Therapy Manual for Treating Syntactic Errors in Tamil Speaking Children with Language Disorders

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Abstract

The aim of this study was to develop a manual for enhancing the ability of linguistically delayed or deviant children to comprehend and express the sentence structures appropriate to the age. The method of this study included three phases. The first phase included development of manual incorporating different Tamil markers and pictures for them. The markers were pronouns, adjectives, tenses, adverbs, case markers and postpositions. Second phase included a pilot study with the manual in which thirty school going Tamil speaking children in the age range of 2.6 years to 5.6 years served as subjects. Third phase included incorporating modifications or corrections of the stimuli (pictures) following the pilot study. The pilot study was carried out under four different tasks viz choosing the correct answer, judgment, description and imitation task. The results showed that there was growth and development across the three age groups for the selected grammatical markers. But the performance was also found varying between the tasks across different age groups.

Introduction

Language is a complex system of symbols manifested in speech, writing and gesture (Solot, 1998). It can be receptive or expressive, verbal or non-verbal. Receptive language refers to the skills involved in understanding language. Expressive language refers to the skills used to express thoughts and ideas.

Language is a complex combination of several component rule systems. Bloom and Lahey (1978) have divided language into three major components: Form, Content and Use.

i) Form: It includes the linguistic elements that connect sounds and symbols with meaning. Included in linguistic form are rules that govern the sound and their combination (phonology), rules that govern the internal organization of words (morphology) and rules that specify how words should be ordered to produce a variety of sentence types (syntax).

ii) Content: The content component of language involves meaning. It maps knowledge about objects, events, people and the relationship among them. Included are the rules governing semantics, subsystem of language that deals with words, their meanings and the links that bind them. It encompasses meanings conveyed by individual words and the speakers or listeners mental dictionary called a lexicon

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iii) Use: The use component of language encompasses rules that govern the use of language in social contexts. These rules are also called pragmatics and include rules that govern reasons communicating (called communicative functions or intentions) as well as rules that govern the choice of codes to be used when communicating (Bloom & Lahey, 1978).

Although the components of language appear as distinct entities Bloom & Lahey (1978) have pointed out that they are indeed interrelated. The terms and concepts thus outlined are basics to the study of language and its disorders because an understanding of typical language development is crucial to undertake intervention with language disordered children.

Syntax: Syntax is the rule system that governs the structure of sentences. It specifies the order that the words must take and the organization of different sentence types. It allows the individual to combine words into phrases and sentences and to transform these sentences into other sentences. E.g. transforming a declarative sentence in to an interrogative or passive sentence

Knowledge of the syntactic system allows a speaker to generate an almost infinite number of sentences from a finite group of words and to recognize which sentences are grammatical and which are not and the three basic sentence types are simple, compound and complex. Syntactic rules have two additional functions. They describe parts of speech i.e. noun, verb, adjective, adverbs, preposition, pronouns, conjunction, determiners, interjections etc., and sentence constituents i.e. noun phrases, verb phrases, relative clauses.

E.g. (i) Lightning hit (verb) the red (adjective) house (noun)

(ii) The boy (noun phrase) hit the ball (verb phrase)

a. Development of Syntax

Several weeks after the first word is duly recorded vocabulary begins to grow quite rapidly as new words are learned daily. At this initial stage young children use their words in a variety of contexts, most frequently to label objects or to interact socially but they always limit their messages by speaking one word at a time. With in a few months, usually in the latter half of the second year, children reach the next important milestone that is; they begin to form the first sentence. This new stage marks a crucial turning point for even the simplest two-word utterances show evidence of development of syntax; that is the child combines words in a systematic way to create sentences that appear to follow rules rather than combining words in a random fashion.

According to Tomasello and Brooks (1999) the importance of syntax is that it allows the child to code and communicate about events in his or her environment taking the child well beyond the communicative possibilities allowed by single words. Children acquire syntax morphology from its very beginnings in stage I (when the MLU is between 1 to 2) until the end of the preschool years. During these few years children develop an extremely rich and intricate linguistic system. They go from expressing just a few simple meaning in two words in a systematic way (by incorporating semantic relations) to expressing abstract and complex ideas in multiword sentences by incorporating closed-class words also.

During the stage of two-word utterances the child describes object and actions by combining open-class words/content words which composed primarily of nouns, verbs and adjectives and the absence of the grammatical/closed-class words/functional words at this stage lends to the impression of simplicity. Following this stage the child begins to use number of

meaningful units or morphemes that include function words and affixes or grammatical inflections with the content words which increases the MLU (Mean Length of Utterance) introduced as a major measure of syntactic development by Roger Brown (1973). The addition of each morpheme reflects the acquisition of new linguistic knowledge.

b. Syntactic development in children with language disorders (CLDs)

Language disorder is defined as the abnormal acquisition, comprehension or expression of spoken or written language and/or other symbol system. The disorder may involve: (i) The form of language (phonologic, morphologic and syntactic systems); (ii) The content of language (semantic system) and/or (iii) The function of language in communication (pragmatic system) in any combination (ASHA 1993). Individuals with language disorders frequently have problems in sentence processing or in abstracting information meaningfully for storage and retrieval from short and long tem memory (ASHA 1998).

The major syndromes of language disorder involve children with hearing impairment, mental retardation, pervasive developmental disorder; specific language impairment.

c. Syntax characteristics in language disordered population

i. Hearing Impairment: Quigley and Paul (1984) discussed extensive investigation of the syntactic skills of deaf and hard of hearing children. They report that the most common syntactic constructions that are problematic in the writing of deaf children are verb systems, negation, conjunction, pronominalization, complementation, relativization, question formation and forced SVO patterns for sentence construction. The language abilities of hearing impaired children are studied by several authors and was reported that there was significant delay in receptive and expressive language of children with hearing impairment. The specific problems noted were:

- Limited use of turn-taking
- Lack of evidence of repair strategies
- Use of a limited number of grammatical structures with most restricted to simple SOV structures
- Difficulties with the use of appropriate articles.

Further the hearing-impaired individuals show difficulties understanding and producing longer, syntactically more complex utterances. According to Geers and Moog (1994) language age of children with deafness was found to be generally delayed by 3-5 years.

ii. Autism: Language in autistic children is more often instrumental in content (designed to get a need for the self or a self-interest met) than expressive (sharing information/interest, chit chat). Autistic language may be marked by immediate echolalia or delayed echolalia, telegraphic or marked by other idiosyncratic phrasing or use.

Bartolucci and colleagues (1976) described the particular difficulty children with autism have with the developmental use of verb endings such as past tense and present progressive. The researchers did not interpret these findings as a difficulty with grammatical structure but rather as a difficulty with semantic development. The more basic problem for children with autism is that they do not understand underlying conceptual ideas such as past

occurrence that contribute to the formulation of language. Children with autism have difficulties using or manipulating certain linguistic form of language because they do not understand their semantic counterparts. Bartax, Rutter and Cox (1975) compared children with autism and dysphasa. The researchers found both groups comparable in MLU and grammatical complexity. On a test of comprehension however the children with autism performed more poorly than the children with dysphasia. It seems that the syntactic delays in children with autism are related to their general developmental delay. These children present syntactic processing skills similar to those evidenced by children with other types of disorders. Linguistic analyses indicate the use of rule-governed behavior in the autistic child's limited production and comprehension of language.

iii. Learning disabled/Language based learning disabled: Generally language impaired/ children with learning disability have difficulty understanding wh-questions and processing and using pronouns and possessives. Other aspects of syntax that often cause difficulty are the passive construction, negative constructions, relative clauses, negations, contractions and adjective transformations (Vogel, 1975; Wiig & Semel, 1973, 74, 75). There is evidence of reduced mastery of the grammatical inflections for adjectives, verb tense markers and possession (Vogel, 1975; Wiig, Semel & Crouse, 1973). Specific difficulty with verb tense markers was found primarily in irregular past tense forms (Moran & Bryne, 1977) and with more complex grammatical structures (Edwards & Kallail, 1977). An extensive description of areas of possible difficulty with different form classes including nouns, verbs, adjectives, adverbs and prepositions was provided by Wiig and Semel (1984). The authors related many of the linguistic problems to be more primary cognitive difficulties.

iv. Specific Language Impairment: Specific structures that children with SLI have difficulty in mastering include plurals, possessives, tense markers, articles, auxiliary verbs the copula (verb to be) prepositions and complementizers (to) in structures such as *"I need to go now"*. Children with SLI are more likely to omit grammatical morphemes (in English) than misuse them or misplace them. Among the inflections listed above showing the most significant impairment are verb inflections and agreement in the use of the copula and auxiliary 'be' and the auxiliary verb 'do'. Confusion of case in the use of pronouns (e.g. me for I). Such difficulties are apparent even when children with SLI are matched with children having similar language age (LA) as measured by MLU which is a measure of length of utterance in morphemes. Thus even at matched utterance lengths children with SLI include fewer grammatical inflections than their typically developing peers. Further verb and noun morphology are much more poorly developed than one would predict given the size of the child's lexicon (Leonard, Miller & Gerber 1999).

v. Mental Retardation: In general the over all sequence of development of syntactic structures is similar for the mildly retarded and the non-retracted populations however the rate of development is slower (Ingram 1972, Lackner 1968, Mcheavey, Toomey and Demprey 1982, Naremore and Dever 1975). Both sentence length and complexity increase with development. In addition the same sentence types appear in the same order for both groups.

Assessment tools are available for children with language disorders to describe their development and patterns of syntax and morpho-syntactic structures. These assessment tools and screening tests are available in both western and Indian languages such as North Western Syntax

Screening test (NSST) by Lee (1969) and Syntax Screening Test in Tamil (SSTT) by Sudha (1981) which contain the specific order of grammatical markers that needs to be assessed for both receptive and expressive language whereas other assessment tools provide data on development of sentence length, variety and complexity (Lee, 1966; 1974; Carrow (1974); Zachmen & others, 1977a, 1977b; Garman (1986) & Scarborough (1990)

Compared to the assessment/screening tools for syntax that are presently available for the children with language disorders there are few training materials/manuals developed in western countries for children with language impairment (Hegde, Judith & Gierutt (1979); Daniel Zuitman & Sonderman (1979); Betty & Kenneth (1985). But there are not substantial works done in development of intervention tools/manuals for teaching the grammatical markers or for order of increasing the MLU from 2-word utterance, especially in Indian languages.

Few descriptive studies on syntax development in Tamil and Hindi have been conducted and screening test such as syntax screening test in Tamil was developed by Sudha (1981). But there is no substantial work done in Indian context regarding development of syntactic treatment program for language disordered children. Thus the need for this study to develop an intervention manual for treating syntactic deficiency in Tamil speaking children with language disorders.

The aim of this study is to develop a manual for enhancing the ability of linguistically delayed or deviant children to comprehend and express the sentence structures appropriate to the age.

Method

The study was conducted in three phases:

Phase 1:

This phase includes development of manual. The manual comprised of pictures depicting various actions using different grammatical markers in Tamil. The markers were selected based on studies done for syntax development in Tamil speaking children. The manual has activities such as choosing the correct answer and judgment tasks for sentence comprehension. They also included activities like picture description and imitation tasks for sentence expression. The grammatical markers that were selected are pronouns, adjectives, adverbs, tenses, case markers and post positions (Tamil).

Phase 2:

Method of data collection:

Following the manual development, pilot study was conducted in which the manual was administered on thirty Tamil speaking school going children in the age range of 2.5-5.5 years. The subjects were selected based on the following criteria: normal hearing, vision and speech and language development appropriate to the age. The following table shows the number of subjects that participated in each age range.

Table 1: Age Range of Subjects.

Gender	2.5-3.5 years	3.5- 4.5 years	4.5-5.5 years
Boys	5	5	5
Girls	5	5	5

Procedure

The tasks that were taken for obtaining comprehension and expression abilities of the subjects are as follows:

i. **Choosing the correct answer**: The subjects were instructed to choose and point to one of the two pictures provided to them appropriately following the description provided by the experimenter.

ii. **Judgment:** The experimenter provided a correct and an incorrect sentence for the selected picture and subjects were instructed to select syntactically correct sentence for the same.

iii. **Description:** In this task the subjects were given one picture at a time and asked to describe the picture. The verbal responses for this task was audio recorded.

iv. **Imitation:** Here the subjects were instructed to imitate the sentence provided by the experimenter. It has been found that verbal rehearsal or imitation is a useful technique for facilitating cross-modal transfer in language disordered population.

The responses were analyzed by scoring 0 for incorrect response and 1 for correct response in choosing the correct answer and judgment tasks. The recorded verbal responses were transcribed and given to four trained speech and language pathologist for selection of appropriate responses.

Phase 3:

Following the pilot study the process of deletion or inclusion of appropriate stimuli was made. Based on the findings from the data, suitable modifications were incorporated in the manual.

Results and Discussion

i. Choosing the Correct Answer: (Comprehension)

Following are the results of performance of the subjects in this given task for comprehension. The criterion set for the subjects to pass a particular marker in the given task was greater than or equal to 50% in each age range.

a. Pronouns: The pronouns included were; *'he'* (avan/ivan), *'she'* (aval/ival), *'this'* (inda/idu) and *'that'* (anda/adu) - proximate and remote it was found that that 10 children in all three age range have acquired the concept of he and she pronouns while 10 in the age range of 2.6-3.6 years and eight in the age range of 3.6-4.6 years have acquired them. The concept of this was acquired by ten children in the age range of 2.6-3.6 yrs and nine in the age range of 3.6-4.6 and 4.6-5.6 years.

b. Adjectives: The adjective markers taken were size, color and quantity. The colors included were red, blue, yellow, green, black and white. The size terms/adjectives included were - big, small, fat and long. The adjectives of quantity included are *"less" and "more"*. It was found that ten children in all the age range have acquired the lexical terms for the concept of *black and white*. The term and concept of *green* was acquired by one child in of 2.6-3.6 years age range, nine in the age range of 3.6-4.6 and ten children in the age range of 4.6-5.6 years, whereas five in the age range of 3.6-4.6 years and nine children in the age range of 4.6-5.6 years had acquired the term and concept of *blue* color. The number of children in each age range who had acquired the term and concept of *red* color was three, four and nine. It was found that ten children in each age range had acquired the concept of *big and long* whereas seven children in the age range of 2.6-3.6 years and ten children in the other two groups had acquired the term and concept of *small.* The number of children who had acquired the concept of *fat* was six in the age range of 2.6-3.6 years and ten in the two groups. It was found that the concept of *'less'* was acquired by nine subjects in the age range of 2.6-3.6 years and ten in the other two age groups; whereas term /concept of 'more' was acquired by ten subjects in the first two age groups mentioned above and nine in the age range of 4.6-5.6 years.

c. Tenses: Verb tenses included were present, past and future tense. The results showed that the order of acquisition of tenses by the children were along present, past and future, as proved by Broen and Santema (1983).

d. Adverbs: The adverb subtests included were manner adverb, place adverb and adverb of time Manner adverb included terms for clear, fast and quiet. Time adverbs include morning, afternoon and night and place adverbs included middle, corner and in the. The results showed that children acquired place adverb first followed by manner and time adverbs. Place adverb was acquired by the age of 2.6-3.6 years where as manner and time was acquired by the age of 3.6-4.6 years.

e. Case Markers: The case markers included were nominative, accusative, dative, genitive, locative, ablative, associative and instrumental. The results showed that the children acquire case markers such as nominative, locative and associative first, followed by instrumental, ablative, dative and finally genitive and accusative and almost all the case markers were acquired by the age of 2.6-3.6 years. As stated by Bloom (1973) locative, instrumental and dative are acquired first during the stages of three or four word combinations.

f. Post positions: The postpositions included were front, near, by, through, up. The results showed that postpositions such as on, near and by was acquired earlier followed by front and through. So it can be concluded that postpositions can be taught in this order. There were no studies stating the developmental order of this marker in Tamil speaking children. Further these results obtained should be confirmed through a study on larger population.

ii. Judgment task

In this task the performance of children in higher age group was less for certain selected grammatical markers (in which they performed better in choosing the correct answer) whereas children in the age range of 2.5-3.5 years did not acquire any of the selected markers in this task. Thus it can be concluded that children above the age of 5.4 years will acquire the concept of judgment. So the performance varies depending upon the task provided to the children.

iii. Description task: (Expression)

The use of grammatical markers by the children in the three age range was labeled as optional and obligatory. Optional can be considered as it is not mandatory to use the markers in such cases where the meaning of the sentence does not change. Obligatory are those that can be considered as these markers should be there in a given sentence for making the sentence meaningful. Results showed that markers such as pronouns, adjectives (color) etc can be considered as optional while others can be considered as obligatory. For adjectives color, size and quantity the target responses were not spontaneous but elicited through questioning. But depending upon the pictures that were selected also the markers can be considered optional or obligatory which needs to be proved by more number of subjects and variety of pictures.

iv. Imitation task:

The subjects' performance in imitation tasks was appropriate to the target that was uttered by the experimenter. Subjects in each group performed well in this task. Use of imitation task is been given more importance in the field of assessment and treatment of child language disorders. Eg. Assessment tool called "the oral language sentence imitation screening test" by Zachmen and others (1977a; 1977 b) use imitation for assessment of syntax.

Summary and Conclusions

The overall performance of subjects on choosing the correct answer and judgment tasks were calculated and the results were tabulated and also represented graphically. Results are discussed under two folds:

1. Order of acquisition of grammatical markers in both comprehension and expression domains and
2. Comparison of subject's performance among the four tasks.

From the results it can be concluded that children by the age of 4.6-5.6 years would acquire almost all the markers that have been mentioned in this manual. The following may be the order in which different markers are acquired by the children in different age group

- Pronouns 2.6 - 3.6 years
- Quantity adjective- 2.6 – 3.6 years
- Case markers - 2.6 – 3.6years
- Place adverb - 2.6 – 3.6 years
- Postposition –3.6 – 4.6 years
- Manner adverb 3.6 – 4.6 years
- Time adverb –3.6 – 4.6 years
- Tenses –3.6 – 4.6 years
- Colors adjectives- 4.6 – 5.6 years

The above conclusions are drawn from the results of correct responses of at least more than 50% of subjects for each marker. This shows that certain markers that are acquired at the age of 2.6-3.6 years can be selected first for therapy in a child with language disorder provided the child's chronological age is above 3 years. This can be carried out once the above manual is

standardized on a large sample collection. These conclusions are based on subject's performance in choosing the correct answer task.

Addressing the second fold of results it has been found that the overall performance of subjects in each of the age ranges was better during choosing the correct answer task compared to the judgment task. From this it was concluded that the judgment task is complex to carry out even for children in the age range of 4.6-5.6 years compared to choosing the correct answer task. The tasks can be listed in the order of increasing complexity starting from choosing the correct answer, imitation, description and finally judgment.

Thus it is evident that MLU increases from two-word utterances to simple sentences by incorporating the markers such as postpositions, place adverbs, case markers, quantity, size adjectives and tenses concurrent with advancing age/development. But MLU varies depending (within the same age) on the frequency of use of markers in a particular language. So in condition such as where the MLU of older children does not match with his/her age matched normal peers, the therapy can be aimed at incorporating the different parts of speech and grammatical markers on to the child's one or two-word utterances in a specific order based on the normative studies. In Tamil the above mentioned order can be followed for therapy with syntactic errors during verbal production. However this needs to be standardized on large groups of normal and clinical population.

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