

A Psycholinguistic Investigation of Aphasia : New Perspectives

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Abstract:

Language is uniquely human, as a result, human beings have been amazingly (recognized from animals as) successful as individuals through their ability to think and understand. Human society is also encompassed by language; it binds people together but, in the first place, it can also create conflict. A person's cognitive capacity can be assessed by their vocabulary used; in other words, a person's personality can be determined by language.

Human interaction happens to most often through speech, so recognizing the development of speech (talking) and comprehension provides the basis for a view of human language abilities. The process of human being producing a language is called the production of speech. "Speech" or "speech production" means either sound or gesture output, except as otherwise indicated (Jean & Nan, 1998, p. 310). The speech development pathways fall into four specific areas as defined by Levelt; they are conceptualization, formulation, articulation, and self-monitoring. (Levelt, 1989).

First, people have to visualize what they want to convey. Second, this idea must be incorporated in a linguistic strategy. Third, they are expected to implement the strategy in the speech system through the muscles. Lastly, people track their expression to determine if it is what they wanted to express and how they intended to say it.

[Linguistic level, Physiological level, Acoustic level, Physiological level, and Linguistic level] . Denes & Pinson (1963) (as cited in Jean & Nan, 1998, p. 310).

Linguistic, physiological, and auditory levels are the phases of understanding a speech according to Denes and Pinson. Speakers deliver the language through a

process of linguistics, organize their thinking for what they want to say, and then finally produce the language as in acoustic stage. In contrast, listeners must listen first as in acoustic level to the audio provided by speakers, organize their thoughts and then plan

for the answer provided in linguistics form. Therefore, the various forms in the spoken language reside in its progress from the speaker's mind to the listener's.

Keywords : (speech, articulation, acoustic level, psycholinguistics, discrepancies).

Section One

1.1 Psycholinguistics :

Psycholinguistics is essentially the use of speech and language as an insight into the essence and structure of the human mind. (Scovel, 2001, p.4)

Both speech output and speech comprehension evolve at incredibly fast levels. (Maclay & Osgood, Jean & Nan 1959, 1998, p. 310)

Human speech is full of intention-output discrepancies. Tongue slips are defects affecting the language's sounds or words, which offer a window on the speech development processes. Errors can be identified by the units of speech (e.g. phoneme, word or phrase) and the processes involved (e.g. exchange, substitution, anticipation, or perseverance). Analysis of speech errors reveals that output occurs in phases, with content words and function words obtained at various levels, with some interference between processing levels.

Human speech is far from perfect: it's full of hesitations and errors, filled and unfulfilled. An error in speech is an inconsistency between what people want to say and what they actually say. This research focuses on discrepancies concerning language sounds, or tongue slips, and is not going to tackle hesitations. The present study will concentrate on the speech-production of people suffering from aphasia.

1.2 Speech Error:

It is a psycholinguistic diagnosis based on a speech's mental cycle. When it comes to speech error, linguists typically refer to mental grammar which enables us to be both speaker and listener simultaneously. An assessment of speech errors give insight into the nature of this mental grammar. Lashley (1958) (as cited in Jean & Nan, 1998, p. 312) claimed that while individuals think in words, the thoughts form grammatically each for an item for modifying different constructions.

Speech errors are known as linguistic units concerned with the errors (i.e., phonemes, morphemes, ... or other levels) and the errors of processes included (i.e. combining, replacement, addition, or deletion of units). For example, people sometimes pronounce "*irregular verb*" as "*irregural verb*". According to Smith (1997), there are four types of errors in everyday speech such as tongue slips, spoonerisms, the-tip of tongue phenomenon, and malapropisms.

Furthermore, speech errors are categorized into eight forms of speech errors according to Fromkin & Ratner (1998), such as phonemic parts, phonetic features, syllable, stress, morphemes, words, grammatical and sentence.

This study will discuss the types of frequently reported speech errors, as well as the rules controlling error-generation, and how certain errors could present insight into some of the determined speech production structures. In this study, the definition of speech errors will be focused on speakers who have no pre-existing speech delays or disorders.

Based on the insights stated above, the current study is devoted to answer the following:

- 1- What are the factors that lead to speech errors for people with aphasia?

- 2- What types of speech errors occur with people suffering from aphasia? and how does the aphasia affect the linguistics norms of those people ?
- 3- The present study questions whether age has a significant effect on the degree of errors produced by the patients?
- 4- What types of errors are most frequently produced and how can be rehabilitated?

1.2 Aims of the Study

According to the research questions, this study aims at:

1. Deciding the reason behind speech errors and their types for people with aphasia.
2. Inspecting how aphasia affect the linguistics norms of those people.
3. Investigating the dominant speech errors produced by those who suffer from aphasia
4. Examining whether age has a significant effect on the degree of errors produced by the patients.

1.4 Limits of the Study

This study is limited to examine the speeches of people suffering from different types of aphasia by visiting them in the hospital of Madinat Altib, in Baghdad. The researcher is going to analyze the speech errors delivered by those patients, as they suffer from unique speech production. In the interview, the researcher will not examine the whole utterance in an optimal manner, but will concentrate on their utterances only , due to the researcher's ability and time. The researcher is also going to restrict speech error theories on people with various types of aphasia to Gleason, J.B &

N.B. Ratner's speech error theory: pauses, repetitions, corrections, and slips.

1.5 Procedures of the Study

The following are procedures followed in the current project:

1. Clarifying the adopted model of Gleason, J.B & Ratner N.B., introduced in their book "*Psycholinguistics*" (1998) 2nd ed.
2. Collecting data by interviewing 50 patients suffering from various types of aphasia in the Hospital of Madinat Altib in Baghdad, both youth and elderly.
3. Analyzing the data while aiming at:
 - a. Surveying the different types of speech errors produced by the patients.
 - b. Checking the frequencies and rates of the errors to find out the dominant level of speech affected in various types of aphasia, and then comparing the results of speech errors produced by the youth and the elderly.
4. Discussing the findings to show how the differences in speech errors, depending on the type and degree of impairment, produced by the youth and the elderly, and to demonstrate how aphasia affect their linguistic norms.

1.6 Aphasia and Mind

Communication through language is central to the human experience and doesn't only include words and verbal expressions, but also non-verbal expressions. Communication includes many aspects of thinking and other social skills, any brain injury can affect the ability to communicate successfully.

Although the skull protects the brain very well, there are still a number of probably types of brain injuries. The brain can, for example, a smash against the skull to cause a “closed head injury”, during a collision. Aphasia is defined as “a language disorder caused by acquired brain damage.

This means a totally or partly impaired ability to speak, read, write, and comprehend spoken language. Aphasia is most often caused by stroke (traditionally estimated to 85%, although this figure does not include Aphasia caused by neurodegenerative diseases)”. (Johansson, 2012:13)

Aphasia is a defect which results from injury to portions of the brain which is responsible for language. For most people, this damage usually occurs in the left hemisphere of the brain. Although Aphasia usually occurs all of a sudden, either as a result of a stroke or head injury, it may also improve tardily as in the case of brain tumor, an infection, or dementia.

Section Two

Aphasia : A language Disorder

2.1 The Human Brain

“The human brain is the central and the most complex organ of the human nervous system .The brain consists of the cerebrum, the brainstem and the cerebellum. It controls most of the activities of the body, processing, integrating, and coordinating the information it receives from the sense organs, and making decisions as to the instructions sent to the rest of the body. The brain is contained in, and protected by, the skull bones of the head”.

(Wikipedia)

“Our brain is divided into 2 halves, or hemispheres, that are connected to each other by the corpus callosum. These two hemispheres control the motion in and receive sensory inputs from the opposite side of our body. In

other words, the left hemisphere controls the right side of our body and also receives sensory inputs from the right side of our body". (www.psychologynoteshq.com)

2.1.1 The Left-hemisphere of the Human Brain

"The left hemisphere of our brain handles tasks such as reading, writing, speaking, arithmetic reasoning and understanding. Another characteristic of our left hemisphere is that it tends to process information sequentially, one at a time." (www.psychologynoteshq.com)

This means that the left hemisphere of the brain is in charge of controlling the right side of the body. In addition to that, it carries out functions that are related with logic, such as science, learning physics, chemistry, etc.

2.1.2 The Right-hemisphere of the Brain

"The right hemisphere of our brain excels in visual perception, understanding spatial relationships, recognizing patterns, music, emotional expressions, etc." (www.psychologynoteshq.com)

This indicates that the right hemisphere of the brain, on the other hand, controls the left side of the body and carries out tasks that are connected with artistry work. It is also good at making inferences. For example, when primed with words such as "foot", "cry" and "glass", our right hemisphere will relate these words to *cut*.

"Our left hemisphere knows all these words individually but is unable to quickly make inferences from them. Our right hemisphere also lets us perceive the sense of self. People with lesions in the right brain sometimes have difficulty recognizing themselves in the mirror. Unlike the left hemisphere, our right hemisphere tends to process information as a whole."(www.psychologynoteshq.com)

2.1.3 Brain Lateralization

“In a normal brain, any information that enters the left hemisphere will travel across the corpus callosum to the right hemisphere and vice versa”.

This is because the two parts of the brain depend on each other and thus all information will not be handled merely on the right or left hemisphere. Yet, each of the two hemispheres is responsible for certain tasks and this is what we mean by *lateralization*.

“The degree of lateralization varies from one person to another. For example, for right-handed people, the control of language is probably concentrated more in the left hemisphere while for left-handed people, the language centers are more likely located more in the right hemisphere”.(www.psychologynoteshq.com)

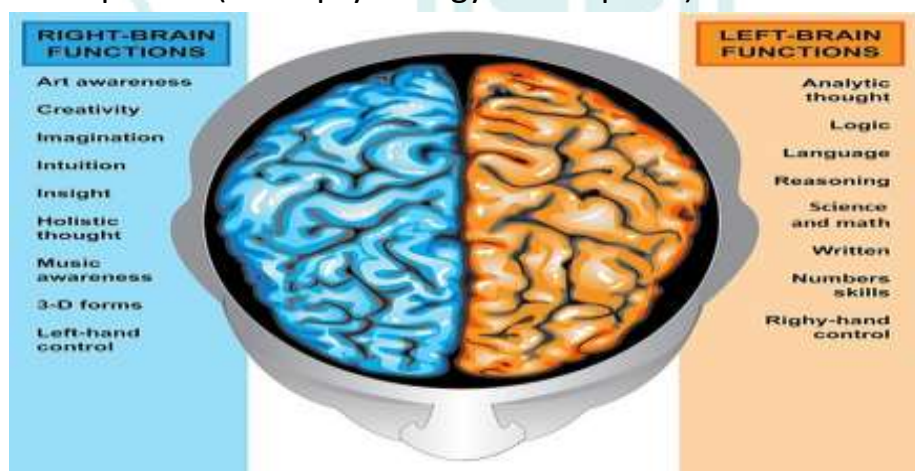


Figure 1 The functions of each hemisphere of the human-brain. (www.brainmadesimple.com)

2.2 What is Aphasia?

“Aphasia can be defined as a selective impairment of the cognitive system specialized for comprehending and formulating language, leaving other cognitive capacities relatively intact” (Davis, 2014:1)

“Aphasia occurs when the blood supply vessel that carries blood to the language–relevant area gets block, damaging the cells that controls communication.”

(Tabi, 2012:11)

“Aphasia is defined as “a language disorder caused by acquired brain damage. This means a totally or partly impaired ability to speak, read, write, and comprehend spoken language. Aphasia is most often caused by stroke.”

(Johansson, 2012:13)

Aphasia is a cognitive-communication disorder related to damage involving the left-hemisphere of the brain or it is simply a situation where speech is lost. The loose of speech and language can affect all groups of people ranging from children, young adults to elderly people. It is widespread especially among the elderly because of some age related factors. Cognition, on the other hand, includes some processes like attention, perception, memory and organization. A cognitive-communication disorder may either be present from birth (congenital) or acquired. Some researchers claim that Aphasia is obviously an acquired defect that can be caused by traumatic brain injury (TBI), cerebrovascular (CVA), also known as stroke, or brain tumor.

Stroke is a common consequence which leads to Aphasia, and appears when the blood supply to the brain is disrupted, and thus either leads to the death of the brain cells and neurons because of the lack of nourishment or only causes damage. Aphasia can thus be identified as a group of symptoms that appear together according to the arrangement of possible speech and language signs. The language symptoms may involve loss in one

or more of the four language modalities (auditory comprehension, reading comprehension, verbal expression and written language). Impairments in auditory comprehension involves difficulties in understanding speech, providing inaccurate answers to “yes/no” questions, inability to understand complex grammar and the inability to be conscious of their errors. Anomia, or the difficulty in finding words, the ability to speak in single words, putting words in the incorrect order, and speaking in short are all involved in the loss of verbal expression.

Finally, the damages that are caused in written language are usually when Aphasiac people face some kind of difficulty in writing single words, writing run-on sentences and writing sentences with incorrect grammar, or copying letters, words and sentences. All these symptoms vary extremely from one patient to another. Some patients may present with ether one or all of these symptoms, depending on where in the brain the damage occurred. (Argyriadis, 2017)

2.3 Signs of Aphasia

Aphasia affects several things such as: the understanding of the language the patient either hears spoken or sees written, or both, the formulation of vocal language production, the conception of vasomotor signs from a sign language as it influences the patients capability to sign in a linguistically accurate style. Often, both reception and expression of language, in both visual (written) and auditory (spoken) modes are disturbed by Aphasia.

People who suffer from Aphasia find it difficult to understand verbal messages, which means that they figure out their meaning as opposed to hearing or seeing those messages. However, the problem is neither deafness (peripheral or central) nor blindness. Although a deaf or blind person is not able to comprehend language in the manner of the perceptual defect, they will still be able to understand the similar spoken message, usually when an intact sensory channel processes it.

- First of all, Aphasia is not a problem of articulation. Many patients have speech problems because of an acquired condition of the basal ganglia, of the brain stem or cerebellum, or even of the cerebral cortex, but still hardly any of those will have Aphasia.
- Second, not Aphasiac are people with mutism (people who can be totally silent). These patients often fail to reveal any want to communicate by gesture, mimicry, or writing.
- Moreover, even people with aphonia, that may arise from disorders of the larynx and pharynx, are not Aphasiac. Such patients suffer from loss of voice, especially because of an organic or functional disturbance of the vocal organs. (Taylor, 1998:26-8)

However, a picture of a patient with Aphasia should begin to emerge in the following cases:

2.3.1 Troubles with naming and the output of ParAphasias

First of all, we have to define parAphasia. "ParAphasia is a type of language output error commonly associated with Aphasia, and characterized by the production of unintended syllables, words, or phrases during the effort to speak. Paraphasic errors are most common in patients with fluent forms of Aphasia, and comes in three forms: phonemic or literal, neologistic, and verbal". (Wikipedia)

"At the core of language formulation lies the ability to select from the verbal lexicon a word that conveys the meaning of a given thought. The selection process is often automatic although we may deliberately search for the precise lexical item, a process designated as word finding. When-word selection fails, the result is either the omission of the intended item or a substitution of an incorrect and unintended word". (Taylor, Martha 1998:29)

2.3.2 Difficulties of Repetition **“A failure to repeat words or sentences is another hallmark of Aphasia”**

(Taylor, 1998:29)

As Taylor states, the capability to repeat may either be totally lost or may be spoiled by phonemic parAphasias or exclusions of sounds and words. Repetition is damaged in most Aphasias, and in fact prevails over the clinical presentation of conduction Aphasia chiefly because other pronounced defects are lacking.

The problem of repetition has main localization value. Its existence puts the lesion securely in the perisylvian area of the main hemisphere. The problems of repetition are particularly missing in both transcortical Aphasias and the so-called anomic Aphasias, whose parallel injury is placed outside the perisylvian ring.

2.3.3 Difficulties of Aural Comprehension

Auditory comprehension can be affected to various degrees. Some patients have the ability to contribute in an everyday conversation, giving suitable verbal responses or revealing that they comprehend the subject matter of the messages by signals, pointing responses, facial expression, or gestures. “Yet, confronted with laboratory tests, they may fail many items, especially when the question aims at specifics rather than generalities, and when the linguistic structure is complex rather than transparent”. (Taylor, 1998:29)

2.3.4 Difficulties of Grammatical Processing

As the author states, another important mark of Aphasia is *Agrammatism*, which is the trouble with creating the syntactical structure, where the lexical choices have to be placed, and to a defective utilization of grammatical morphemes.

However, although it was believed in the past that only people with broca's Aphasia could be agrammatic, it is obvious then that even patients [with other Aphasia types] specifically Wernicke's Aphasia can be agrammatic as well. (Taylor, 1998:31)

2.3.5 Disturbances of Reading and Writing

Although the defects of reading comprehension and auditory comprehension, are not the same, reading comprehension can still be troubled in a similar way as auditory comprehension.

“For instance, patients with auditory comprehension defects usually have some reading impairment, but the proportion of those with both defects is small.”

(Taylor, 1998:31)

As Taylor cites, this means that patients who have auditory understanding disorders generally have some reading problems, however, the amount of those with the two disorders is small. On the other hand, weakness in reading can emerge in an unmixed form, without weakness in auditory comprehension or writing.

2.4 Types of Aphasia

2.4.1 Global Aphasia

“The most devastating kind of linguistic deficit is the total inability to communicate using the language. The patient cannot speak more than a few words or syllables, and understands very little. When this type of deficit persists it is referred to as global Aphasia.” (Obler, 1999:37)

Global Aphasia is the type of deficit which occurs when the patient is not able to speak (just uttering a few words or syllables), and understands very

little as a result of a damage in large areas of the left hemisphere of the brain. Patients could recover their linguistics abilities after being totally Aphasiac as a result of their injury. **“Patients with less extensive damage will, as a rule, have less extensive loss of linguistics abilities”**. (www.asha.org)

According to the author, in contrast, patients with less extended impairment will not have as much extended lack of linguistic capabilities. In Aphasia, for example, we can find cases with language problems without cognitive weakness.

We might anticipate language breakdown to happen in light of the linguist’s notion of a mental grammar made up of diverse subcomponents (phonology , syntax etc..). One patient may, for example, have problem with sentence formation, while another patient may have trouble with word formation and/or pronunciation.

2.4.2 Broca’s Aphasia
“Broca’s Aphasia is named after the French scientist, Paul Broca, who first related a set of deficits associated with this type of Aphasia to localized brain damage. He did this in 1861, after caring for a patient who could only say the word (tan)”. (www.Aphasia.org)

Paul Broca made an experiment on a patient who was able to utter only the word “tan” with perfect intonation whenever needed, in order to transfer a message. This was later known as Broca’s Aphasia.

“Broca’s Aphasia is primarily an expressive language impairment, meaning it mostly affects speaking and writing – the two ways we produce, or express, language” (tactustherapy.com)

In Broca's Aphasia, the recognition of the language keeps comparatively right. However, restoration of terms and sentences is commonly inferior. It is recognized as 'non-fluent Aphasia', as well. This means that the utterance requires much physical effort and seems awkward to some extent, with maximum words restricted to four words or lower. (<http://www.tactustherapy.com>)

A person with Broca's Aphasia has the ability to fully comprehend the daily dialogues. The hardness begins to take place with clauses that include additional complicated grammatical constructions, like passive sentences.

"In line with their spoken language abilities, individuals with Broca's Aphasia often find that they can read better than they can write".
(www.tactustherapy.com)

The sample below is an example of a sixty-four year old person with Broca's Aphasia. L.M., as he was called, was paralytic on the right part of his body as a result of a stroke which injured a major part of his left hemisphere. In addition , there is a great number of problems with the language, involving difficulties with naming and repetition. He had the ability to comprehend daily discussions, but used to fail on understanding complicated syntax(the correct combination of words/sentence structure). The most difficult problem he faces was in the manufacture of speech. (Obler, 1999:41)

Kid..can..candy...cookie...caandy...well I don't knoe but it's writ...easy
does it...early..fall...men...many...no
girl...dishes...soap...soap...water...water...
that's all.. dish... that's all.
Cookies...can...candy...cookies...cookies...he..down..that's all.
Girl...slipping water...water.. and it hurts... much to do... Her...clean
up..dishes...up there.. I think that's doing it (the examiner asks: What is

In this concise selection of the patient's speech, we can recognize the popular characteristic of speech of individuals with Broca's Aphasia. His

speech needs some physical efforts with stops, with fake beginnings, ambiguous words. It is clear that he has some problems with finding the correct word (“discharge” for “washing dishes”) and it appears that he is conscious of his difficulties (“no... I forgot”).

2.4.3 Wernicke’s Aphasia

“In 1874 a German neurologist, Carl Wernicke, published a monograph Aphasia Symptom Complex in which he described a language disorder found subsequent to brain damage. This language disorder was strikingly different from the Aphasia that Paul Broca had described ten years earlier.”
(Edwards, 2005:9)

Wernicke noted that there were evident issues with word retrieval and, as a result, meaning is decreased to greater or lesser grade, regardless of the fluency of speech. Another distinguishing characteristic of these speakers was their outstanding difficulty with comprehending language although they had normal hearing. In addition to that, he also observed that weakness of speech differed from those noted by Broca.

He was concerned in the performance of language, the storage of images, the formation of lexical remembrance, and the connection between mental procedures and neural frameworks. There was an admission that the framework of the language was damaged, regardless of the fact that Wernicke’s essential attention in this situation was fixed on the connection between the cerebral imagery, memory and the representation and recovery of words. This type of Aphasia was referred to as *sensory Aphasia* by Wernicke.

Wernicke's descriptions emerged after he noticed a group of patients had language difficulties following cortical injury with diverse etiologies. The location of the trauma was post-mortem proved.

He was concerned with language disorders that were produced from harm to the post-Rolandic cortex. He also noted that in some patients, Aphasia led to a damaged auditory perception regardless of the maintained capacity of auditory comprehension.

ParAphasia is a term that is, although it is rarely stated adequately, repeatedly used in correlation with Wernicke's Aphasia. Word-finding difficulties exceedingly identified as characteristics of each type of fluent Aphasia, "although here Eggert notes that they are the 'chief characteristic of the final stages of sensory Aphasia" (Edwards, 2005:10)

The first one is that there was a lack of understanding word sound, and so, there was a problem in arriving to the conceptual meaning of a particular word.

According to that scientist, these patients have a completely overall box of terms and suitable sentence structure, but despite this, speech was damaged. Wernicke claimed that they made "errors in the choice of expression" and that "incorrect or transposed words (were) frequent". (Edwards, 2005:10-11) and all quotes and page numbers relating to Wernicke's work are taken from the translation by Eggert (1977).

In the subsequent model which is from a seventy-five year old man who suffers from Wernicke's Aphasia, presents a prominent disparity to the utterance of the Broca's aphasic.

Is this some of the work that we work as we did before?...All right...from when wine (why) I'm here. What's wrong with me because I.. was myself until the taenz too something about the time between me and my regular time in that time and they took the time in that time here and that's when the time took around here and saw me

In this sample, there are two visible problems which we did not discover in the conversation of the non-fluent aphasic. These two problems are the wrong choosing of the phoneme of words, also known as phonemic parAphasias – e.g. “wine” instead of “why”, and the absence of a significative meaning. (Obler,1999:43)

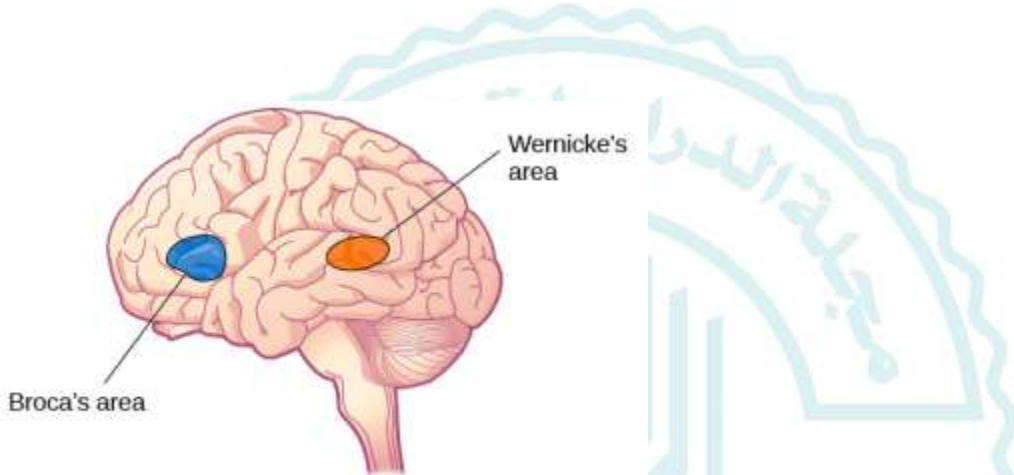


Figure 2 The two major areas involved in language: frontal Broca’s area and temporal Wernicke’s area. (www.psychneuro.wordpress.com)

3.4.4 Anomic Aphasia

All aphasic individuals, no matter what kind of Aphasia they are suffering from, have some sort of problem remembering what thing are called. These people are referred to as “anomic aphasics”, and their only problem with language is their inability to name things. For example, if we ask an aphasic patient about the name of a pen, he is likely to say “something we use to write with”.

“The cognitive psychologist Ashcraft (1993) wrote about a temporary anomia he experienced as a result of an aneurysm – a ballooning of one of his brain’s arteries that drew blood away from his language area”. (Obler,1999:44)

This means that comparatively small injuries anywhere within the region of the language appear to conduct problems with supplying suitable words.

So, people with anomia are those who are unable to choose the correct words for the particular topics they want to talk about, and their speech is full of ambiguous words. Moreover, these people comprehend speech completely and have the ability to repeat the terms and sentences. However, they face some problems in writing as well as they do in speech.

Section Three

3.1 Sentence Production in Aphasia

3.1.1 Word Retrieval

“For someone with Aphasia, saying any word at any time is like reaching for a distant fruit on a tree”. (Davis, 2014:7)

We have all experienced having a specific word on the tip of our tongue, but not being able to remember the intended word. People with Aphasia, they usually say things such as *‘I know what I intend to say, but I am not able to think of the exact word’*.

“Anomia (also, dysnomia) stands for the general problem of finding and retrieving words.”

Anomia is the most coherent characteristic of Aphasia, general among all people who suffer from this disorder. However, anomia should not be mixed with anomic Aphasia.

“Anomia appears as omissions and commissions”. (Davis, 2014:8)

A person who suffers from anomia faces difficulty to come up with the word. When that person is unable to remember the correct word, he or she will speak about things around that intended word, saying things like *I dry myself with that thing after I take a shower* when the person in fact wants to say *hair dryer*. *“This symptom of commission is called circumlocution”* and it indicates that a person who suffers from anomia in fact knows exactly what he or she wants to utter, but is not really able to find the word for it.

“We use the term parAphasia when referring to a word substitution error”.

(Davis, 2014:8)

Table 1 A basic classification of parAphasias

ParAphasia	Target	Error
Phonemic	Apple	Attle
Semantic	Cat	dog
Mixed semantic	Telephone	telegraph
Unrelated	Milk	flag

ParAphasia, on the other hand, differs completely. Someone who suffers from parAphasia may think of a word, but utters a completely different word, which does not have any relation to the intended word. Shown a picture of a table , for example, a patient may say knife, for trees he or she may say meat and after some hints, such as “you drink it every morning, it is white and it is not water”.

3.1.2 Sentence Production

“People with Aphasia differ according to two styles of verbal production. One style is nonfluent, spoken with effort and with fewer words than normal.

Sometimes we seem to be waiting forever for the next word to come. A listener has to be patient. The other general style is fluent, in which individuals talk with an easy flow of complete sentences. Aphasias are placed into two broad syndrome categories of nonfluent Aphasia and fluent Aphasia". (Davis, 2014:8)

The non-fluent Aphasia is for the most time restricted with grammar. The most important sign is the elimination, known as agrammatism, where particular linguistic parts disappear from speech. If an Aphasiac person is asked what happened that forced him to come to the hospital, for example he or she may say something like:

"Bedroom...brushing."

"Wake up... standing mirror..brush.. um..fall..mother.. ambulance"

In these examples, *"the omitted units are grammatical morphemes, including inflectional word endings such as -ing and closed- class or function words (e.g., the, is, on)."* Individuals with agrammatism usually produces fundamentally open- class or content words. In acute situations, however, the patient may only produce one or two nouns at a time.

"With a mild anomia, a person communicates fairly well." (Davis, 2014:8)

This means that when the patient does not remember the intended word, he or she usually turns to general wording. In the following example, a man explains how to drive a motorbike :

Put the helmet on your head. Get on your bike. Grab the left..uh..thing and swing your right leg over the seat. Plant your feet firmly on the ground. Pull the thing..I know it but I am not able to remember it now but I can draw a picture of it.. when the eh..thing that turns the motorbike on begin to drive.

“Other fluent Aphasias can be “abstruse” (i.e., difficult to comprehend), a term that is used to characterize a type of production that clinicians call jargon”
(Davis, 2014:9)

An individual with this type of Aphasia may say something like : *Yes of course, this is the best thing. “Whenever you want tea, you can go around and around , well, we are here now the motorbike goes fast. Oh, you did the wrong thing”* when the person is asked how he or she feels today.

3.2 Language Disorders and Aphasia in Children

“Developmental language disorders (DLDs) – also called Specific Language Impairment (SLI)” – include a group of cases that make children have problems with speaking or communicating in a particular way. Children who suffer from DLD face some difficulties with understanding the intended meaning of other individuals speech. Such problems happens with children with natural intelligence and hearing. In most widespread situations, DLDs appears in the first 2-3 years of life when a child is late in speaking and it is more probably to happen with boys than in girls by a rate of 2-3 boys for every girl diagnosed with this case.

Some people think that *speech* and *language* are same. The fact is that speech is *“the verbal production of language”*, which means that it is the performance of uttering words. Language, on the other hand, is *“the conceptual process by which a person is able to understand what others say and also to communicate using words”*.

“Developmental Language Disorders (DLDs) are neuro-developmental disorders.”

These disorders exist early in life and arise because of the different way by which the brain develops with reference to language. These disorders affect children in various ways, and there is of course also an extent of seriousness.

- Some children may be late in speaking and begin to speak around 4-5 years old. It is possible that these children will continue to have learning problems, specifically dyslexia, or problems with reading and speaking.
- Some other children may be late in speaking and remain have difficulties with either comprehending what people say when they talk or in speaking sufficiently themselves. If this happens, it may lead the child to become bashful and unwilling to speak in front of other people since they recognize that they are not able to convey their ideas just as their playfellows.
- A further type of DLD is that the child starts speaking in the normal age, but that language fails to improve at the particularly expected average. Since the children's language development looks as if it is natural, the process of identifying the disease is possible to be missed. (www.childneurologyfoundation.org)

3.2.1 Signs

A DLD cannot be diagnosed in through a laboratory test like other diseases, however, they are diagnosed by a clinician, who is a '*physician or speech pathologist*', as a result , lateness in speaking process at an expected age.

Table (2) Typical language milestones.

Typical language milestones:

- **2 months:** *vocalizes, coos*
- **6 months:** *babbles, uses consonant sounds*
- **8 months:** *babbles socially using a lot of different sounds*
- **9 months:** *understands at least 1-2 words spoken by someone else (e.g. mama, up)*
- **12 months:** *is able to follow simple spoken commands (e.g. eat your cookie, wave bye-bye); is able to say at least one word other than "mama" and "baba"*
- **20 months:** *points to body parts, people and objects on command; says at least 50 words and understands what they mean (not just repeating what other people say).*
- **24 months:** *Uses two words together; useful vocabulary at least 200 words (e.g. knows what the words means and uses in the appropriate situation, e.g. "go bye-bye, daddy home")*
- **36 months:** *Speaks in at least 3-4 words sentences; vocabulary very large (too many words to count); able to be understood most of the time.*
- **48 months:** *Full sentences, able to be understood almost all the time.*

A language disorder may be suspected when a child does not use words or sentences that are typical to his age or only repeating what people say instead of using words of their own. However, a speech pathologist may administer some standard tests that can be used to check whether or not a child comprehends oral language and if the child is able to speak according the normal range of his age.

Table (3) Warning signs that may suggest a language disorder even in very young children.

Early warning signs of possible language disorder:

- Not babbling (using consonant sounds, or "baby talk") by 8 months.
- Not able to understand any words that parent say by 12 months
- Not able to use meaningful words by 18 months
- Not pointing to things by 18 months
- At any age, does not use words to communicate, only repeats what other people say and/or says words without intending to communicate anything.
- Does not speak in 2-word phrases and/or has a very limited vocabulary by 2 years.

3.2.2 Problems of Articulation

The ability to vocalize words, sounds, and syllables is referred to as articulation. So, an articulation defect refers to the case in which the child faces difficulty pronouncing specific consonants and vowels. This results in making the child unwell understood by other people, despite the fact that the child may be using the accurate words or grammar. (www.childneurologyfoundation.org)

1- Stuttering

"Stuttering is a problem with the rhythm of speech. The child knows what they want to say, but can't get out the words."
(www.childneurologyfoundation.org)

The disability to utter the words although the individual knows what they want to say is another language defect, referred to as *stuttering*. The reason behind this problem is that they face a problem on a specific sound

and not being able to continue to the next sound or word. However, it is unknown what causes stuttering. Some researchers suggest that stuttering may be caused because of some genetic influences, and other researchers think that problem with the connections between the two regions of the brain may lead to this kind of disorder.

Stuttering usually begins between the age of 3-6, and happens to 0.5-1% of children. In many cases, this problem may resolve on their own, but still, there are some situations in which the defect is too serious that it needs intensive forms of speech therapy.

2- Verbal Dyspraxia (sometimes called Apraxia)

A further language defect is known as the “*Verbal Dyspraxia*” in which the child, although he/she knows the meaning of the words, and are able to comprehend what they are being asked, cannot say the words precisely. Some characteristics of verbal dyspraxia include:

- Damaged utterance
- Short and effortful speech utterances
- Speech sounds are deformed
- Non-fluency of speech
- Variability (the child may be able to say a word one day and then not be able to say it another day)
- Restriction of speech.

When a child suffers from a serious form of verbal dyspraxia, that may lead to problems which causes the child may have problems with his speech.

“Alternative means of communication, such as sign language or the use of a communication board, may be useful in facilitating communication and reducing frustration”.

(www.childneurologyfoundation.org)

3- Phonological syntactic syndrome [Mixed receptive-expressive disorder]

The most usually known form is the *Phonological syntactic syndrome*. This is a language defect which primarily means that a child does not have the ability to verbally express himself/herself using correct grammar. Children who suffer from this disorder may have problems with the fluency, speak in shorter and less complex sentences than their playmates.
(www.childneurologyfoundation.org)

4- Semantic-pragmatic Syndrome

The semantic/pragmatic disorder is a case when children may have a large number of vocabulary and are able to speak, but their speech is shallow.

As a result of this condition, children may have problems have conversations with others, as they may talk about things that the listeners are not interested in. “They may lack the normal intonation in voice that conveys meaning to what they are saying (a quality called prosody)”.
(www.childneurologyfoundation.org)

This form of language disorder is usual among children with high functioning syndrome.

5- Aphasia in Adults versus Aphasia in Children

“Language disruptions secondary to acquired central nervous system (CNS) lesions differ between children and adults in multiple respects”.
(Aram, 1998:451)

The major differences between acquired Aphasia in children versus in adults are the *'developmental stage'* of gaining language at time of the harm and the developmental stage of the central nervous system. Premorbid mastery of language is presumed in adult Aphasia, at least to grade of the aphasic's ideological ability and cultural chances.

“Complicating research and clinical practice in this area is the need to account continually for the developmental stage of that aspect of language under consideration for each child.” (Aram, 1998:452)

The second main distinction between adults and children supporting language-disrupting neurological injuries is the level of maturity of the central nervous system at the time of the harm. During the previous 20 years, the arguments connected to the grade of *“early hemispheric specialization versus equipotentiality”* for language has rouse much of the discussion in this field.

Many researchers have concluded that the style of the loss of language that follows injuries in children mostly do not match to what is noted in adults with comparable lesions. Instead, as some researchers have suggested that *“the data far suggest that innate regional biases in style of information”* lead to ordinary patterns of brain organization for language under natural circumstances and allow alternate patterns to arise in children with central brain harm.

Section Four

4.1 Rehabilitation of Aphasia

The rehabilitation of Aphasia is gradually more informed by improvements in comprehending of the neuroscience of recuperation and knowledge.

Some concise descriptions of both overall and particular options of therapy for people with Aphasia is listed below. The protocols of particular therapy differ, depending on each patient's individual need for

communication. The absolute aim of therapy is to maximize type of both life and communication prosperity by employing the most suitable approach that the patient needs.

4.2 Social Assistance and Integral

The processes that concentrate on supplying society backup and serving the patient completely in social life cover the following: **Social Aphasia groups** - “treatment and support for people with Aphasia that can improve linguistic functioning in a naturalistic setting (Elman & Bernstein-Ellis, 1999) and enhance social networks (Vickers, 2010)”. (www.asha.org). This group of scientists tries to cure and backup individuals who suffers from Aphasia in a way that their linguistic function progresses in a normal framework. These groups also display aphasic people and their relatives a chance to talk, take part of ideas and feelings, to learn to relate and interact with aphasic people, and to get more information about the symptom and its resources.

4.3 Melodic Intonation Therapy (MIT)

“It is most often used to treat individuals with severe, nonfluent Aphasia” (www.asha.org)

Just as aphasic people depend on mimicking someone else, since they do not have the ability to speak by themselves, the melodic intonation therapy depends on the idea that although aphasic individuals are not able to speak, however, they still have the ability to sing. Therefore, the components of singing such as melody and rhythm are involved in the speech rehabilitation.

The words are produced by Broca’s area in the left hemisphere, but the pitch and prosody are provided by the right hemisphere. Again, the overall coordination of a singing performance is provided by the right hemisphere,

which also draws on its representation of the music to direct the performance. This is why people with significant left-hemisphere deficit can often sing when they can't talk". (www.quora.com)

Conclusions

Throughout the research-paper, the researcher has concluded some important points concerning Aphasia:

1. The major differences between acquired Aphasia in children versus in adults are the '*developmental stage*' of gaining language at the time of the harm and the '*developmental stage*' of the central nervous system.
2. Even though it was stated that fluent Aphasias do not exist or are very unusual among children younger than 10 years, latterly researchers have discovered that many instances of fluid Aphasia with jargon or excessive talkativeness exist in younger children.
3. People with anomia are those who are unable to choose the correct words for the particular topics they want to talk about. Their speech is full of ambiguous words although it is eloquent correct according to the rules of grammar. They simply feel that they have the correct word on the tip of their tongue but fail to speak it, and this leads them to frustration.
4. Despite the fact that it is possible that Para-aphasic error to happen during the serious time which follows obtained central harm in children with either decreased or fluent oral productions, universally, children's insistence are connected with more extending defects as a result of widespread brain injury.
5. Aphasic patients have the ability to sing although they are not able to speak, since singing is an activity that is produced by the help of both

the right and the left hemispheres in the brain. The style of the loss of language that follows injuries in children mostly do not match to what is noted in adults with comparable lesions.

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