

# The Study of Special Education for Grade I Students with Child Brain Damage Syntactic Features in Tehran through U-Man Test

Leila Rezaie\*, Maryam Iraj and Jinuss Shirvan

Department of foreign Language, Faculty of language, Islamic azad University, Tehran center branch, Tehran, Iran

*Corresponding author:* Leila Rezaie

**ABSTRACT:** Process connection or in other words production and natural perception of speech sounds is a sophisticated phenomenon that concern a healthy brain. Language skill incur by the incidence of brain lesions at various levels to various degrees upto the extent where injury distances natural norms. These brain tumours may be created by the effect of brain attacks, accidents or stroke or by cerebral palsy. In the present study, in view of disruptions in the movement of the head and mouth organs – face, the syntactic features of grade one exceptional education brain damage in Tehran is examined further. In order to perform the study, six seven year old girls suffering from cerebral palsy located at zone 2 of educational and physical impairment rehabilitation centers of Tehran were considered where after direct examination and the examination of relevant organs states, the voice recording and speech samples extracted from U-Man Test were further studied. The obtained data indicated that there is a meaningful relationship between the functions of the head and mouth parts – face and the brain injured syntactic features generation among Tehran's Grade 1 exceptional education children and that syntax production does not solely associate with a type of time delay.

**Keywords:** Syntactic features, Brain injury/damage, U-Man test.

## INTRODUCTION

The importance and impact of speech and language for individual or human social life has from long been heeded and investigated. In a human society language is used to establish communication. Language is never inherited but is a systematic device that by signification of symptoms and their relationship to phenomena is determined by the community. Human ability in establishing verbal communication has an essential role in our social, emotional, intellectual and occupational life. With this knowledge in mind when a neurological disease afflicts it has always been a human concern and that exactly what happens when disability hits in establishing verbal communication. At times we are faced with children whom due to disorder and traumatic brain injury are in an exclusive condition in terms of intelligence, social physical and mental growth and speaking ability. Scientists have also performed accurate research on language and various fields. One of the linguistic sections is language that deals with the relationship between the brain and language to identify its nature. In language neuroscience there are various issues; each can be examined and studied. A field is language pathology in relation with various types of language aphasia and impairments with neural origins.

At present, the most significant method of relation between language and brain is by reviewing the brain diseases test results i.e. including cerebral palsy and their language effects. The innovation of cerebral palsy expression was realized by Philips in 1940. This is an expression used to state the types of paralysis and weakness, and impaired or disorder of locomotors coordination arising from brain injury. The outbreak of various injuries on brain is observed under various factors; their effects on production and comprehension of language phenomena for identification of close relation in the two phenomena is a clear evidence of this. No doubt, investigations of these types can open a shutter inside human mind. (Nilipour, 2001: 5) By precise analysis of damages on brain and its abnormal actions it

can be concluded that this is in relation with neural role and normal and natural linguistic, next damaged brain structure during natural language function and its role can be imparted. (Couplain 1987: 41) Linguistics declare that the characteristics of language in brain damaged children consist of differences and similarities and believe that in fact comprehension and production issues of these groups of children originate from mental and physical disabilities. (Prouty, 2007:2) In comparison of these similarities and discrepancies allows linguistics to study children growth and language acquisition processes more subtle and scientific. (Dastjerdi, 1998: 4)

In this research, it is endeavoured to study children brain damaged syntactic features educable at first grade of special education in Tehran. The study assists in children education quality and consequently life quality promotions.

### **History**

In 1957 Naom Chomsky in his book 'Syntactic Structure' has presented his revolutionary perspectives on grammar structure. Based on his book, grammar is described in three sections of: (i) making lexicons (ii) transformation rules and (iii) phonological morpheme rules; Chomsky considers language set of restricted and unrestricted sentences. Restricted such that each sentence is limited in length and constituted by a set of restricted elements. Each natural language has limited number of phonemes and each sentence is represented as limited chain of phonemes. By unrestricted means unlimited created sentences. According to Best (1978) existing issues in terms of cerebral palsy afflicted children's education in proportion to their deficiency is diverse; consequently, not only facilities but also equipment and methods are prerequisites to educate those afflicted with visual, hearing and speech impairments, learning and behavioral disorders or mental retardation for their special care. Batsho (1986) stated that cerebral palsy is a growth disorder i.e. a condition associated with several disorders. Cerebral palsy is not just a motor disorder since in cases of brain injury usually entangle several other parts such as the sensory ability, cognitive processes, emotional reactions and also motor actions. In 1987 Netsel had compared opening and closing spastic and athetoid patients lips. He then stated that spasticity adults face issues with antagonistic contractions and coordination of sphincter muscle of lower lip and upper labial ring and enhancing reaching of lips.

However, in 1991 Drokin reckons respiratory system of high motor dyzartery due to neck and (low deep) surface breath trunk hardness and stiffness to reduce control over exhalation, fast breathing of antagonist muscle contractions system, abnormal contraction system and sudden irregular breathing patterns. Yet, Hardy in 1996 was able to perform a test with simple laboratory devices to study the respiratory support on cerebral palsy children speech. He further studied the afflicted tardive dyskinesia and spasticity abnormalities lung functions to compare the obtained results with normal children. He was next able to discover that tardive dyskinesia children breathing at rest is faster and their expiratory volume is less than normal ones. Still, in 2000 Solomon and Sharon carried an extensive research as a review of literature on speech breathing of cerebral palsy children and were able to achieve estimable results. They discovered that breathing at rest and speech breathing of dyskinesia cerebral palsy afflicted confront more issues in comparison with spastic cerebral palsy children. Morsy et al. (2002) stated that Dyzartry is slow and unskilled production caused by speech muscles poor performance; they were convinced that these disorders are in complete relation with cerebral palsy. In 2010 Haikins and havej implemented a survey on Ak-h production in children suffers of dyzartry. They examined the Formanted ranges related to the first and second vowels / â /, / u /, / i / and concluded that dyzatric children have shorter vowels than normal children.

## **MATERIALS AND METHODS**

### **Method of Research**

The method of research heeding its essence is context and in view of data collection is field and library study. The above research comprised of two statistical societies: (i) children society of cerebral palsy in grade I special education training and rehabilitation centers and physical impairment in region (2) as control group (ii) normal children society in Grade of Hekmat Girl School in region (2) as observer group. Total number of children as sample for cerebral palsy group were six of seven cyear. Also, the method of sampling in this research was to use the society most in access. In view of the type of research i.e. field and background, the researcher has reckoned small sample size most in access. After the selection of individual and direct examination of each head and oral-facial organs the researcher initially records a sample of their voice speech; speech examples include: spontaneous speech, descriptive speech and making sentences. Spontaneous speech is a sample for children speech produced during play or leisure time with peers without them being aware of observers.

Descriptive speech comprise of three parts: a) comic – children are required to describe illustrations plus story trail prepared prior; b) answer questionnaire: for this part a child must answer 10 questions; c) retell the story by memorisation: here, the child is requested to retell a story by own recalls. In spite of the fact that in this research a few and available samples are used scores distribution in this research is not a normal distribution and its scale

scores is of ordinal scale. For this reason, in order to assess the significance of differences of the two groups Mann-Whitney U test was used and based on this test the significance of the differences with the probability of 5% fallibility i.e. 95% confidence is examined. Also, for achieving Mann-Whitney U test parameters for the two groups this was implemented in view of the queries of this research for evaluation of the significance of relationship between oral – facial functions with the ability to produce in children with cerebral palsy and examining the quality and quantity of syntactic production ability to be compared with normal children, next analysed. The analysed syntactic factors included: MLU (Mean Length of Utterance), 6 of the longest average length of words in ratio to the type and number of words, the average number of verb in utterance, the percentage of grammatical sentences, the percentage of complete and extensive sentences, the total percentage of compound and complex sentences, the average number of dependent clauses in sentence, the average number of speech transformation, percentage of pseudo-words, percentage of semi-fabricated words, percentage of semi-semantic lexicons, percentage of pseudo- phonetic words, the mean of unnecessary repetition of lexicons, percentage of pseudo-grammatical, percentage of non-grammatical, percentage of word finding difficulties, speech speed and the number of pauses inside phrasal.

### RESULTS AND DISCUSSION

#### Results:

In this study, a summary of the performance of each participant has been indicated respectively. Since sampling was used in this study, the samples were matched based on chronological age. Therefore, distribution scores of this research is not of normal distribution. Further, data related to azdemodny was considered through each direct examination and their collected completed research questionnaires. After direct examination of each sample by researchers and examination of the condition of head and oral facial expression organs and next voice recording, their speech samples are extracted and the relation of head and oral facial expression organs movements with syntactic production ability conditions were investigated.

Table 1. The comparison of cerebral palsy children total numbers of speech words with normal children (Tehran 2013)

Col.	Brain Impaired Children	Rank	Normal Children	Rank
1	4.56	8	5	12
2	4.55	7	4.98	11
3	4.06	4	4.70	10
4	3.98	3	4.65	9
5	3.54	2	4.29	6
6	3.43	1	4.25	5

Table 2. The comparison of MLU between cerebral palsy brain impaired children and normal children (Tehran 2013)

Col.	Brain Impaired Children	Rank	Normal Children	Rank
1	3.98	9	4.50	12
2	3.33	6	4.29	11
3	3.31	5	4.13	10
4	3.24	4	3.65	8
5	2.93	2	3.44	7
6	2.5	1	3.11	3

Table 3. The comparison of 6 of the longest average length of utterances between brain impaired children and normal children (Tehran 2013)

Col.	Brain Impaired Children	Rank	Normal Children	Rank
1	6	5	9	10
2	5.6	4	8.4	9
3	5	2	8.2	8
4	4	1	7	7
5	4	1	604	6
6	4	1	5.3	3

Table 4. The comparison of the ratio to the type and number of words between brain impaired children and normal children (Tehran 2013)

Col.	Brain Impaired Children	Rank	Normal Children	Rank
1	0.5	11	0.49	10
2	0.49	10	0.47	9
3	0.44	8	0.42	7
4	0.41	6	0.36	4

5	0.37	5	0.35	3
6	0.35	2	0.17	1

Table 5. Significant difference study of syntactic factors discrepancies in the comparison of Tehran brain impaired children or normal children by U-Man Test (2013)

Syntactic Factors	Brain Impaired Children Compared	With normal children	Brain Impaired Children	Normal Children
The total number of lexicons	+ Normal	1	-	+
MLU	+ Normal		-	+
The average length of 5 longest speech	+ Normal		-	+
Ratio of type to number of words	+ Normal		-	-
The average number of verbs in speech	+ Normal		-	+
Percentage of grammatical sentences	+ Normal		-	+
Percentage of complete and extensive sentences	+ Normal		-	+
Percentage of compound and complex sentences	+ Normal		-	+
The mean number of related clauses in sentence	-		-	-

1 the sign of + means there is a discrepancy significance between the two groups and – means no discrepancy significance between the two groups. Normal means the scores of normal individual was higher.

The average number of transformation in speech	+ Normal		-	+
The number of interphase pause	+		+	-
Percentage of pseudo-words	-		-	-
Percentage of semi phonetic words	-		-	-
Percentage of semi semantic words	-		-	-
Percentage of semi-fabricated words	-		-	-
Percentage of semi grammatical	-		-	-
Percentage of non-grammatical	-		-	-
Average unnecessary repetitions in speech	+		+	-
Percentage of difficulty in finding words	-		-	-
Speech rate	+ Normal		-	+

**Discussion and Conclusion:**

It can generally be concluded that in this research brain impaired children are lower in syntactic complexity index, fluency, speech rate and speech function than normal ones.

In other words, in this research normal children utterances was more complex and fluent with better functioning and speed in comparison with brain impaired children. One of the reasons may be speech discrepancy of head and oral facial organs functioning although this was not observed in accessible lexicon indices and speech accuracy discrepancy among the two groups.

The results in this research truly indicate that brain impaired children by the effect of head and oral-facial organs disorders are lower in most features in ratio to normal children. That is to say that brain damaged children utterances due to existing disorders and abnormal functioning of head and oral facial organs disorder are lower in quality of speech to normal children. The obtain results can to some extent be conforming Hassanpour in 2002 and Karimzadeh and Karzati in 2013 for the discussion of speech improvement.

**General Conclusion:**

Since speech and language disorders in brain cerebral palsy children causes a delay and bluntness to begin and develop language, this group in ratio to normal children and to the reason of effected brain impaired language disorders, these children usually face wide educational and social restrictions and most cannot easily appear among peers in the same age group and follow normally the educational and recreational activities. Consequently, familiarity and control of the trunk, neck, head and oral facial organs play a significant role in speech mechanism; an assistance to physicians, physiotherapists, occupational therapists, speech therapists, language speech pathologists and parents to improve brain damaged children in utterances and resolve social issues of the kind. Hence, the present investigation is applicable and useful for speech and occupational therapists and speech pathologists - particularly in the realms of children’s language learning. Most importantly parents, by acquiring needed awareness can become familiar with child utterances issues and accurately appropriately treat. In contemporary world, brain damaged children are looked upon as a typical section in the society and in most countries considerable investment in terms of their future education and vocational professional education are reckoned. Contribution to speech and language development, to improve children communication is a primary concern in the course of life promotion for this section of the society. In this research it is endeavoured to study and examine the syntactic features of brain impaired

children to increase awareness about language processing in the brain to this way take measures even meagre to identify linguistic issues of community individuals to assist them further.

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