Current Assessment Practices in Aphasia Therapy

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1 author:

Annamaria Gyorfi
Lucian Blaga University of Sibiu

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I. Language and Communication as Instruments of (Self-)Representation and Regulation

Current Assessment Practices in Aphasia Therapy with Special Focus on Tests and Protocols Used by Aphasiabank Contributors

Annamária Győrfi, Lucian Blaga University of Sibiu

Abstract

The aim of this article is to present the current assessment practices in aphasia therapy with special focus on the tests and protocols used by the speech language pathologists who contributed to the compilation of the AphasiaBank database. The assessment of aphasia is a complex and time-consuming process. In order to aid with the management aspects, there are numerous standardized tests and resources to select from. AphasiaBank standardized their selection of diagnostic tools for language assessment based on their contributors' feedback. The most frequently used tests for evaluation are the Western Aphasia Battery, Boston Naming Test and the Boston Diagnostic Aphasia Examination, AphasiaBank Repetition Test, Verb Naming Test, Complex Ideational Material - Short Form, and Sentence Comprehension. AphasiaBank contributors follow standard procedures during a video-recorded therapy session. The steps are as follows: 1. Free Speech Samples Stroke Story and Coping and Important Events; 2. Picture Descriptions (broken window, cat rescue, refused umbrella); 3. Story Narrative (Cinderella); and 4. Procedural Discourse (peanut butter and jelly sandwich). These procedures provide researchers with a standardized database that allows for the study of phonological, lexical, semantic, morphological, syntactic, temporal, prosodic, gestural, and discourse features.

Keywords: aphasia, AphasiaBank, diagnostic tests, protocol

Introduction

Aphasia is a severe impairment of language production and comprehension which results from focal brain damage and cerebrovascular accidents which target the left hemisphere, causing a deficit in different aspects of language. Aphasia is often characterized by speech impairment, auditory comprehension, word retrieval deficit, and repetition disorders. This creates a limitation or lack of language in patients suffering from aphasia and thus they fail to communicate the changes in cognition they suffered. Studies have demonstrated that individuals with severe aphasia show greater impairments of cognitive functions, particularly in the memory used in working functions and attention (Ardila 2014).

The assessment of aphasia in the early periods post-stroke is a dynamic and complex process and is among the most time-consuming analyses pathologists conduct on aphasia, especially in a context where the management of dysphagia is a priority (Hersh, Wood, and Armstrong 2). In order to aid with the management aspects, there are a myriad of standardized tests, assessment batteries, and resources to select from.

A survey conducted by Vogel, Maruff, and Morgan (1185), comprising information gathered from 254 speech language pathologists from New Zealand and Australia, shows that the most commonly used diagnostic tools for language assessment are the Mount Wilga High Level Language Screening Test (MWHLLST), Psycholinguistic Assessments of Language Processing in Aphasia (PALPA), Western Aphasia Battery (WAB), Boston Naming Test (BNT), and the Boston Diagnostic Aphasia Examination (BDAE). Informal assessment (via

interaction and observation) and individualized assessments developed by the clinician or institution featured high among the other yardsticks for measuring language functioning.

Test	Frequency of use (%)
MWHLLST	78.2%
PALPA	63.8%
WAB	63.2%
BNT	63.2%
BDAE	50.6%
Informal assessment	70.1%
Individualized assessment	51.1%

Table 1. Most Commonly Used Language Assessments by Speech Pathologists

More to the point of the review of the most commonly used language assessment tools, this paper also aims to review the diagnostic tools used to assess the linguistic skills of people with aphasia (PWA) comprised in the AphasiaBank database, which is a vast database available online for researchers to facilitate the study of communication in aphasia.

The Most Commonly Used Tests to Evaluate Language Function

Mount Wilga High-Level Language Screening Test aims at sampling linguistic skills over a wide range and to assess the influence of cognition and behavioral characteristics of communication. It is a high-level language and comprehensive test battery that is most commonly used in Australia and New Zealand, and on fewer occasions in other parts of the world. This type of assessment is specifically designed to provide a systematic evaluation of language in regards to cognitive ability, and it also provides normative data (Cummings 532).

Psycholinguistic Assessment of Language Processing in Aphasia comprises sixty strictly controlled tests. Each test has detailed instructions on how to deploy them. These clinical instruments assess spoken and written language production. The test battery is sometimes favoured over others because it enables users to select language tasks that can be tailored according to patients' individual needs. The results can be elucidated by means of cognitive models of language. (Kay, Lesser, and Coltheart 160)

Western Aphasia Battery-Revised was developed by Kertesz in 1979 based on the Boston Diagnostic Aphasia Examination format. It was particularly designed as a tool for the assessment of linguistic skills (writing, reading, naming and word finding, repetition, auditory comprehension, fluency, and information content) and primary non-linguistic skills (Praxis, calculation, block design, and drawing) of individuals with aphasia ("Western Aphasia Battery" N.p). The language behaviors that are observed expedites the diagnosis through the classification of the types of aphasia that the patient has, which include Conduction, Anomic, Mixed transcortical, Transcortical sensory, Wernicke's, Transcortical motor, Broca's, and Global. In particular, it is used in the location of the brain lesion. The scoring provides two key totals, besides the subscale scores. These are the Cortical Quotient (CQ) score and the Aphasia Quotient (AQ) score. While AQ measures the language ability,

CQ asseses the intellectual ability and entails the subscales. The overall severity of language impairment is represented by the aphasia quotient (AQ), and it is the total score. This score is typically a weighted combination of performances on ten different WAB subtests. They rate severity from 0-25, very severe, 26-50, severe, 51-75, moderate, and finally, 76 and above, mild. Usually, the procedure involves obtaining the Aphasia Quotient initially and then calculating the Language and Cortical Quotient. The Western Aphasia Battery is known to be highly reliable and valid, and the measures show high test-retest consistency, intra, and inter-judge consistency, content and face validity, as well as construct validity.

Boston Naming Test was introduced by Edith Kaplan, Sandra Weintraub, and Harold Goodglass and is typically used as a neuropsychological assessment tool to assess confrontational word retrievals in people with aphasia or any other language impairing disorder. It is a confrontational naming test typically used by clinicians and it is an informative yardstick for word retrieval performance of brain-damaged patients. The test contains 60 black line drawings that are graded according to difficulty and items are rank sorted as per their ability to be named, i.e., interrelated with their frequency. It primarily assesses word-finding ability and cognitive functions that are associated with that particular task.

The sixty-item Boston Naming Test is extensively utilized. A shorter version has been elaborated, which can be customized to suit the needs of the assessment process. In this test, the investigator commences with item 1 and then continues until item 60 unless the patient refuses to continue or is in distress. The patient is shown a picture and is asked to respond to each of them. Approximately 20 seconds are allotted per answer. The examiner then writes down the responses of the patient in detail using codes. In case the participant fails to give a response, at their discretion, the examiner may provide a hint to the patient or participant using phonemic cues, like the target word's initial sound. When the patient finishes the test, the examiner then scores every item with a positive or negative as per the response coding and the scoring procedures (Heerema N.p).

Boston Diagnostic Aphasia Examination (BDAE) is designed to diagnose aphasia and related disorders. The test usually assesses various perceptual modalities (gestural, visual, and auditory), processing functions (analysis, problem-solving, comprehension) as well as response modalities (manipulation, articulation, and writing). It used by psychologists, neurologists, occupational therapists, and speech-language pathologists (Figueiredo and Vanessa N.p).

AphasiaBank Repetition Test is developed in order to assess the word level as well as sentence-level repetition skills. These tests are based on four repetition scores as follows:

1. Word Repetition 1- in this test, the lists of incrementing length from a closed word set is presented in identical order (Holland 5). The score is given based on the longest list that is repeated correctly. This section suggests a half-second delay of the Stimuli between stimulus items in each list and each list should only be presented once. Moreover, it ought to be continued until the participant fails to repeat two consecutive words.

2. Word Repetition 2- this test includes lists of increasing length from an open word set, and the score is calculated according to the longest list that is correctly repeated. In this test, the stimuli should be presented with a half-second delay between the stimuli items in the list and each list should be presented once only. It should be continued as long the individual can repeat the words in any order.

3. Sentence repetition 1- in this particular test, the sentences are increased in length via the addition of words to the same core sentence and the score is given based on the longest sentences that are repeated correctly. In this test, the investigators can repeat stimuli items one time in case the client requests for repetition or does not respond ten seconds after an item is asked. It should also be continued until the participant does not repeat all words or the primary words in the right order for two consecutive sentences.

4. Sentence repetition 2- this test includes sentences with no errors, interference effect, or semantic errors and the score is typically based on the aggregate number of correct words. Those undertaking the test can repeat the test if the participant asks for repetition or if they do not give a response after ten seconds. The test should also be continued until the participant provides two or fewer correct words for three consecutive sentences ("Aphasiabank Repetition Test" 7).

Verb Naming Test examines verb naming. Usually, naming difficulties are the most common defects in aphasia. Almost all aphasic patients have naming impairments (Ardila 56). This type of test begins by showing a picture to the participant who then names the actions depicted in the pictures. The investigator should start with practice items, each individually presented. In case the client fails to respond within ten seconds or provides an incorrect response, the clinician points to the action and names it and if the participant needs further explanations of the tasks, it should be provided. These tests are repeated and the scores are provided for every response that is correct and the amount of correct verbs are tallied by type. Those with no responses, no verb responses, and incorrect verbs with argument structures are scored as incorrect (Thompson 1).

Complex Ideational Material - Short Form is a sentence comprehension task that is designed to assess the receptive language skills via yes/no questions that involve common knowledge information and facts in four short narratives with inclining semantic and syntactic complexity and is read out loud to the examiner (Erdodi and Roth 1). The Complex Ideational Material (CIM) score is founded on 12 pairs of questions that are semantically redundant and to earn credit, one will have to answer both items on each pair correctly. Consequently, the scale varies from 0 to 12. As per the guidelines in the manual's second edition, a CIM raw score of eight is representative for the lower limit of the normal range of performance. The test asks the patient or subject to agree or disagree with questions that are related to stimuli and are not readily in view. In each section, the questions are given in pairs where one is correct and the other incorrect. In order to receive full credit, the subject has to provide correct replies to both questions ("Complex Ideational Material" N.p).

The motivation for *Sentence Comprehension* is that semantically reversible sentences, when tested with reversal distractors, require syntactic processing for correct interpretation. Testing of the same sentences against distractor pictures showing a lexical distractor does not presumably need syntactic processing, yet requires the appreciation of lexical/semantic distractions (Nickels 87). These types of tests are conducted on aphasic patients in order to treat one or two syntactic comprehension tasks: Sentence picture matching (SPM) or object manipulation (OM). Usually, in this test, the dependent measure is improved based on sentence comprehension of a sentence type in a task-related protocol, with the order of structure and task counterbalanced across patients. Pre- and post-treatment, participants are required to complete a self-paced auditory story comprehension task that involves nine passages, which contain either semantically reversible canonical sentences or semantically reversible non-canonical sentences. The participants are then asked implicit or explicit

questions about the story. The measures for this treatment are accuracy and reaction times (Kiran et al. N.p).

Holland et al. (272) developed a new procedure for assessing communication in severe aphasia, called *The Famous People Protocol*. This procedure was developed to broaden the potential usefulness of AphasiaBank. It is used in the case of individuals who cannot provide discourse data.

Aphasia Therapy – Protocols

The protocol is usually designed for the effective elicitation of a cross-section of language behaviors. It has been found that non-verbal encouragers work similarly to verbal ones in the elicitation of language. Written scripts are utilized in the administration of the protocol. The standard AphasiaBank protocols for aphasia therapy are described below:

Free Speech Samples

Stroke Story and Coping

This refers to the participant's recollection of their stroke event. Follow-up questions are used to probe coping and recovery. Fundamentally, the method calls for embedding questions in a conversation in order to provoke a personal narrative. This initial process ascertains the condition of the patient and the measures they have undertaken to curb the stroke and its deleterious effects. This is a very delicate and important process because, according to Donnellan et al. (N.p), the coping strategies that individuals take after a stroke have a significant influence on recovery. The coping measures are thus used to assess the mediating behavior between the stressor and psychological or physical outcome of the individual. Research on the utilization of disability-specific coping strategies for conditions has depicted better psychosocial adaptation to chronic illnesses and disability.

Important Events

Personal narratives are discourses in which the speaker recalls sequences of happenings before and after the stroke. According to Olness, Gyger, and Thomas (N.p), an assessment problem ought to be defined in order to validly assess narrative functionality. In this manner, the methods of assessment ought to be based on an underlying model or construct of narrative functionality. Other approaches to the analysis of narratives usually assess the structural characteristics of the narrative such as the absence or presence of elements in the episodic structure, the nouns and pronoun proportions, or percentage of utterances that have morphosyntactically correct grammar. Personal narratives have two primary functions. The first is referential, in that the narrator talks what, where, when and to whom the narrated events happened. The second one is evaluative, in that the raconteurs express their attitude to, appraisal, or opinion of the event.

Procedures for free speech samples

One should commence with a preliminary unrecorded conversation for signing consent forms, social exchanges, answering any questions, and explaining about recording and filming. The investigator should initially begin by asking the patient how their condition is and how they have responded to the stroke events. If they do not get any response within ten seconds, the clinician/investigator should then shorten their questions in order to encourage a response. When no responses are received, troubleshooting questions should be used. After that, the clinician asks the client about important life events. The patient is told to narrate something significant in their lives since childhood. If no response is given within about ten seconds, one should stimulate them by giving suggestions. This is where the patient is encouraged to talk as much as possible in order to assess the language and semantics of the narration. If no response is received from the patient, then the clinician or investigator should move on to the picture descriptions, which is the next stage or section of the protocol.

Picture Descriptions

Picture scenes are usually a versatile option to be used as an engaging tool in speech analysis in order to assess grammar, conversations, and inferences. Typically, they decrease the planning time because of the many goals that can be targeted. Usually, many of the pictures have a theme, and this can be used to assess language and speech aspects. Moreover, WH questions can be used to ascertain their judgments as well as sentence formulations. In a study by Forbes-Mckay and Venneri, picture description processes were used to collect normative data for a simple and complex version of a picture description that was devised in order to assess the spontaneous speech and writing skills in patients with Alzheimer's disease, and to test whether the different aspects of spontaneous language can discriminate between pathological and normal cognitive decline (243). 240 English-speaking healthy volunteers and thirty patients with a clinical diagnosis of AD participated in the study. It was found that age and education influenced aspects of oral and written language, while sex did not impact on any assessed variables. The results showed that a high number of AD patients performed poorly on scales which measured semantic processing skills. Moreover, deficits were detected among those in the early stages of the ailment when the complex task version was used. Consequently, it was concluded that prospective assessment of spontaneous language skills with a picture description task is crucial for the detection of subtle impulsive language impairment in individuals with aphasia (Forbes-Mckay and Venneri 243).

When aphasia is observed comprehensively in perspective cross-sectional studies, researchers have reported observations of subtle language deficits, which manifest in the simplification of grammatical structure, failure to identify pictorial themes, loss of vocabulary, and ineffective informational communication, which are symptomatic of impairments at a semantic level.

Procedures for picture description

The clinician or investigator initially presents a picture of a broken window and the respondent or patient is encouraged to tell the story behind the picture with a beginning, middle, and ending. If the patient fails to respond within ten seconds, they are then given a second prompt where they are sequentially introduced to the pictures and encouraged to describe them. For every panel, if no response is given, they are asked to provide any relevant information from the picture. Finally, if no response is given at all, the clinician should use troubleshooting questions. They are given three sets of questions, with the first being a

broken window, refused umbrella, and cat rescue where each process is identical to the other (Instructions for Discourse Tasks" 3-4). The next stage of the protocol is a story narrative.

Story Narrative

Dillow claims that because of the requirement of productivity as well as pressure from insurance corporations, speech-language pathologists ought to use the most time-efficient means for the evaluation of impairments and patient progress across treatments (1). In conjunction with time-efficiency, it is crucial that the tools of assessment indicate the functional communication skills of the patient. Dillow also suggests that, as per research, the comparison of an individual's verb and noun lexicon amid a particular narrative task to a created core lexicon is a more informative and efficient method of assessment. Core lexicons can be developed via analyzing transcripts of individuals whose brains have not been injured with the aid of tools like CLAN (Computerized Language Analysis). Research has also shown that the computer analysis of certain discourse measurements (e.g. syntactic complex, mean utterance length, percentages of open class words) is a practical tool to be utilized in clinical settings. Moreover, it was suggested that not only was the basic parameter analysis efficacious, but it also obtained measurements which were more sensitive to variations over the treatment course when contrasted to the commonly utilized rating scales. While it ought to be noted that the authors recommended further research to ascertain the specificity of the fundamental parameters, the fact that the basic parameters analyzed through computer analysis are perceived to be more sensitive to progress compared to rating measurement warrants attention. Measurements like the percentage of words created may provide a meaningful and efficient indication of narrative discourse skill and improvement over the treatment course. Since core lexicons can be founded upon narratives of normal individuals, the generation of more core words is indicative of a narrative which is similar to those of normal speakers. Dillow emphasizes the importance of undertaking considerable discourse analysis on control subjects in a bid to have a relevant comparison measure during the analyses of discourses of individuals with aphasia. This is because without grounding standards on definite control participants' production, there is no sure way of guaranteeing relevancy.

Then question then arises as to the proper type of task to be utilized with a view to eliciting the samples of narratives. Previous research, which differentiates between narrative tasks, facilitates the various tiers of an output quantity and quality for both control and PWA speakers. A plethora of narrative tasks that have been utilized in clinical settings and research entail procedural accounts of picture description, common activities, the narration of personal events, story retell without pictures, and story generation using a picture series. Each task gives different levels of provision for semantic retrieval. For instance, personal narratives give the most freedom and least support and seem to be optimal when assessing functional communication. Nevertheless, a myriad of practical concerns manifest when considering the use of personal narrative tasks: the main concern is that, due to clinicians being unfamiliar with all personal events in the lives of the clients, solely relying on the utilization of personal narratives would eliminate the probability of developing a core lexicon that is standardized for proficient and consistent performance assessment.

Even though discourse tasks like story narration provide critical information to clinicians, they are usually under-utilized due to practical issues concerning training and time. Exhaustive discourse analysis needs lengthy speech samples, which can sometimes be time-consuming in experimental settings. Nevertheless, a Boles and Bombard study showed that discourse samples as short as five minutes could give information that is reliable on discourse

skills, as long as particular interest behavior is exhibited at least three times per minute (47). Because core words feature more frequently than three times a minute, one short story may provide sufficient information for dependable assessment. Apart from retrieving a lengthy sample, another issue is the amount of training and time needed for phonetic transcription as well as error coding in an attempt to precisely obtain each word, inclusive of paraphasias, revisions, and repetitions, that signify the speech od PWAs. Other researchers claim that one minute of speech would be equivalent to one hour of transcription. These demands aside, they advocate the necessity for analysis that is not based on the transcription as a means of assessing narratives viable, particularly in clinical settings. With an analysis of core lexicon, an investigator would need to record a certain word class while also listening to the narration of their patients and then later contrast the words produced to the list of core lexicons.

As for distinguishing between different aphasia types, several studies have suggested that PWAs who have agrammatic speech have more difficulty with verbs, whereas those who have fluent aphasia have more trouble with nouns. Moreover, PWAs with agrammatic speech have more problems with verbs because verbs are known to have more syntactic weight when compared to nouns. Since individuals with agrammatic speech have a syntactic deficit, they are known to have a stronger deficit of verbs. Nevertheless, not all studies agree on these conclusions. Other studies have shown verb deficiencies in non-agrammatic PWAs. Through the separation of verbs, adjectives, and noun core lexicons, and separating the various aphasia classes, other studies may show whether the lexical deficient are prevalent and how they may be different from other aphasia subtypes. One primary limitation in the analysis of core lexicons is that it does not evaluate the contextual utilization of the core words and in order to be deemed a clinically applicable tool for the narrative adequacy assessment, the production of core lexicons ought to be correlated with established narrative adequacy measurements. The main concept analysis is a measure of narratives several studies promote as an exhaustive means of assessing communication adequacy. It is not its popularity among a plethora of evaluators that has contributed to this method's recognition as a reliable instrument, but its sensitivity to variations in the information content. Beyond the provision of information on ability amid particular narrative tasks, the number of main concepts generated was shown to be considerably correlated with the ratings of the listeners on the improvement of functional communication. While it would be idyllic to possess information on how PWAs can utilize words in contexts, the procedures used in acquiring such information weaken the efficacy. Nonetheless, if measures of core lexicon were to associate highly with measures of main concepts, then it would be an efficient tool of assessment, which could forecast functional communication ability as well as chart variations in those particular abilities.

The study by Dillow (8) commences with the core lexicon development for the Cinderella story. The lexicon was generated based on a monologic narration by participants and was initially intended to include adjectives, nouns, and verbs. Since only one adjective was produced by an adequate amount of partakers to be deliberated as the core, the researchers decided to exclude the primary objective and compromise the core lexicon of verbs and nouns. They then determined the total number of core lexicons of nouns and verbs generated by each individual with aphasia and each control group. They were then compared to those of the control groups and to every subtype. In addition, the main concept list was established based on the transcripts from the control. With the list established, the Cinderella narratives of all the control participants and individuals with anomic, conduction, Broca's, and Wernicke's were scored and coded. The scores were added for the calculation of the score of the main concept composite for every participant. The scores of the main composite for each subtype were contrasted to controls and each subtype. Lastly, they correlated the production of core lexicons to the scores of the main concept composite for each aphasia subtypes and

the controls. In addition, they separated the core noun and core verb production and correlated them to the main concept composite score for the five groups. The authors predicted that the production of core lexicons would significantly correlate to the main concept production and that the relationship would be more robust when assessing the correlation with the whole core lexicon than with just nouns and verbs. The results from the study indicated that both analyses successfully distinguished between people with aphasia and those with normal language abilities. Moreover, both analyses were able to differentiate betweem the subtypes of aphasia but were not able to tell subtypes apart. Most critically, core lexicon analysis was strongly linked with the more time-sensitive measure of main concept analysis for all the groups. In this manner, the results of this particular study lend support to the usefulness of further development as well as the application of core lexicon and analysis of the main concept as efficient means of defining narrative competence in PWAs.

Procedures for story narrative

In this procedure of the story narrative, one should first present the picture book to the patient/ participant. The investigator then asks the client to tell a story about Cinderella and make notes for demographic information. If the patient has never heard of the story, they should then be asked to narrate any fairytale story. The participant should be allowed to look through the book and is then prompted to relay as much of the story of Cinderella as possible ("Instructions for Discourse Tasks" 4-5). If the participant provides a response of fewer than three utterances or falters, a ten-second window should be given before being encouraged to continue until they conclude the story or it is clear that they have finished. If no responses are given, one should then turn to troubleshoot questions. The last protocol is the procedural discourse in the fourth section.

Procedural Discourse

The exact nature of the discourses of aphasic individuals is dependent on the type of discourse elicited. There are various types of discourses including expository, narrative, descriptive and procedural (Vitale 7). In procedural discourses, the individuals usually provide instructions or directions on how something is done and in what order. For instance, a participant may be instructed, "Tell me how you would go about doing dishes by hand, or tell me how you would go about writing and sending a letter" (Vitale 7 pr. 2). Narrative discourses, on the other hand, describe occurrences and is contingent on proper comprehension of the story grammar and pragmatics, or the organization of events. It describes an imaginary or real event and details such as the setting and participants involved. Expository discourses, on the other hand, are oriented around an object, and all the details relate logically to the subject matter, and unlike procedural discourses, they need not follow a chronological order (Vitale 8).

Descriptive discourses entail the elucidation of the details of a stimulus. In the study by Vitale, an eight-week treatment course that elicits descriptive discourse was undertaken. Even though a robust model was provided with an appropriate complex description, the clinical setting entailed a variation from eliciting descriptive discourse. The clinician concluded that the elicitation method led to the production of noun string series. In an attempt to elicit more output with enhanced lexical diversity and story grammar, elicitation was altered to procedural discourse. Within each condition of discourse, a verbal and reading model was presented before eliciting the discourse. The primary purpose of the study by Vitale was to determine if the eliciting procedural and descriptive discourses lead to the largest language sample with the most lexical assortment. In this manner, the depths of analysis were

undertaken on the clinical information to ascertain whether the procedural discourse would stimulate diverse discourses. Their analysis entailed both macro- and microlinguistic discourse assessment methods in thw pursuit of depicting the discourse's nature. In a study, the clinicians nominated two procedural tasks that are to be presented to the client. They chose the most common tasks that most individuals would have experience observing or performing. Each task was paired with a typed paragraph of fifty to sixty words with the procedural task's interpretation by the clinician. Two models of treatment for the procedural discourses were targeted in each of the 60-minute sessions of therapy: the reading and verbal model. Amid the verbal model, the clinician read the prepared 50-60 word paragraph with procedural guidelines for the client. The client was then asked to provide an interpretation of how to complete the task. After that, the clinician presented the procedural task by utilizing the consistently prompt, "Tell me all the steps to…" .Amid the reading model, the participant read the prepared paragraph aloud (Vitale 13). The written paragraph was then removed from the client's sight and was then prompted to provide his interpretation on how the task ought to be completed. Just like the initial model, the clinician also introduced the procedural task by using the same prompt.

A contrast between the descriptive and procedural discourse elicitation methods showed that procedural discourses lead to a higher average percent CIUs (Correct Information Units), WPM (words per minute), and TTR (Type-Token Ratio). Moreover, the results proved that evaluating discourse by using an amalgamated analysis method, via both macro and microlinguistic analyses, revealed more information that was clinically relevant.

Procedures for procedural discourse

In these tests, the aphasia protocol states that one should interview the client on steps in making a peanut butter and jelly sandwich. Other countries (non-US) may substitute another simpler meal and pictures should only be used in case there is no verbal response from the participant. If no response is provided within 10 seconds, a second prompt should be given, whereby the clinician tries to elucidate or stimulate the participant to provide a reply. If no response is given at all, troubleshooting questions should then be used. This marks the end of the aphasia therapy protocols.

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