Original Article

Gestures and Discourse Markers: Communicative Facilitators in Persons with Aphasia

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Abstract

Introduction: Gestures provide a nonverbal channel for communication that is integral and entwined with every aspect of human interaction. The present study aims to highlight the contribution of gestures, discourse markers (DMs), and vocal gestures as communicative facilitators for maintaining the discourse in a person with aphasia (PWA). **Methods:** Discourse samples of two participants with Broca's aphasia and one control participant were audio-video recorded and transcribed. The communicative facilitators used by these participants were identified, scored, and analyzed from the discourse samples. **Results:** Results revealed high scores on the use of communicative facilitators among PWAs, using gestures and DMs in ways more than just to convey meaning. Both participants with aphasia differed on their use of verbal communication. They also differed on the quantity of communicative facilitators used to maintain the cohesiveness in discourse. The differences in use of verbal measures could be inferred based on the aphasia quotient obtained on the administration of Western Aphasia Battery-Kannada. These highly individualistic differences in the use of communicative facilitators in the absence of verbal expression are a product of various factors that influence and enhance the communication skills of the PWA; factors that may either be internal or external, with skills that are established before or after the stroke. **Conclusion:** The results of the present study suggest that PWAs have a significantly good communicative competence than what would be projected on any assessment scale that measures verbal components, and participants were noted to convey comprehensive information during discourse, compensating their poor verbal expression with communicative facilitators.

Keywords: Aphasia, communicative competence, communicative facilitators, discourse markers, gestures

Introduction

Discourse is an essential part of communication which requires the communication partners to be actively involved in the process of exchange of information. Various components within discourse act as facilitators for effective communication. Gestures form its most integral part. They provide context and meaning through a nonverbal channel during communicative interaction.[1] Gestures incorporate a wide range of movements, which vary extensively based on the context of discourse, situation or environment, and even personal factors and are never restricted to the movements of the arms and hands.[2] Gestures help speakers by simple bodily movements, strengthening the activation for the linguistic representation of the concept being conveyed. Therefore, gestures are often produced when speakers are searching for a word which is supported by a study of tradeoff hypothesis.[3] This hypothesis states that "when speaking gets harder, speakers will rely relatively more on gestures."

Discourse markers (DMs), interjections, and vocal gestures (VGs) are the other communicative attempts that occur in addition to the gestures and meaningful verbal utterances. DMs (such as "okay" and "fine"), interjections, and VGs (short responses which are meaningful in context, for example, "hmm") play a role in keeping the communication ongoing, even in the absence of adequate verbal output, and are described to have functions in cognitive, expressive, social, and textual domains.[4] There are many types of discourse involved in everyday communication.[5] The information content would vary by the genre of DMs used by the individual.[6] Thus, the DMs embellish the content of the conversation, implying that

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it is not the vocabulary alone that adds to the meaning in a discourse. Hence, DMs serve as one of the fundamentals of lively communication. However, the extent of its usefulness emerges in the context of PWAs in accordance with their communication with their partners. Taking into account the communication ability and efficiency in connected speech, neurologically healthy persons have significantly more communicative competence in connected speech than PWAs.[7] This brings forth the idea of communicative competence of an individual in discourse. Thus, it is imperative that overall vocabulary, informativeness, and correctness in communication be analyzed in PWAs.

These communicative facilitators also carry a wide range of meanings, referential, as well as expressive, conventional, as well as idiosyncratic, and stand out as the most undemanding alternative means for communication. Literature suggests that by virtue of their resemblance to words, co-speech gestures help speakers to find words in their course of communication.[8-10] A study by Mol *et al*.[11] propounded that gestures can largely compensate for speech on simple judgment task. Thus, gestures may additionally or alternatively serve a speaker-directed function.[8,9,12] Along with these communicative facilitators (gestures and DMs), VGs may also augment the communicative competence of PWA, when they function to establish cohesion or convey ideas in part or whole. There are a number of measures that a speech-language pathologist (SLP) may use during the assessment and rehabilitation of a PWA to analyze the individual's language competence based on his/her verbal utterances. However, a measure of only the verbal utterance may give an imperfect or even false understanding of the communicative competence of the PWA.

A common method to accurately analyze the percentage of correct vocabulary used by a speaker is the measure of Correct Information Unit (CIU).[13] When used to analyze the verbal output of PWAs, it provides information about the language performance of PWAs based on two measures which are communicative informativeness and communicative efficiency.[14] CIUs provide a measure, which an SLP can easily use to calculate the number and percentage of correct words uttered in connected speech, which are contextually meaningful and relevant. With the evident loss of spoken language, PWAs tend to use more gestures than verbal utterances as noted by previous studies Pritchard *et al*.,[15] but it needs to be understood if PWAs use gestures and DMs as facilitators in communication. This has led the current study to analyze the communicative ability of the PWA, not only including verbal measures such as CIU but also including other communicative facilitators such as gestures and DMs.

Need for study

Assessment of discourse had generally been assessed by clinicians by considering the linguistic or verbal measures such as CIU. Yet, it has been observed that even in the lack of verbal expression, most aphasics are equipped to carry out a discourse, either in terms of spontaneous speech, description, or narration of events. The extensive use of gestures to compensate for the loss of verbal expression has also been studied by many researchers. These gestures act as facilitators, either facilitating the retrieval of words or facilitating an active communication between the partners. Apart from the bodily gestures, there may be other facilitators such as DMs and VGs that, although never acknowledged, facilitate communication and ensure that there are no gaps in a discourse. There is a need that clinicians should view these subtle attempts at communication by the PWAs as they are an indicator of the communicative intent of the PWA.

Aim

The aim is to explore the role of gestures and DMs in conjunction with verbal measures in facilitating communication in PWAs.

Methods

Research design

The present study followed an interpretive, case study research design.

Participants

Two participants diagnosed with Broca's aphasia using Western Aphasia Battery-Kannada[16] were included in the study. The two participants were receiving speech-language therapy and physiotherapeutic services at the time of the study. Their first and most preferred language of use was Kannada. Persons with aphasia greater than three months post onset were considered for the study selection. Furthermore, it was determined that there were no signs of dementia at the time of data collection. Further, a control participant with clinically normal speech and language skills was enrolled for the study.

Based on the results of Western Aphasia Battery-Kannada, the first participant (PWA-1) had an aphasia quotient (AQ) of 29.2 while the second (PWA-2) had an AQ of 48. Informed consent was obtained from the participants and all ethical guidelines of All India Institute of Speech and Hearing, Mysore, were adhered to. Relevant medical and demographic information such as details of stroke, medical, therapeutic, and personal details as reported by PWA or caregivers was documented. Table 1 summarizes the demographic information of the three participants included in the study.

Stimulus

Discourse samples were collected for picture description task. The task used for the study was a part of the Aphasia Bank Protocol.[17] The discourse samples were audio-video taped for ease of analysis. The task involved the description of the following pictures – The Broken Window, Refused Umbrella, and Cat rescue. The participant was instructed to construct a story by looking at the pictures that were presented under each of these stimuli. Among these stimuli, "The Broken Window" had a four-panel sequence of pictures and "Refused Umbrella" had a six-panel sequence of pictures.

The obtained discourse speech samples were orthographically transcribed. During the process of transcription, many borrowed

Table 1: Demographic information of the three participants

Participant	Age	Gender	AQ	Diagnosis	Vocation	Communication partner	Duration of speech-language therapy
PWA-1	29	Male	29.2	Broca's aphasia	Dancer	Mother and father	3 months
PWA-2	45	Female	48	Broca's aphasia	Homemaker	Husband	1 month
Control participant	49	Female	>93	Clinically normal speech and language	Homemaker	Husband and son	Not applicable

PWA: Person with aphasia; AQ: Aphasia quotient

words from English were usually modified to fit the Consonant vowel (CV)/ vowel consonant vowel (CVC) structure which is common in Kannada. For example, "bus", "pen," etc., are borrowed words used in Kannada but are pronounced with a vowel in the word final position, such as "bus-u," "pen-u," etc.; such words were transcribed as "*bus*u" "*pen*u," etc., with the borrowed words italicized. Vowels and diphthongs were transcribed using the following system – short vowels: a, i, e, u, o; long vowels: aa, ii, ee, uu, oo; diphthongs: ai, au. Aspiration in consonants was represented with "h," clusters by a combination of same or different consonants (e.g., "tt," "tr," "lk,"). From the transcribed data, the total number of words, i.e., word count (WC), and CIUs were counted using the scoring system given by Nicholas and Brookshire.[13] Percentage of CIU (% CIU; calculated using the formula, CIU/WC × 100) was also considered from the same system. Gestures used by the participants were classified as simple gestures (SGs) or elaborate gestures (EGs). Interjections that conveyed meaning in the context were referred to as DMs, and vocal attempts in initiating the true words and/or meaningful in context were referred to as VGs. To summarize, the verbal measures included WC, CIU, and % CIU, and the nonverbal measures included SG, EG, DM, and VG.

Analysis

The transcribed data included all utterances of the clinician, the participant, and/or anyone involved in the process of data collection. The utterances were coded as "C" for clinician, "P" for participant, and so on. Following this, a consensus was required, where another SLP compared the data transcripts with the audio-video recordings for consistency.

From the transcribed data, the total number of words, i.e., WC, CIUs, and % CIU (obtained from the formula CIU/WC × 100) were calculated using the scoring system given by Nicholas and Brookshire,[13] as part of the analysis for verbal measures. Gestures were grouped as either SGs or EGs, based on the complexity of the movements. To arrive at a consensus for a gesture being simple or elaborate, the concept of light and heavy gestures from Pritchard *et al.*[15] was borrowed. Thus, an SG involved only a path movement in an iconic gesture, whereas an EG involved an iconic gesture with path, manner, attribute, or shape outline description or a pantomime. For the analysis of communicative facilitators, SGs and EGs along with DMs for initiating true words and VGs that conveyed meaning were calculated within the discourse sample of each participant. Two SLPs that included the researchers were required to arrive at a consensus about the DMs, gestures, and VGs as facilitators in communication by agreeing upon their relevancy and meaningfulness in the context.

Results

From the obtained discourse sample, scoring was 1 if the gesture/DM/VG was correct and relevant in context and 0 if not. These scores were tabulated and are shown in Table 2. The analysis revealed that PWAs had a higher score on the different measures for communicative facilitators who were included in the study. On observation of Table 2, which represents the overall score on verbal measures and communicative facilitators, there is a stark difference in the use of communicative facilitators by the PWAs versus the control participant.

It was further observed that on the verbal measure of WC, both PWAs showed extensive variation in their use of meaning and relevant words. The number of words produced by them was in line with their AQ scores. The measure of % CIU was noteworthy as the score obtained by PWA 1 indicated that all of the words used by this participant were correct within the context. PWA 2 had a 75.36% CIU with evident circumlocutory and irrelevant words during the description of pictures. It is surprising that the control participant obtained a score of 81.81 on % CIU, indicating that all the words used during the picture description task were not necessarily relevant or correct within the context.

The use of SGs was higher among the PWAs, while the control used more EGs to facilitate communication during the discourse. The use of DMs and VGs was seen exclusively in the PWAs.

Discussion

Exploring the role of communicative facilitators in the discourse of PWAs, the study focuses majorly on the qualitative information that the results provide. It necessitates understanding of how different variables either internal or external facilitate the use of various modalities with the aim to keep the communication going. It was observed that in conjunction with verbal measures, PWA uses more communicative facilitators in the form of SGs, EGs, DMs, and VGs. The communicative facilitators predominantly used by the participants were DMs followed by SGs, VGs, and SGs. Thus, persons with Broca's aphasia use several DMs in

Table 2: Overall score of participants on verbal measures and communicative facilitators

Subjects	Verbal measure		CFs				Total CF	AQ
	WC	CIU (%)	SG	EG	DM	VG		
PWA-1	11	11 (100)	63	24	30	30	147	29.2
PWA-2	410	309 (75.36)	40	24	110	67	241	48
Control	154	126 (81.81)	3	16	1	0	20	>90

CFs: Communication facilitators; WC: Word count; CIU: Correct information unit; SG: Simple gestures; EG: Elaborate gesture; DM: Discourse marker; VG: Vocal gesture; AQ: Aphasia quotient; PWA: Person with aphasia

the form of interjections (e.g., this, that, okay, mhm). It can be noted that although verbal output may be restricted, the communicative facilitator acted as a medium to enhance the overall communication of persons with Broca's aphasia.

The discourse of each of the participant was complete, and the variations within PWA's scores explain the communicative capacities and preserved vocabulary within them. The intent to communicate in these PWAs, even after a loss of language, was high. The completeness in information conveyed in the evident difficulty in verbal output was indicative of their high motivation and intent to communicate, which in turn was reflected in their efficient use of nonverbal modalities.

The fact that the control participant scored lesser on the % CIU measure is evidence that not all words used in discourse by any normal individual are always relevant in context. Therefore, it may be of foremost importance to all clinicians to understand that expecting a PWA to produce only verbal expressions without any communicative facilitators is close to impossible.

Further, the finding that the PWAs used more SGs while the control participant used more EGs can be explained by the findings of Hogrefe *et al*.,[18] who in their study on PWAs found that a speaker's nonverbal semantic knowledge correlated with the complexity of the gesture. Thus, the PWAs difficulty in word retrieval could be correlated with the use of SGs, thus reflecting the level of activation of the semantic system and an observable association with the AQ of each participant.

The syntactic components that were substituted by communication facilitator might also have helped and enhanced word retrieval by increasing the activation to sought-word retrieval, which is why there is increased score in both verbal and nonverbal measures of PWA 2 when compared to control participant. This indicates that use of gestures may improve the circuitry mechanism in both the hemispheres, which in turn may facilitate the overall communication skills in PWAs.[19]

Thus, communicative facilitators as seen in the discourses of these participants helped maintain cohesion and active communication between the partners. The use of these facilitators was varied based on the communicative competence and semantic knowledge of the PWA. Normal individuals, on the other hand, did not require using as many communicative facilitators as the communication was majorly carried out through verbal expression. Language expression being the major setback in persons with Broca's aphasia, the facilitators formed the core of the communication during discourse. Hence, from an assessment or management point of view, understanding the role of such facilitators is essential, and the presence of such facilitators in the discourse of a PWA is an indication toward their strong intent to communicate with people in their environment. Discourse being an outcome of various linguistic, extra-linguistic, and nonlinguistic components should be viewed by clinicians holistically, both in assessment and management.

Conclusion

It can be concluded from the study that as a clinician we should look for both verbal measures and communicative facilitators. Communicative facilitators are the ones which are more evident in the discourse of PWA. If these facilitators are modified, encouraged, and refined, it may help in overall strengthening of verbal communication in PWA. The results of this study, though preliminary, have been encouraging; however, generalization is warranted.

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Conflicts of interest

There are no conflicts of interest.

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