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A STUDY OF SYNTAX DEVELOPMENT IN HINDI SPEAKING CHILDREN USING STORY-TELLING TECHNIQUE

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ABSTRACT

The present study was designed to examine the development of syntax in children, speaking Hindi language. The technique used to study was story-telling method. A major question was that, how and when a baby becomes competent enough to use syntax properly in language. Three dependent measures-different type of words, biconditional sentences, themes of stories were studied under varying conditions of age, family type and schooling. 120 children were randomly assigned to 12 conditions, each having 5 boys and 5 girls. Principal findings were – Schooling and family type did not show any impact on the production rate of words and sentences, amount of production of words and sentence increased significantly with age, a hierarchical importance in the production of words and sentences was observed and preference to certain sentences and themes of stories was also observed with increasing age. Moreover children's speech became more coherent and structured with increasing age.

Key words : syntax, language, themes, biconditional, family type.

Syntax is an important aspect of language development, both, because of its role in determining the relationship between sound patterns and meanings and also, because certain aspects of the creative use of language can best be accounted for in terms of syntax. Each language has specific syntactic rules for expressing grammatical relations, such as negation,

interrogation, possession and juxtaposition of subject and object. Thus, syntax describes the structure of a language, the underlying rules that specify the order and the function of words in a sentence. The order and organization among words denotes the syntactic system. Linguists have demonstrated the complexity of the syntactic system underlying languages. Psychologists are interested mainly in determining the role of difficulty level of various syntactic rules in language learning. Although very young kids learn how to speak at different rates but almost all of them learn how to form words and sentences in a similar order. They begin with single syllable and learn the complex forms of tense. So, in just a few years, a child moves ahead from no language at all to forming cohesive sentences following grammatical rules. This process is called syntactic development. Children show considerable uniformity in their vocabulary, but early words are highly selective. It is a common observation that child initially speaks one word and then produces simplex two-word sentences, which are not random but are in order. By application of conjunction of elements, the child can create declarative, negative, imperative and question sentences. As the subject + predicate construction begins to be used more frequently, the negative and question elements are embedded in this construction. The child acquires the structures and then applies certain operations to these structures. In this process, the child tries to protect the subject + predicate construction of sentences. Brown and Hanlon (1970) studied the development of eight different sentence structures. They found the earliest one to be produced was the transformationally simple declarative sentence (e.g. 'We had ball'). The next to appear were questions, then negative and then the so called 'truncated active' sentences (we did). Later, the children learned to combine sentences. This order of acquisition was interpreted by these authors, in terms of children learning different transformation rules. Chomsky (1957) has developed a model for describing the rules or categories from which the child may generate sentence in his language. This generative model considers grammar as having a tripartite structure – a phrase structure level, transformational level and a morphology level. Each of the three level of grammar has a sequence of rules which generate the form of sentence within the level. The syntactic structures described at the phrase structure level are parts of speech used to formulate simple active – declarative sentence of the type 'I play'. Chomsky calls such sentences as terminal strings or sentences in a transitional state. Such sentences form the basis of all other sentences. Within this framework, it was proposed that such sentences should occur in children's speech firstly and then other forms of sentences would occur. However, varying types of sentences tend to occur even in very early speech and there is no preferential tendency that can be demonstrated (de Villers and de Villers, 1978).

Syntactic forms of Sentences

A variety of studies have been conducted on the development of various forms of sentences - affirmative, negative, interrogative etc. The development of negation and question occurs mostly during the pre- school years. By 3 years of age, children begin to use complex sentences through the use of relative clauses. Although the progress observed is slow yet it is in a systematic way (Slobin and Welsh, 1973). It has also been found that children have little difficulty in understanding active sentences as compared to passive sentences (Fraser, Bellvigi & Brown, 1963). Young children have been observed placing subject before the verb (Slobin, 1973) Bever (1970) showed that children between the ages of 2-2½ years, performed only slightly better than chance on either active or passive sentences suggesting that they were not yet using word order as a basis for inferring underlying sentence structures. After 2-2½ years of age children showed improving performance on active sentences but not on passive ones which indicates children as interpreting Noun – Verb – Noun order as subject – verb- object. This shows that at this age, the canonical relationship between order and structure does not hold. After the age of 3-3½ years, performance on passives begin to improve. Similar results for active and passive sentences have been obtained by de Villers and de Villers (1973) and Maratsos (1974). Koff, Kramer & Fowles (1980) studied the effects of event probability and animateness on children's comprehension of active and passive sentences and suggested that animateness might be considered as an important variable in children's early comprehension of speech. The ability to process syntactic and semantic elements is not fully developed in children until they reach in the age group of 11- 12 years. (Bader Zynda, Thompson & Pearce, 1981).

Hierarchical Importance of Words in Language Development

Nelson (1973) pointed out that early words are highly selective in a child's vocabulary. Longitudinal studies reveal the fact that young children often omit words or word endings (of, on, the, etc). The words they do speak are the most important meaningful words called 'content' words. The resulting speech is called telegraphic. The child usually orders these words in a systematic way. Placing subject before the verb has been found in several countries for children while learning their native language (Slobin, 1973). In a number of studies it was found that comprehension of word order preceded its production (Fraser et. al. 1963; Huttenlocher, 1974; Lovell & Dixon, 1967). However in subsequent studies, production of word order was found to precede comprehension. Response latency can be

considered as a valid measure of comprehension and partial comprehension precedes production (Roberts, 1983) Glowalla (1983) has found effects of concreteness to be strongly dependent on age level, in selection of words in children's speech.

Schooling and Cognitive Development

Cognitive changes frequently observed to occur over the school years may be due to the experience in school rather than to maturational changes (Brown, 1977 ; Cole & Scribner, 1975 ; Laboratory of comparative Human cognition, 1979) controlling for the effect of age. A number of cross cultural studies have demonstrated that non-schooled children generally have less success than schooled subjects on memory tests and are unlikely to engage spontaneously in strategies which provide greater organization for the unrelated items in the memory test (Cole, Gay, Glick & Sharp, 1971 ; Cole & Scribner, 1977; Scribner, 1974; Sharp et al, 1979; Stevenson, et.al. 1978; Wagner, 1978). Since differences do not consistently appear until the schooled sample has received several years of schooling, it seems that some experiences at school, influence learning of organizational strategies and memory test performance (Cole, et. al, 1971). Rogoff (1981) suggested that the relationship between schooling and memory test performance is not simply due to family background selection bias but also the mechanism of schooling effects as well as the generality of schooling effects towards cognitive activities occurring outside of tests is also important.

Story Competence

Much of children's entertainment comes from stories. Bower (1976) suggests that stories can provide a 'royal road' to the mind. In Indian culture, an average 3 years old is competent enough to produce a story. Also, the child at 3 years of age can distinguish a story from a non- story (Leondar, 1977). Research on story comprehension has traditionally been of three types – descriptive accounts of story telling capacity (Ames, 1966; Pitcher & Prelinger, 1963), stories as clues to personality and motivation; stories connected to some aspect of children's mental or problem solving capacities (Fitshenry–Coor, 1977, Kohelberg, 1969; Piaget, 1963). Researchers have also investigated the development of story-telling capacities (Abrams & Sutton–smith, 1977; Botvin & Sutton-smith, 1977; Gardener, 1973; John Horner & Berney, 1970; Leondar, 1977; Maranda & Maranda, 1970). Collecting large samples of children's stories, usually obtained under naturalistic conditions, such investigators have

proposed stages of literary development, which incorporate aspects of standard literary analysis as well as child's level of conceptual developmental. Maranda & Maranda (1970) have identified four stages –

- i. primitive level where children make no effort to mediate the conflict or threat posed in a story.
- ii. second level, where the attempt to mediate the conflict proves unsuccessful
- iii. third level, where the protagonist is now able to negotiate the threat
- iv. fourth level, highest stage where the initial situation can be so transformed that the threat is permanently nullified, and the protagonist accordingly gains in status.

Magee & Sutton-smith (1983) studied the art of story telling in young children and tried to investigate about how they learn it. They noted various shifts in the adult and child responses that indicated a possible developmental pattern which was affected by the type of reading material as well as the everyday circumstances in which the story sessions were set. The use of adult feedback and interested listening is discussed as ways in which to foster the shift of focus and creative expression to the child.

Rationale

Numerous studies reveal that schooling and family type are important variables in the organizational and memory test performance of children, so these two variables were taken under consideration. Therefore, age, schooling and family type were the three independent measures used to study various forms of words, sentences and themes through story telling technique. Story- telling technique was chosen for this study because in Indian culture, an average 3 year old is competent enough to produce a story. Wade (1983) concluded that story is central to the process of learning and has the coherence that many of the other traditional language activities lack. Within this framework, it was thought to be interesting to investigate that when a child becomes competent enough to use proper syntax in Hindi language and what is its developmental trend from 2-4½ of age.

Objectives

Evidence was sought pertinent to three questions –

1. Do children below 5 years of age produce varying forms of words and sentences in varying amount and what is the form and amount of words and sentences produced by children aged between 2-4½ years of age ?
2. Does amount of production of words and sentences increase significantly from 2 years to 4½ years ?
3. Do background variable like schooling and family type (i.e. joint & nuclear) have any impact on the production rate for varying types of words and sentences during the period of 2 years upto 4½ years of age ?

Methodology

Design – A 3 x 2 x 2 factorial design was used. The production of various types of words (noun, pronoun, verb, adverb, adjective); various types of biconditional sentences (simple-complex, affirmative – negative, coherent- incoherent, active passive) and various themes of the stories (king- queen, animals, modern comics, great personalities), were the dependent measures studied under varying conditions of age (2–2½, 3–3½, 4–4½ years), family type (joint & nuclear) and schooling (schooled, non schooled) . With multiple combination of the varying levels of these three factors, the study thus involved 12 conditions in total.

Participants - Ten children were randomly assigned to each of the 12 conditions, out of which 5 were boys and 5 were girls. They all were native speakers of Hindi language. Thus in total, there were 120 participants.

Procedure – The study was conducted in one session. The participants were approached and contacted individually at their homes or school-settings, depending on their availability. First of all, a rapport was established with each of the participant. Then a format containing the questions regarding the participant's name, father's name, age, girl/ boy, schooled/ non-schooled, number of members in the family, mother tongue and their address was filled up by asking these questions to participants and their parents or guardians. This was helpful in making a favorable atmosphere for carrying out the study. Since participants of 2- 3 years of age required much supportive atmosphere for the study than the elder ones, so the time to establish rapport varied from one participant to the other. Also, the ability of the participants to comprehend the verbal instructions given to them also varied. Each participant was instructed to narrate any story, short or long on any theme they liked to produce well in its best form or they have learned or listened before from any source. Some participants narrated

the story at once, and some needed verbal incentive to do so. Each story short or long narrated by participants was written word by word in its original form of production. Participants who hesitated much, were given toffees as incentive. Some participants, particularly of lower age group needed prompting by the investigator or their parents or teachers in completing their stories. Thus, 120 produced version of stories, served as raw data in the present study which was further subjected to the analysis of various linguistic elements of the story.

Analysis

The raw data obtained was subjected to mainly three types of analysis- forms of sentences, forms of words and types of theme. Each story was analyzed by counting the total number of sentences and words produced. For each story, on the basis of content, a suitable title was imposed by the investigator. The break- up of total number of sentences of each story into four different sets of biconditional sentence (simplex- complex, affirmative – negative, coherent- incoherent, active- passive) was the basis of analysis of sentential form. A mean proportion score in each condition was calculated for each type of biconditional sentence. For this, the number of two types of sentences of each set of biconditional sentence was counted separately which was converted into proportion score by dividing the number of each type of a single set of biconditional sentence by the total number of sentences of that particular set, which was equivalent to the total number of sentences of a story. Thus, mean proportion scores based on 10 participants in each of the conditions were used for the further analysis of data.

Keeping in view the form of sentences, the aforesaid kind of analysis was made with four combinations of sentences (active- affirmative, active – negative, passive – affirmative and passive – negative), considering only two sets of biconditional sentences (active – passive and affirmative- negative). The proportion score for each story was obtained by dividing the number of each sentence combination by the total number of sentences of four combinations of sentences which was equivalent to the total number of sentences of a story.

To analyse the form of words, the total number of words belonging to each of the five different parts of speech (Noun, Pronoun, Verb, Adverb, Adjective) was counted. Since, only five important forms of words were taken under consideration, only mean scores were calculated for each part of speech.

A qualitative analysis was done by analyzing the theme of various stories. In general, stories had three themes- king and queen, animals and birds, modern comics and great personalities. Thus, simply the number of stories falling under each of the three general categories of theme was used for analysis.

Results

Table I presents the mean proportion scores of biconditional sentences produced by schooled and non-schooled participants of different age groups belonging to joint and nuclear families.

A close perusal of the table reveals that the effect of schooling and family type on the production of various types of sentences was not found to be significant. Even as young as 2 – 2½ years old, children produced various types of sentences. There was much superiority observed in the production of simple, affirmative, coherent and active sentences to complex, negative, incoherent and passive sentences. The difference between the proportion score, for these two sets of sentence was very high. Age differences were evident only in the production of few types of sentences. Simple sentences slightly decreased with increasing age. Affirmative, coherent and active sentences were produced constantly at all ages. Though the amount of production of complex, negative, incoherent and passive sentences were found to be very low at all the age levels, yet slightly decreased in their amount of production with increasing age.

Table II presents a break up of the data shown in Table I.

It is evident from the table that the production of active affirmative sentences was found to be the greatest, (.95, .99, .98, .91, .94, .98, .98, .97, .96, .97, .96, .94) under all conditions of age, schooling and family type. Not a single case of passive negative sentences could be observed. In between the two, the amount of the production occurred for active – negative (.04, .01, .07, .04, .008, .012 etc.) and passive affirmative sentences. (.008, .008, .005, .002). As compared to the active affirmative sentences, the production of the active negative sentences is very low while the production of passive affirmative sentences too occurred in a very few cases. The differential amount of production for varying types of sentences occur with almost equal robustness at varying levels of age, schooling and family type.

Table III shows mean number of the differential parts of speech produced by the participants of varying groups.

It is apparent from the table that mean numbers of the production for all the five parts of speech (Noun, Pronoun, Verb, Adverb, Adjective) increases with increasing age from 2 years upto 4 ½ years although, the rate of increment is not very high. A hierarchy was seen in the amount produced for varying parts of speech. Greatest number of production occurred for Verb and Noun word units (10.7 and 10.0) followed by Pronoun (3.5), Adjective (3.35) and Adverb (2.34). Almost no impact of schooling and family type was observed on the production of different parts of speech.

Table IV presents mean values for the themes used for production of the stories.

It is clear from the table that maximum number of themes of stories were based on animals and birds (Mean = 59.2), followed by the theme of modern comics and great personalities (Mean = 25.8) and lastly king-queen theme (Mean = 15). Specifically, age had a significant impact on the themes of stories, where the theme of modern comics and great personalities increased with increasing age while the theme of animals and birds as well as king-queen decreased with increasing age.

Discussion

Results clearly indicate that there is almost no impact of schooling and family type on the production of various types of biconditional sentences as well as on the production of different parts of speech (words). One possible explanation of such results can be that during the period of babyhood (2–4½ years), the canvas of experience remains much short and restricted, that participants as young as 2–4½ years old hardly use their experience distinguishable with varying types of family setting and schooling condition. It is very natural that the overall amount of the production of words and sentences increases with increasing experience by age. Thus, the amount of production of various types of words and sentences can easily be assumed to occur in proportion to the total amount of production of words and sentences. With this assumption, proportion scores were used to indicate the amount of production of each type of words and sentences. It is apparent from the results that the proportion of production scores for varying type of word and sentences do not increase significantly.

A hierarchical importance in production of varying types of words and sentential forms was observed. Active – affirmative sentences were produced in greatest amount confirming the

model of Chomsky. The superiority of sentences in active voice in production, learning and memory task has been observed in numerous studies (Frasen Bellvigi & Brown, 1963; Bever, 1970; de Villers & de Villers, 1973; Marastsos, 1974; Koff, Kramer and Fowles, 1980).

With regards to production of Words, Nouns and Verbs were produced in greatest amount followed by Pronouns, Adjectives and Adverbs. This observation supports the findings of Nelson (1973) and Slobin (1973) in which it has been shown that during 2 – 3 years of age, child becomes capable of producing simple sentences with subject + verb + predicate relation. It is quite obvious that subject and predicate words are mostly Noun words.

A qualitative analysis of the themes of stories suggests that children have a natural inclination towards animals and birds and feel much fun and adventure in talking about them. So, greatest production was related with this theme. Stories related to modern comics and great personalities increased with increasing age which shows that as the child grows older, experience with book is helpful in developing more and more coherent and structural speech. Stories of king queen theme occurred lowest because children are not use to listen stories of king and queen by their family members due to lack of time and interest. As the child grows older, interest in books leads to lack of interest in animals, birds and king queen descriptions. Thus such stories were found to decrease in number with increasing age.

Overall, results obtained in the present study suggest that with increasing age, the child's speech becomes more structured, coherent and complex. Babies even as young as 2-4½ years old show preferences for certain types of words and sentences.

Conclusions

1. Schooling and family type had no significant impact on the production rate of varying types of words and sentences from 2–4½ years of age.
2. Amount of production of various words and sentences increased significantly with increasing age.
3. A hierarchical importance in the production of words and sentences was seen. Active-affirmative, Noun words and Verbs dominated the production.
4. Babies as young as 2–4½ years of age showed preferences to certain words and sentences.
5. Though maximum stories had the theme of animals and birds, but 4–4½ years old children also narrated stories from modern comics and of great personalities. This shows

that with increasing age, a child's speech becomes more coherent and structured due to exposure to books.

Limitations & suggestions

In the present study, individual personal experience of a child may have a lasting effect on story narration, it was not possible to control this variable. A presumption was made that the child rearing practices in Indian culture are more or less the same, but they may vary. Intelligence level of the child may effect his story comprehension, retention and recall ability, but, it could not be tested. Moreover, distractability and hyperactivity in children may interfere with the development of syntax and semantics, but due to lack of time, such variables could not be taken under consideration. These points seem to be the limitation of this study.

Each child listens a story in Indian culture. But, who tells the story, how much the child is friendly and attached to that person, also has an impact on story narration. Parental relations in a family, also have a great impact on syntax development of the child. Such variables could not be studied, due to lack of facilities. Such issues also seem to be the limitation of this study.

Although the acquisition of syntax takes place over a multi year period, there is wide spread agreement that the basic sentence-formation system is essentially in place, by age four. Children's acquisition of syntax, although a complex phenomenon, rightly occupies a central place in linguistics and cognitive science. The years ahead holds the promise of further progress, as research is extended to an even broader range of languages and phenomenon.

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Table 1 : Mean proportion scores of produced biconditional sentences by various age groups of participants

Biconditional sentences	2 – 2½ yrs.					3 – 3½yrs.						
	Nuclear		Joint		Mean	Nuclear		Joint		Mean	Nuclear	
	Schooled	Non schooled	Schooled	Non schooled		Schooled	Non schooled	Schooled	Non schooled		Schooled	Non schooled
Simple	.934	.937	.831	.937	.89	.869	.924	.942	.883	.90	.822	.797
Complex	.065	.06	.145	.06	.09	.127	.073	.056	.115	.09	.18	.158
Affirmative	.935	.99	.983	.925	.96	.942	.992	.994	.985	.99	.948	.974
Negative	.045	.01	.018	.075	.28	.056	.008	.006	.014	.02	.06	.024
Coherent	.983	.99	1	.992	.99	.986	.986	.981	.976	.98	1	1
Incoherent	.017	.01	0	.008	.009	.014	.014	.018	.014	.015	0	0
Active	1	.988	1	.992	.99	.992	1	1	.99	.99	.929	1
Passive	0	.011	0	.008	.005	.007	0	0	.01	.004	.002	0

Table 2 : Mean proportion scores for four sentence combinations of various groups of participants

Sentence combinations	2 – 2½ yrs.				3 – 3½ yrs.				
	Nuclear		Joint		Nuclear		Joint		
	Schooled	Non schooled	Schooled	Non schooled	Schooled	Non schooled	Schooled	Non schooled	Schooled
Active-affirmative	.954	.99	.982	.917	.942	.986	.988	.975	.961
Active-negative	.045	.01	.018	.075	.049	.008	.012	.014	.037
Passive-affirmative	0	0	0	.008	.008	.005	0	.01	0
Passive-negative	0	0	0	0	0	0	0	0	0

Table 3 : Mean number of production for different parts-of-speech of participants belonging to various age groups

Parts of Speech	2 – 2½ yrs.					3 – 3½ yrs.						
	Nuclear		Joint		Mean	Nuclear		Joint		Mean	Nuclear	
	Schooled	Non schooled	Schooled	Non schooled		Schooled	Non schooled	Schooled	Non schooled		Schooled	Non schooled
Noun	7.4	7.5	8.5	7.1	7.6	8.1	13.6	8.7	10.4	10.2	1.9	12.2
Pronoun	2.2	2.0	2.7	1.5	2.1	3.8	2.5	1.4	3.6	2.8	8.5	4.8
Verb	5.0	7.2	5.0	5.6	5.7	0.2	13.3	7.6	13.0	8.5	8.4	13.8
Adjective	1.2	1.9	1.6	1.5	1.5	3.3	3.2	1.4	3.6	2.8	8.9	4.4
Adverb	1.8	1.0	1.0	1.1	1.23	2.2	2.5	1.0	2.4	2.03	5.8	3.1
Mean	3.5	3.9	3.8	3.4		5.5	7.02	4.02	6.6		10.7	7.7

Table 4 : Mean Values of themes of different stories in various age groups of participants

Type of Themes	2 – 2½ yrs.					3 – 3½ yrs.						
	Nuclear		Joint		Mean	Nuclear		Joint		Mean	Nuclear	
	Schooled	Non schooled	Schooled	Non schooled		Schooled	Non schooled	Schooled	Non schooled		Schooled	Non schooled
King-queen	10	10	10	00	7.5	30	20	20	20	22.5	20	10
Animal and birds	70	60	70	80	70	50	40	70	50	52.5	20	80
Modern comics and great personalities	20	30	20	20	22.5	20	40	10	30	25	60	10