders. 2 out of 5 validators rated it excellent for generalization while 3 validators rated it good. That is 40% of validators found the manual to be excellent to generalize to other language disorders and 60% found it good.

Scoring pattern:

4 out of 5 judges graded the scoring pattern as good for the developed manual and one judge graded it excellent. This reveals 80% of the judges found the scoring pattern to be good.

Scope of practice:

4 out of 5 judges graded the scope for practice as good for the activity-based manual and one judge graded it excellent. This reveals 80% of the judges found the manual as having good scope of practice.

Thus, the activity-based manual has a good scope of practice, can be scored conveniently and generalized for other language disorders as well.

Publications, Outcomes and Developers:

The speech-language pathologists awareness regarding the availability of any other intervention manual was assessed by a Yes/No question. 4 out of 5 judges revealed that they were not aware of any such manual in the Indian context. That is 80% of the judges did not know of any manual. This proves the need of such an activity-based manual for targeting the naming skills in individuals with aphasia.

The parameters assessing the **content of stimuli** focused on simplicity, familiarity, presentation, and coverage. The positive responses for simplicity and familiarity align with studies emphasizing the importance of clear and accessible materials in aphasia therapy (Knott et al., 2017; Van der Meulen et al., 2016).

This category focused on the relevance and appropriateness of the target words for training naming abilities in individuals with aphasia. This suggests that the manual effectively simplifies the learning process and uses familiar stimuli, enhancing its usability in clinical practice. However, the rating for presentation indicated that while generally good, there is room for improvement in how target words are structured and presented within the manual to optimize learning outcomes. (Hula & McNeil, 2008).

Evaluation of **picture stimuli** highlighted aspects like size, color, appearance, arrangement, and iconicity. The positive feedback on size and color/appearance supports previous findings advocating for visually clear and contextually relevant stimuli in aphasia interventions. This indicates that the manual effectively utilizes visually appropriate stimuli, which are crucial for facilitating understanding and engagement among individuals with aphasia. (Boyle & Coelho, 2018). This is also consistent with research advocating for the use of clear and contextually relevant visual cues.

In the parameters of **structural design of stimuli** such as flexibility, stimulability, feasibility, volume, relevancy, and accessibility assessed the manual's usability and adaptability. Favourable ratings for flexibility and feasibility resonate with research promoting flexible therapeutic frameworks in aphasia treatment (Bowen et al., 2012). It also indicates that the manual can be adapted and used effectively in various clinical settings. Stimulability also received positive feedback, suggesting that the stimuli is capable of eliciting responses from individuals with aphasia. However, while the volume and relevancy were rated mostly good, there were some fair ratings,

highlighting the need for adjustments in content volume and cultural relevance to enhance overall effectiveness. (Haley et al., 2015).

In the parameters for **output of the test**, the analysis of trainability, generalization, scoring pattern, and scope of practice demonstrated the manual's potential in supporting skill acquisition and transfer. The positive responses for trainability and generalization align with studies emphasizing structured and progressive therapy approaches in aphasia (Des Roches et al., 2015; Nickels & Howard, 1995). The results indicated that the manual's design supports effective training and skill acquisition, as evidenced by high ratings for trainability and generalization. The scoring pattern and scope of practice also received positive feedback, indicating that the manual can be reliably used to track progress and generalize skills beyond structured activities.

Thus, the developed manual was content validated based on 19 parameters that were divided into 4 main groups such as parameters related to content and structural design of stimuli, selection of the stimuli and output of the test. The above results revealed that 80% of the judges provided positive outcome for the activity-based manual. Content validation is one significant psychometric property which is considered while developing a manual. The current manual proved to have a good content validity.

CHAPTER 5

ABOUT THE ACTIVITY BASED MANUAL FOR SEMANTIC FEATURE ANALYSIS

The activity-based manual for Semantic Feature Analysis consists of two Parts for Nouns and Verbs. The manual consists of 100 activities in total.

1. Part 1 – Nouns
2. Part 2 – Verbs

Each Part is further divided into 50 activities which are arranged in two separate levels based on the familiarity of the target items.

In Part 1 - Nouns

1. Level 1 – 25 activities using most frequent nouns
Few examples are orange, plate, glass etc.
2. Level 2 – 25 activities using less frequent nouns
Few examples are driver, cow, ear etc.

In Part 2 – Verbs

1. Level 1 – 25 activities using most frequent verbs.
Few examples are eating, brushing, playing etc.
2. Level 2 – 25 activities using less frequent verbs.
Few examples are throwing, spitting, swimming etc.

The corresponding picture stimuli of each target item is placed in the centre surrounded by a set of six questions.

Progression Criterion list

The patient can progress to the next level based on a passing criterion of 75% for each level. The scoring criteria to be followed is mentioned below:

1. Named word with 3 or less features – 4
2. Named word with 5 or less features – 3
3. Named word with 6 features – 2
4. Named word using phonemic/orthographic cues – 1
5. No response – 0

The scores that the patient acquires can be entered into the treatment recording sheet adapted from the “Manual for Adult Fluent Aphasia therapy - Kannada (Chaitra and Goswami., 2010)”. The clinician is expected to follow this treatment schedule and provide the scores for each level.

Points to consider while using the manual (adapted from MANAT-H; Deshpande and Goswami, 2004)

- Create a good communicative environment
- Communicate in a quiet, well-lit, and ventilated room
- Limit the number of people, avoid large groups
- Encourage the person with aphasia to communicate
- Recognize and reinforce communication gains
- Do not ask the person with aphasia to talk and do something else at the same time
- Respect the privacy of the person with aphasia
- Keep the person with aphasia informed about what is happening

- Be aware of fatigue
- Encourage the person with aphasia to be independent
- Keep the person with aphasia occupied
- Be sensitive to the person with aphasia

As a speaker

- Talk slowly
- Avoid raising your voice
- Use appropriate language in the form of short and simple sentences
- Use familiar words
- Do not bombard the person with aphasia with too many activities/tasks
- Emphasize the important words in sentences
- Accompany a message with gestures or repeat if the person with aphasia does

not understand

As a listener

- Listen and do not interrupt
- Be patient
- Enough time should be given to the person with aphasia to respond
- Accept language errors

Repair Strategies

The various repair strategies that the clinician can use to improve the overall communication skills for persons with aphasia are:

1. Vocal/sub-vocal rehearsal: In this strategy persons with aphasia are requested to repeat the command loudly or by whispering while or before performing the task.
2. Self-correction: In the self-monitoring strategy, the person with aphasia is asked to correct himself/herself, if the response with reference to the stimuli is incorrect. The

clinician should further provide realistic feedback and encourage him/her to monitor his/her responses.

3. Repetition: It is a repair strategy where the person with aphasia is encouraged to ask for the repetition of the presented stimuli when he/she does not comprehend.

4. Cue: Certain clues are provided by the clinician/communication partner and this may facilitate the person with aphasia to produce the target response. The cueing hierarchy is as per the scoring pattern mentioned above.

5. Rephrasing: It is a repair strategy which either a clinician or a person with aphasia can use. In this strategy the complex stimuli are simplified or is broken down into several parts.

6. Reducing the presentation of the rate of stimuli: The clinician is expected to slow down the presentation of the stimulus in order to facilitate the comprehension ability of persons with aphasia.

7. Reducing the rate of speaking: This strategy can be used either by the clinician or by the person with aphasia where the rate of speaking is slowed down. This will improve the self-monitoring and also the intelligibility of speech.

8. Feedback: It is a repair strategy in which the clinician or the communication partner gives feedback through auditory/visual modality to the person with aphasia to let him/her know whether the response was as expected or not.

9. Usage of alternative communicative strategy: All possible modes of communication should be considered to improve the overall communication of persons with dementia.

It is expected that the clinician demonstrates, illustrates or instructs to adhere to these strategies for improving the overall communication skills. Further, the clinician is also expected to provide appropriate model, realistic feedback and communication opportunities.

These above-mentioned strategies can be used either in isolation or in combination. Clinicians are free to add any other strategy which they feel is appropriate and will facilitate the communication.

CHAPTER 6

SUMMARY AND CONCLUSIONS

The current study aimed to develop an activity-based manual for treating the naming deficits in persons with aphasia. The developed manual was content validated qualitatively by 5 speech-language pathologists who are experienced in Aphasia and other neurological disorders. The manual was developed after reviewing various literature that was available in databases such as PubMed, Goggle scholar etc.

The manual contains of 100 activities out of which 50 are verbs and 50 are nouns. Each section is divided into levels of two. Iconic pictures are placed in the centre to represent each item which is surrounded by a set of six questions that can elicit the semantic features of the item when the question is responded to. Achieving a minimum threshold of 75% is essential for individuals with aphasia to advance to the next level. The inclusion of a treatment recording sheet in the manual ensures systematic monitoring of the patient's progress. Ultimately, this manual has the potential to significantly enhance an individual's naming abilities and greatly improve their communication abilities in real-life situations.

5.1 Implications of the study:

- The development of a comprehensive manual including 100 activities for SFA produces clinicians with a structured framework to enhance word retrieval and semantic processing in persons with aphasia. This can improve the patient satisfaction as well.
- Using a manual can promote effectiveness and consistency in therapy done across various clinical settings.

- The diverse activities will permit the clinicians to tailor treatment plans to meet specific needs of a person with aphasia, which can target personalized rehabilitation strategy.
- The manual can act as a valuable educational source for training future speech-language pathologists, strengthening their knowledge and skills in intervention of aphasia.
- Effective intervention in aphasia can improve the communication abilities of individuals, their social participation, overall quality of life, improve social interaction and reduce barriers to daily living. This way people with communication disorders will have opportunities to participate equally in society.

5.2 Limitations of the study:

- The manual underwent content validation but due to the time constraints, field testing was not done.
- The judges rated stimulability and volume of the manual as only 'fair'. Further refinement may be needed to enhance effectiveness.
- Different cultures and clinical settings may require adaptations or modifications to the manual.

5.3 Future directions:

- Field testing for the developed manual can be done in the future.
- Longitudinal study can be done to assess the long term benefits and maintenance of gains achieved while providing the intervention using the manual.

- Comparative studies to contrast the efficacy of the SFA manual with other treatment approaches for rehabilitation of aphasia.
- Qualitative feedback can be gathered from speech-language pathologists and persons with aphasia who use the manual to understand their preferences, experiences and suggestions for improvement.

This manual was created based on the best knowledge of clinical expertise, literature reviews and reports. The manual was agreed to its content by three experienced SLPs. Thus this activity-based manual is expected to be beneficial and useful for persons with aphasia.

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Appendix 1

Response of a Judge regarding Manual

**Adapted from the Manual for Non-Fluent Aphasia Therapy in Kannada.
(Goswami et al.,2012)**

Sl.No.	Parameters	Very Poor	Poor	Fair	Good	Excellent
1.	Simplicity					
2.	Familiarity					
3.	Size of the picture					
4.	Color and appearance					
5.	Arrangement					
6.	Presentation					
7.	Volume					
8.	Relevancy					
9.	Iconicity					
10.	Accessibility					
11.	Flexibility					
12.	Trainability					
13.	Stimulability					
14.	Feasibility					
15.	Generalization					
16.	Scope of practice					
17.	Scoring pattern					
18.	Publications, Outcomes and Developers (Professional Background)					
19.	Coverage of parameters (Reception and expression)					

**Note:* This parameter was judged in terms of *yes* or *no* question.

Definition of parameters

1. **Simplicity:** Are the test stimuli comprehensible?
2. **Proverbiality:** Is the test material familiar to the user?
3. **Size of the picture:** Whether the picture stimuli are of appropriate size?
4. **Colour and appearance:** Are the picture stimuli appropriate in terms of colour and dimension?
5. **Arrangement:** Whether the picture stimuli are within the visual field of an individual?
1. **Presentation:** Are the number of stimuli in each section placed appropriately?
2. **Volume:** Is the overall manual appropriate in size?
3. **Relevance:** Whether the test material is culturally and ethically acceptable?
4. **Complexity:** Is the material arranged in the increasing order of difficulty?
5. **Iconicity:** Does the picture stimuli appear to be recognizable and representational?
6. **Accessibility:** Is the test material user-friendly?
7. **Flexibility:** Can the stimuli be easily modified?
8. **Trainability:** Can the Stimuli be used for intervention purposes in different milieu?
9. **Stimulability:** Does the stimulus material elicit responses from the individuals?
10. **Feasibility:** Whether the test material is viable?
11. **Generalization:** Can the test materials be generalized to any other adult language disorders in various settings?

12. Scope of practice: Is this test material within the professions scope of practice or within the persons scope of practice
13. Scoring pattern: Whether the scoring pattern followed in the resource material applicable?
14. Publications outcons and developers (professional background): Is there any other resource material similar to this test material which you are aware of?
15. Coverage of parameters: does the resource material contain the essential cognitive and language components to be treated?

Any other suggestions

Appendix III

Activity based Manual for Semantic Feature Analysis

ACTIVITY BASED
MANUAL FOR SFA

NOUNS

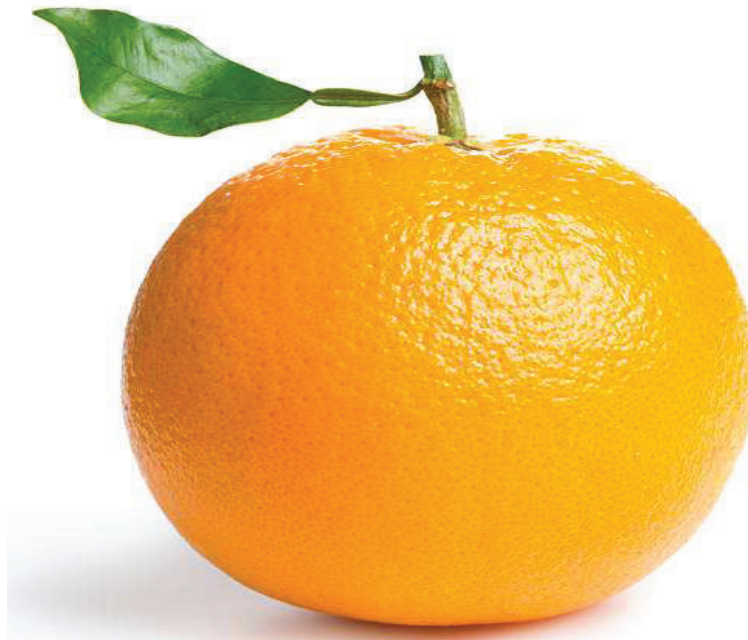
LEVEL-1

(Most frequently occurring nouns)

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What all do you do in it?



Where is it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you eat it with?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What category do they belong to?

What is their purpose?

Why do people need them?



Where do you find them?

How do their attire look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What category do they belong to?

What is their purpose?

Why do people need them?



Where do you find them?

How do their attire look?

What does it relate to?

What group does it belong to?

What is its use?

When do people have it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is it's use?

When do people have it?



Where do you find it?

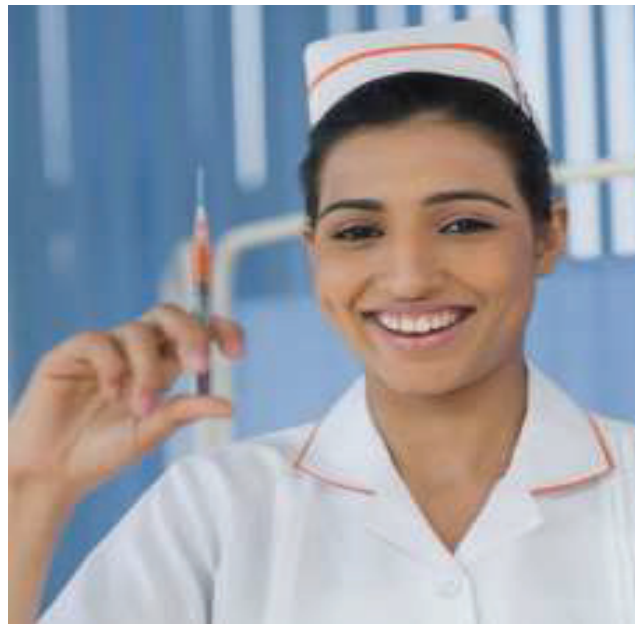
How does it look?

What does it relate to?

What category do they belong to?

What is their purpose?

Why do people need them?



Where do you find them?

How do their attire look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you eat it with?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do in it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you eat it with?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do in it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

LEVEL-2

(Least frequently occurring nouns)

What group does it belong to?

What is its use?

What do you do in it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What category do they belong to?

What is their purpose?

Why do people need them?



Where do you find them?

How do their attire look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do in it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

Where does it grow?



Where do you buy it from?

How does it look?

What does it relate to?

What category do they belong to?

What is their purpose?

Why do people need them?



Where do you find them?

How do their attire look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where is it located in your body?

How does it look?

What does it relate to?

What group does it belong to?

What sound does it produce?

What does it do?



Where all do you find it?

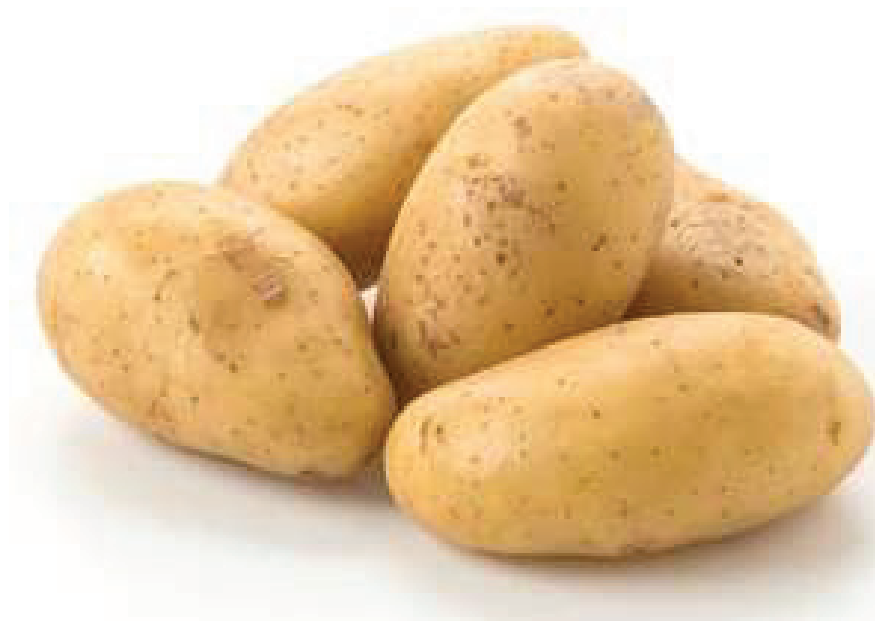
How does it look?

What does it relate to?

What group does it belong to?

What is its use?

Where does it grow?



Where do you buy it from?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

When do people have it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What sound does it produce?

What does it do?



Where all do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What sound does it produce?

What does it do?



Where all do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where is it located in your body?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where is it located in your body?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where do you find it?

How does it look?

What does it relate to?

What group does it belong to?

What is its use?

What do you do with it?



Where is it located in your body?

How does it look?

What does it relate to?

VERBS

LEVEL-1

(Most frequently occurring verbs)

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where does this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where does this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

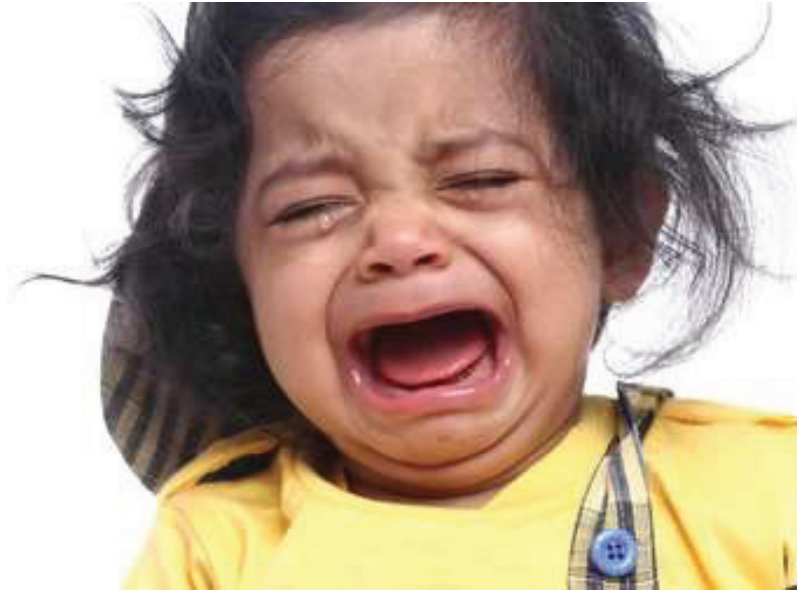
How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body
is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

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What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

LEVEL-2

(Least frequently occurring nouns)

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

How does it look?

What does it relate to?

Who does the action?

Why do you do the action?

Which part of the body is used in this action?



Where all can this action happen?

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Why do you do the action?

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Where all can this action happen?

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Where all can this action happen?

How does it look?

What does it relate to?

The scoring can be done as follows:

1. Named word with 3 or less questions – 4
2. Named word with 5 or less questions – 3
3. Named word with questions– 2
4. Named word using phonemic/orthographic cues – 1
5. No response – 0

A passing criterion of 75% of total score will be required to progress from level one to level two for both nouns and verbs.

