An Exploration of the Productions of Adult Fluent and Non-fluent Aphasic Patients on the Basis of Benson (1967) theory and Nilipoor's Persian Aphasia Test

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ABSTRACT: This article describes the results of analyzing the production of the adult fluent and non-fluent aphasic patients based on the Benson (1967) theory and Nilipoor's Persian Aphasia Test. To differentiate these two groups the normal speed of speech, the length of speech chunk and the number of repetitions were the measurement scales. This article attempts to raise awareness to investigate about how people with aphasia communicate with their everyday people and how they manage the conversations besides the problems they encounter in everyday talks. For this purpose, the oral language productions of both fluent and non-fluent aphasic groups participated in interview sessions and their accomplishment of the communicative tasks were audio recorded, transcribed and analyzed. Within the outcomes of this exploration, the researcher found that the fluent and non-fluent groups have the least scores in word dictations and sentence dictations.

Keywords: Aphasia, fluent aphasia, non-fluent aphasia, communication.

INTRODUCTION

The main goal of learning a language is to be able to communicate. It is through communication that people send and receive messages effectively and negotiate meaning (Rubin & Thompson, 1994: 30). Although there are several definitions of communication, a common thread through all of them is that communication involves a message or information exchange between two or more participants. This message is coded and decoded and the information exchange is achieved by different channels (e.g., air or paper) and signals (signs, such as letters or pictures) and by both verbal and non-verbal (e.g., facial expressions or gestures) behaviors. Hence, communication is a complex and multi-layered process3. Because language ability is needed in order to choose the right signs and code and decode these signs, it follows that a language disorder (such as aphasia) is also a communication disorder.

Communication could be classified into different types. Harris (1996), for example, mentions self-communication, ritual communication, and interpersonal communication. All kinds of communication could be disturbed by aphasia. However, the focus of this thesis is on interpersonal communication, where of the most common type is conversation.

Communication is co-constructed by the participants based on conversational principles and maxims. Communication has different functions and is conducted in a context with, for instance, the physical environment and the participants as important components. The participants in their turn require communicative competence, bring personal characteristics and attitudes into the conversation, take different roles, and exert different communicative behaviours during the communication event. (Johnson, 2012)

The roles of partners in communication are wider than it might seem from the first view. They do not only speak, they listen to each other, adjust their conversation to others, use nonverbal gestures, ask question and react. Thus, natural conversation does not consist of strings of questions and answers, but frequently one speaker makes statements and the other signals interest and encourages the first one to expand his/her idea.

Aphasia in communication

According to Chris Code (2011), aphasia was treated as a kind of memory disorders during 15th century, then in the 18 the century Gall developed his language and speech localization theory, and Broca and Wernice found that recovery occurred because of some form of reorganization, since then the localization theory and an approach to treatment developed. In the latter part of the twentieth century, approaches were developed based on linguistics, psycholinguistics, modular cognitive models and psychosocial and social models.

Aphasia is most often a consequence of a lesion in the left cerebral hemisphere. Symptoms of aphasia could be detected at all linguistic levels, such as at the phonological (sound), morphological and syntactical (grammar), lexical (word), and pragmatic (use) level.

Because the human brain consists of vast neuronal networks which are composed of many functional cerebral regions, the aphasic symptoms, which are produced by a damage of these networks, can differ. Thus different major types of aphasia can be distinguished. Syndromes are the strictly empirical and statistically reliable co- occurrence of a set of symptoms.

Aphasia can be categorized into different sub-types depending on symptom constellations or localization of the brain lesion (Ahlsén, 2006, p. 101).

Non-fluent and fluent Aphasia:

Benson (1967) brought another dichotomized categorizations in terms of fluency (non-fluent and fluent). According to him, Non-fluent aphasia is characterized by effortful and slow spontaneous speech with short phrase length. Also, In the middle of the twentieth century, Goodglass and his colleagues observed that a major division between two types of aphasia could be made by a simple metric, namely, 'phrase length'. This became the basic feature by which two major groups of aphasias were distinguished. Each of these groups was then further subdivided.

Four types of aphasia are considered to be 'fluent' in the neoclassical classification scheme. These are Wernicke's aphasia, conduction aphasia, Transcortical sensory aphasia and anomia, of which Wernicke's and conduction aphasia are the most common. The speech of Wernicke's aphasics is fluent, and the articulation is good. In contrast, the sentences do not have much sense because the patient produces both literal paraphasias and verbal paraphasias. Some patients produce absolutely meaningless sentences (jargon) or words (neologisms). Comprehension and repetition is severely disturbed. Fluent aphasia is an acquired language disorder that arises subsequent to brain damage. It is a relatively common type of aphasia. In the fluent aphasia, speech is often rather fluent or even exuberant ("with an irrepressible intention of the speaker to continue his monologue" (Ibid, p. 145), but although the grammatical rules are correctly used, speech is often tangled, characterized by self-interruptions, restarts, circumlocutions, and unsystematic substitutions or omissions of grammatical morphemes.

Two or three types of non-fluent aphasia are recognized. The most widely discussed and researched is Broca's aphasia. This is generally associated with lesions in the pre-Rolandic area of the left cerebral cortex. Speech production is reduced and grammar and access to vocabulary is compromised but comprehension is mainly intact. In Broca's aphasia the disturbances of expressive language functions are more prominent than disturbances of receptive language functions. The patients speak non-fluently with laboured, slow and impaired articulation. One major symptom is agrammatism (or telegram style), which is a reduction of the sentences to a few words only. Nevertheless, the utterances of Broca aphasics make sense, and comprehension of language may be affected less.

A much less common non-fluent aphasia is transcortical motor aphasia. People with this type of aphasia have impoverished output, poor ability to produce either single words or sentences. But, like their sensory counterparts, they are good at repeating both single words and sentences.

Edwards (2005) find the concept of fluent versus non-fluent to have both clinical and pedagogic merit and it will serve as a good starting point. It is a metric that not only divides the aphasic population into two categories which fit, by and large, clinical observations of surface features, but also relates to the neuro-anatomical claims about aphasia advanced by the two nineteenth-century giants of aphasia, Paul Broca and Carl Wernicke.

Table 2. Classification of aphasia according to neo-classical (Boston) and functional system (Luria) theories, quoted from Johnson: 2012, 15

Dichotomisation	Neo-classical(Boston)	Functional systems (Luria)
Anterior / non-fluent / expressive	Broca's aphasia Transcortical motor aphasia Global aphasia	Efferent motor aphasia Dynamic aphasia
Posterior / fluent / receptive	Conduction aphasia (subcortical) Wernicke's aphasia Transcortical sensory aphasia Anomic aphasia	Afferent motor aphasia Acoustic-gnostic (Sensory) Aphasia Acoustic-amnestic aphasia Semantic (Amnestic) aphasia

Method of investigation

This study investigates attitudes of aphasic people at Tehran University Rehabilitation College and Imam Khomeini Hospital, in daily communications and   their communication strategies. The study specifically looked at how these people make use of communication strategies. The subjects of the present study consisted of 19, 8 fluent and 11 non-fluent, 40-70 years Persian aphasic male with no significant cognitive impairment and are treated at Tehran University Rehabilitation College, the instruments were a questionnaire with 22 items which had fixed response about patients' personal information filled with regards to their history files in the clinic or by their families and Nilipoor's test, and the procedures were completed through interview session with questions such as full name, job, age, a kind of patients' history, topic related conversations, and favorite activities.

The study-specific Nilipoor for Persian Aphasic People test was run to elicit data. The test consisted of 190 items for four skills (speaking, listening comprehension, reading, and writing). It includes 25 pictures to test the patients' vocabulary resources. The test begins with 6 free conversation questions and it continues with listening comprehension questions which ask the subjects to point to the specific objects, the next part contains story and the related questions which more complicated. The third phase is related to speaking which is to measure fluency of the patients. The last part is for writing skill in which people were asked to write the words and show the verbs they heard in the pictures. Dictation part consists of one character, one word and a sentence dictation. The answers were scored 0-10. The results were analyzed and on the base of Benson (1967) theory the patients were categorized into two groups of fluent and non-fluent the communication strategies were defined.

The process of Nilipoor Testing

This questionnaire has tested 4 main skills of Reading, Writing, Speaking, and Listening. There are 217 questions. Each correct answer 1 positive grade and each incorrect answer 1 negative grade and the questions without answer has not any grade and will be computed as neutral. The time of the test for each person is 120 minutes which is divided to four parts and days and each part takes 30 minutes for each of the skills.

These 4 main skills are examined and analyse as follow:

Listening comprehension:

1)Word recognition:
in this part the researcher has chosen six things and picture of doings such as eating, drinking, sitting, and etc. which are related together and asked the aphasic person to match the thing with its related picture of doing. For example: a cup: a picture of drinking and another picture of sleeping, the aphasic person should recognize the related picture.

2)Identifying body organs:
in this phase the researcher has made ten questions related to identifying of body parts and the aphasic man first has listened and the answered the questions.

3)Right and left side identification:
ten questions

4)Simple and easy demands:
ten requests or demands such as give me the book; put the pencil on the table, and etc.

5)Comprehension of complicated notions:
 ten tag questions

6)Comprehension of short stories:
at this final phase, the researcher has read a short story and asked some related short tag questions and the aphasic patient has answered them with yes or no.

Oral speaking:

1) ***Dynamic fluidity:***
   a) **Verbal fluency:** the patient should repeat some of words such as Baba (father) at five seconds. If he can repeat at least 5 times acquire 5 points otherwise he gets negative grade and zero point as disability point.
   b) **Non-verbal fluency:** the patient should do an action at five seconds, e.g. Open and close your lips.
2) **Automatic speech**: the patient should count some of the routine numbers or words e.g. say the days of the week or count the numbers 1 to 10.
3) **Recitation of a note**: the interviewee read the first part and the man continue it.
4) **Word repetition**: the patient should repeat some of the two part words.
5) **Phrase repetition**: the patient should repeat some of the simple and complex phrases.
6) **Reading of words**: the patient should read ten words.
7) **Denominate:** the patient should look at the pictures and name the shapes or he should term the words which begin with a special sound. If he can repeat at least 5 times acquire 5 points otherwise he gets negative grade and zero point as disability point.
8) **Reading of complex sentences:** the patient should read ten complex sentences.

Identification of writing language:
   1) ***Specification of letters and words:*** the patient should find and distinguish some of similar words from each other in a text.
   2) **Remembering the phonetic:** the patient should look and distinguish the specified word among similar words.
   3) **Adjustment of word with the image:** the patient should look at the picture and then identify the related word.
   4) **Reading comprehension:** the patient should read three short stories himself and answer the related questions.

Writing:
   1) **Dictation of words and sentences:**
   2) **Self-administered composition:** the patient has five minutes as time to write about his favorite topic.

Data collection and analysis
   The results of Nilipoor Persian Aphasia Test for two groups of 8 fluent and 11 non-fluent are shown in the tables. The min and max scores for each group is also presented in the table 2. As it is shown in this table, both groups' fluent and non-fluent participants have the least scores in word dictations and sentence dictations. This can be because of their motion disability as well as disability to adjust their listening and words dictation. On the other side, the top score of the min scores for non-fluent participants belongs to reading comprehension which approves the fact that Broca's aphasic people have good command of comprehension. The min score of the non-fluent group refers to the sentence structure recognition, while it was a high for fluent groups. Phrase repetition also was the least score for non- fluent group.
   This result is opposite for the fluent group. The min score among their max scores is for short story comprehension and their reading comprehension. This also approves the characteristics of the Wernika aphasic people. They may have a good ability in fluent talking but they suffer from a reasonable language production. In a general view the scores of the test were higher for the fluent group in comparison with the non-fluent group.

Table 2. The results of Nilipoor Persian aphasia Test for fluent and non-fluent participants

Test parts	Fluent participants			Non-fluent participants		
	Min Scores	Max Scores	Mean scores	Min Scores	Max Scores	Mean scores
Free talk fluency	-	-	-	-	-	-
Quality	-	-	-	-	-	-
Word Recognition	8.5	10	9.56	8	10	9.36
Recognition of Parts of body	6	10	8.87	6	10	9.63
Recognition of right from left	7.5	10	8.96	7.7	10	9.46
Comprehension of Simple sentences	4	10	9	8	10	9.63
Comprehension of complicated concepts	3.7	10	6.35	2.5	10	7.87
Short story comprehension	2.5	8.7	5.95	-	10	8.11
Fluent pronunciation	5	10	7.7	-	10	8.28
Self-motivated conversation	5	10	8.12	3.7	10	7.69
Recitation of the music	6	10	8.75	6.6	10	7.63
Word repetition	0	-	6.37	6	9	5
Phrase repetition	5	10	8.75	0	9	6.09
Word reading	5	10	8.87	0	10	7.09
One word answers	8	10	9.43	2	10	7.48
Seeing and Naming the things	2	10	6.75	2	8	3.85
Naming	4	10	7.62	3	10	5
Sentence reading	6	10	8.62	2.5	10	7
Words and letters Recognition	8	10	9.21	8	10	7.47
Phonic Association	9	10	9.87	-	10	9.81
Word and picture matching	0	8	5.75	0	8	3.72
Reading Comprehension	5	10	9.37	9	10	9.9
Copying	5	10	8	0	9	5.36
Word dictations	2	9	6.62	0	7	4.18
Sentence dictations	3	9	7.36	0	7	3.36
Free writing	6.6	10	9.08	6	10	7.98

As figure 1 demonstrates the biggest mean score is for non-fluent group which was for recognition of the parts of body. Although, this figure shows that both groups had close scores, in the min scores regarding to the table 2 for each part of the test, the non-fluent group had lower grades.

Chart Title
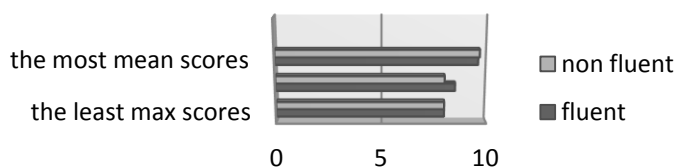
Discussion
The oral language productions of both groups participated in interview sessions and their accomplishment of the communicative tasks were audio recorded, transcribed and analyzed in order to identify

Normal language versions of the picture story narration and photograph description tasks were also elicited for identification purposes. These versions are supposed to reflect the original communicative intention of the speaker. What they would have said if they had not been constrained by an imperfect command of the target language (Hyde, 2005).

Conclusion
The participants were categorized into two groups on the base fluent and non-fluent one. This categorization is done on the base of Benson (1967) and the results of Nilipoor's Persian Aphasia Test. To differentiate these two groups the normal speed of speech, the length of speech chunk and the number of repetitions were the measurement scales.

According to the results of Nilipoor's Persian Aphasia Test, both groups' fluent and non-fluent participants have the least scores in word dictations and sentence dictations. This can be because of their motion disability as well as disability to adjust their listening and words dictation. On the other side, the top score of the min scores for non-fluent

participants belongs to reading comprehension which approves the fact that Broca's aphasic people have good command of comprehension. The min score of the non-fluent group refers to the sentence structure recognition, while it was a high for fluent groups. Phrase repetition also was the least score for non- fluent group. Also it was extracted that in an opposite result for the fluent group, the min score among their max scores is for short story comprehension and their reading comprehension. This also approves the characteristics of the Wernike aphasic people. They may have a good ability in fluent talking but they suffer from a reasonable language production. In a general view the scores of the test were higher for the fluent group in comparison with the non-fluent group. In sum, the biggest mean score is for non-fluent group which was for recognition of the parts of body and although, the (4-1) figure shows that both groups had close scores, in the min scores the non-fluent group had lower grades.

The results of this research can be beneficial to the theoretical field of language teaching studies in both SLA and psycholinguistics. On the other hand it is useful for the pedagogical aims and rehabilitation process for treating the aphasic people.

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