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Comparison of Markedness of Lexical Semantic Abilities in Normal Children and Children with Hearing Impairment

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What Is Markedness?

Any patterns that are present but uncommon in the languages of the world (or in a specific language) are termed as markedness features (Veeman, 1998). The notion of markedness is applied to the semantics of a particular language: using the term unmarked refers to the more general or expected element of a pair of opposites. In its most general sense, this distinction refers to the presence versus the absence of a particular linguistic feature (Crystal, 1980). A marked form is a non-basic or less-natural form. An unmarked form is a basic, default form. For example, lion is the unmarked choice of English – it could refer to a male or female lion. But lioness is marked because it can only refer to females.

Semantics (Greek *semantikos*, giving signs, significant, symptomatic, from *sema*, sign) refers to the aspects of meaning that are expressed in a language, code, or other form of representation. Lexical semantics is a subfield of linguistics. It is the study of how and what the words of a language denote (Pustejovsky, 1995). Words may either be taken to denote things in the world, or concepts, depending on the particular approach to lexical semantics.

Markedness Differential Hypothesis (MDH)

After the advent of generative linguistic theory in the 1960s and its subsequent expansion into areas such as second language acquisition (e.g. White 1982), the concept was incorporated into the field with convincing predictive and explanatory powers in the form of Eckman's (1977) Markedness Differential Hypothesis (MDH): "The areas of difficulty that a language learner will have can be predicted on the basis of a systematic comparison of the grammars of the native language, the target language and the markedness relations stated in universal grammar".

Since then, the notion of markedness has been extensively used as a tool to explain L2 acquisition phenomena (Yavaş 2006, Yavaş and Barlow 2006, Cardoso 2007). More recently, there has been a major shift in linguistics with the emergence of usage-based approaches that support the notion that linguistic representation (i.e., competence, in generative terms) is mediated by the frequency with which certain linguistic structures occur in the language (Gass 1997, Bybee 2001, Demuth 2001).

An Important Concept

Markedness is one of the most widely, and wildly, used terms in linguistics, and its senses range from a very narrow, structure-based notion of relative complexity to an extremely open sense of "unusual" or "unnaturalness."

A recent definition of markedness located somewhere in the middle of the notional continuum is put forward by Givón (1995), who writes that "three main criteria can be used to distinguish the marked from the unmarked category in a binary grammatical contrast: first one being structural complexity (the marked structure tends to be more complex than the corresponding unmarked one), frequency distribution **(**the marked category tends to be less frequent, thus cognitively more salient, than the corresponding unmarked category), cognitive complexity (the marked category tends to be cognitively more complex—in terms of mental effort, attention demands or processing time—than the unmarked one)" (Givón ,1995). For instance, (Givón, 1991) claims that passive structures are more difficult to process than active structures.

According to Chomsky (1981), the theory of markedness "imposes a preference structure on the parameters of UG (Universal Grammar). In the absence of evidence to the contrary, unmarked options are selected". In other words, "the unmarked case of any parameter represents the initial hypothesis that children make about the language to be acquired" (Kean 1992; Haider 1993). In Chomsky & Halle (1968), the idea was proposed that markedness values are not just present in language – particular mental grammars, but are in some way defined at the level of the innate cognitive code for language (Universal Grammar or UG).

Concept of Markedness and the Concept of Universals

The concept of markedness follows naturally from the concept of universals. Structures that are consistent with universals are considered unmarked, and those that are inconsistent with universals are considered marked. The markedness theory implies that the unmarked members should be easier to process, recall and learn and hence, acquired early in childhood.

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Paucity of Studies on Markedness Abilities in Both Western and Indian Contexts

Therefore, markedness abilities give us an overview of semantic maturity of children in both normal children as well as children with language disorders. But there is a dearth of studies on markedness abilities in children in both Western and Indian context in normal milieu and also there are no studies available on language disordered children. Therefore, there is a strong need to study the development of these markedness abilities in normal children and in children with HI.

Aim of the study

- To study whether the so called marked words (semantically complex words) were present/absent in the clinical population of HI or not.
- To compare the vocabulary of marked words in HI with the normal subjects.

Method

Subjects: A total of 95 children comprising of both normal children and children with HI were taken for this study. 75 normal children in the age range of 5 – 10 years were grouped into five groups with age interval of one year with each group consisting of 15 children. 20 children with HI in the age range of 5 – 10 years were categorized into five groups based on their chronological age with each group consisting of 4 children.

All the normal children were native speakers of Kannada and had English as their medium of instruction in school. Only children with congenital severe to profound sensorineural hearing loss (hearing loss above 70dBHL) and who were native speakers of Kannada were taken as second group.

Subject selection criteria:

- Children of all age groups must have Kannada as mother tongue.
- Use of Kannada extensively at home and other ambient.
- Degree of hearing impairment ranging from severe to profound in children with sensori-neural type of hearing impairment.
- These subjects were categorized for their socio status based on Socio Economic Status scale (Venkatesan, 2004).

Material

The material consisted of a total of 210 stimuli which were printed on white cards (4 x 6''). The 210 stimuli were divided into four subsections like present tense, past tense, nouns and adjectives/adverbs. All the responses were recorded on a response sheet and also recorded on a tape recorder for detailed analysis later. All the stimuli in the list had a semantically marked form and its corresponding unmarked form. Most frequent nouns, verbs, adjectives and adverbs were selected in proportion to their frequency of occurrence in consultation with two linguists and two speech language pathologists.

Procedure: Test administration included the presentation of the picture stimuli individually for all the subjects. The oral responses on the task of naming were recorded using a suitable tape recorder for the purpose of transcription (IPA). A score of zero was given for each incorrect response and a score of one was given to each correct response and the total scores were calculated for each subsection and also overall. The results were analyzed qualitatively and quantitatively.

Results and Discussion

The data was analysed and interpreted by using SPSS 10.0 software. The mean and standard deviation of each age group from the age range of 5 to 10 years were calculated for both normal children and children with hearing impairment.

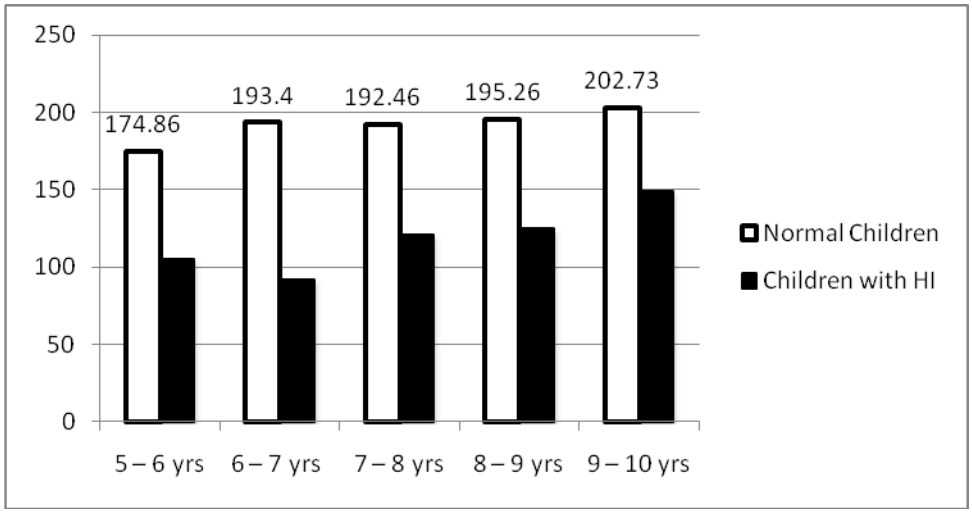
The performance of the normal children across the age groups was analysed. Children of age 5 to 6 years obtained a mean score of 174.86 with standard deviation of 13.09. For the age range of 6 to 7 years had a mean score of 193.40 with the standard deviation of 30.06, for 7 to 8 years had a mean score of 192.46 with the standard deviation 5.11, for 8 to 9 years, the mean score was 195.26 with standard deviation of 3.411 and the age group of 9 to 10 years had a mean score of 202.73 with the standard deviation of 4.18. The overall result shows an increase in mean scores as the age increases.

Table 1: Mean and S.D. of normal children and of children with HI.

Age Range	Normal children		Children with HI	
	Mean	S.D	Mean	S.D
5 – 6 years	174.86	13.09	105.00	21.32
6 – 7 years	193.40	30.06	92.00	33.11
7 – 8 years	192.46	5.11	120.75	38.98
8 – 9 years	195.26	3.411	125.25	15.28
9 – 10 years	202.73	4.18	148.75	23.66

The performance of the hearing impaired children across the age range of 5 to 10 years was analyzed. Children of age 5 to 6 years had a mean score of 105.00 with standard deviation of 21.32. For the age range of 6 to 7 years the mean score obtained was 92.00 with standard deviation of 33.11, children in the age range of 7 to 8 years had a mean score of 120.75 with the standard deviation 38.98, for 8 to 9 years, mean score was 125.25 with standard deviation of 15.28 and the children in the age group of 9 to 10 years had a mean score of 148.75 with the standard deviation of 23.66. The overall result shows an increase in mean scores as the age increases. The results are shown in Figure 1. .

Figure 1: Graph representing mean values of normal children and children with HI.



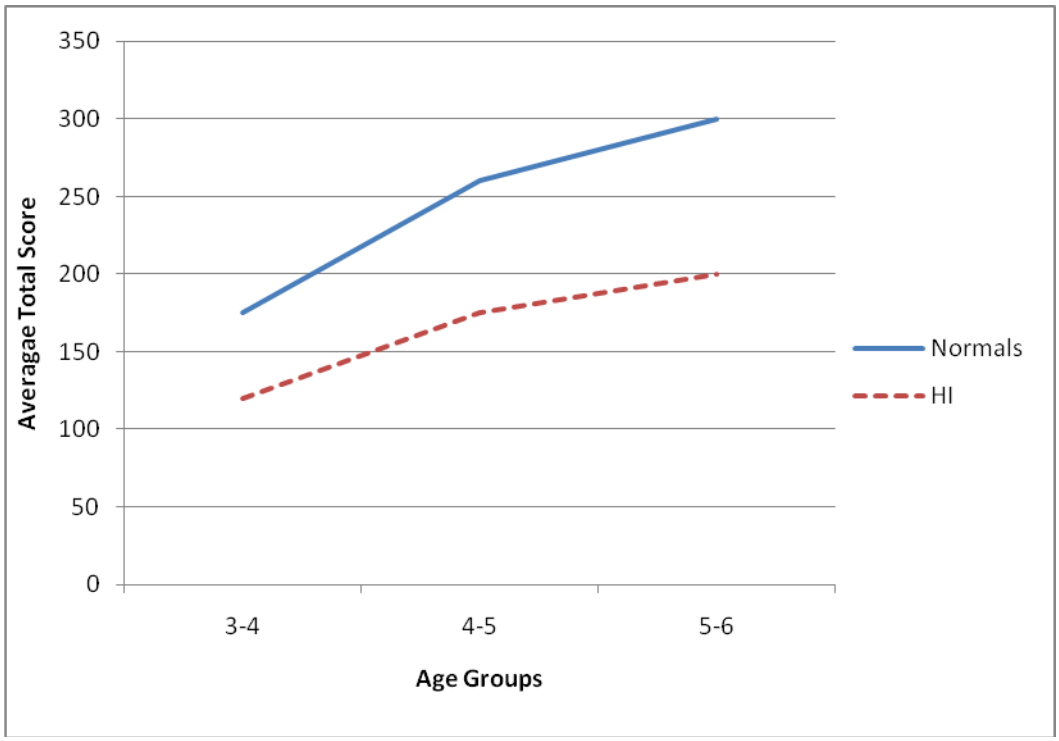
Independent sample t- test was done to compare the performance of two groups across each age range separately. Results show that there is a significant difference between performance of normal children and children with HI across all age groups as shown in table 2.

Table 2: Results of Independent Samples t – Test.

Age range	t	df	Sig. (2-tailed)
5 – 6 years	6.246	3.626	.005
6 – 7 years	5.545	4.418	.004
7 – 8 years	3.671	3.028	.034
8 – 9 years	9.102	3.080	.003
9 – 10 years	4.543	3.050	.019

Comparisons of normal and clinical hearing impaired children are given based on their mental age. For comparison within the mental age, three age groups were considered 3 to 4 years, 4to 5 years and 5 to 6 years. Normal children within the age group of 3 to 6 years were taken for comparison. Mann-Whitney Test was used to compare between each groups, (5% level of significance). Each age group of 3-4, 4-5 and 5-6 years of typically developing children were compared with HI. The results are shown in Figure 2.

Figure 2: Comparison of performance of normal children and hearing impaired based on the mental age.



This study revealed a significant difference in markedness abilities between normal children and in children with HI. As the results suggests, normal children of 5 to 10 years age did not achieve mastery of markedness abilities and they exhibited difficulties in markedness abilities in spite of good language exposure. Probably this could be attributed to lesser use of marked words in the common every day, colloquial context. The performance of children with HI was very poor when compared to normal children. This can be attributed to the overall inferior language abilities that these children have. For markedness abilities in lexical semantics, knowledge of semantics and the vocabulary is very much required. It is alarming that HI children lag behind in lexical semantics in spite of the fact that the vocabulary and semantics are the most easily and earlier chronologically acquired with respect to language development. The same therefore, needs to be focused in therapy.

Conclusion

The developmental trend was seen in both the normal as well as HI groups, confirming the fact that markedness occurs with growth and development of language. The normal children also showed deficits indicating deficits in input and usage in that, marked words are less used in common everyday colloquial context. The extremely poor performance of HI children on marked words indicates greater emphasis that is needed on enhancement of vocabulary and semantics during therapeutic intervention. Future research is needed in terms of finding the markedness abilities in different clinical populations with communication disorders, various linguistic levels

viz., phonological, morphological, syntactic and pragmatic and also markedness abilities needs to be studied in different Indian languages in both normal and clinical population.

Implications of the Study

It is hoped that the present study will add to the clinical-research field of the SLP professionals in the following ways:

- Establishing the clinical relevance of Markedness theory.
- Contributing to the knowledge and understanding of linguistic behavior.
- The results of the present study can be utilized :-
  (a) To develop diagnostic test materials for DSL with HI children.
  (b) To prepare therapy materials to teach lexical items in a hierarchical manner starting from the unmarked ones to the marked ones.
  (c) To compare the sequence of typical lexical development in terms of marked/unmarked semantic features, versus the loss of lexical abilities in adulthood disorders like aphasia.

This study gives an idea about the development of markedness abilities in normal children and in children with HI. These markedness abilities give an overview of development of semantics in these children. Therefore, markedness abilities can be used as an assessment procedure for semantic development in children and same hierarchy of unmarked to marked features can be used in therapeutic management of children with semantic deficits.

Scope for Further Research

Based on the present study, further investigations may be carried out for:

- different clinical populations with communication disorders.
- various linguistic levels viz., phonological, morphological, syntactic and pragmatic.
- different Indian languages

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