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Manual for Enhancement of Syntax in Tamil for Children with Language Impairments

Vedhasorubini.K. M.Sc. (SLP) & Shyamala K. Chengappa, Ph.D.

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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 a manual incorporating different Tamil markers and pictures for them. The markers included 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 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 using four different tasks, viz., choosing the correct answer, judgment, description and imitation. The results showed the developmental trend across the three age groups for selected markers. But the performance was also found varying between the tasks across different age groups.

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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 the spoken language. Expressive language refers to the skills used to express one's thoughts, ideas, knowledge and experience.

Language is a complex combination of several component rule systems. Bloom and Lahey (1978) has divided language in to 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: It involves meaning. It maps knowledge about objects, events, people and the relationship among them. Included are the rules governing semantic, subsystem of language deals with words, their meanings and the links that bind them.
- (iii) Use: It encompasses rules that govern the use of language in social contexts. These rules are also called pragmatics and include rules that govern reasons for communicating (called communicative functions or intentions) as well as rules that govern the choice of codes to be used for communication.

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

Syntax

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

Knowledge of the syntactic system allows the speaker to generate an almost infinite number of sentences from a finite group of words and to recognize which sentences are grammatically correct and which are not. The three basic sentence types are simple, compound and complex. Syntactic rules have two additional functions. That is they describe parts of speech such as nouns, verbs, adjectives, adverbs, conjunction, determiners, interjections and sentence constituents such as noun phrases, verb phrases, relative clauses.

Example: (i) Lightning hit (verb) the red (adjective) house (noun)

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

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 stage young children use their words in a variety of context, most frequently to label objects or to interact socially but they always limit their messages by speaking one word at a time. Within 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 beginning in stage I when MLU (Mean Length of Utterance) is between 1 to 2, upto the end of the pre-school 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 describe objects and actions by combining open-class words /content word which composed primarily of nouns, verbs, adjectives and the absence of 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.

Development of Syntax in Children with Language Disorders (CLD)

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); (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 term memory (ASHA, 1998). The major syndromes of language disorder involve children with hearing impairment, mental retardation, pervasive developmental disorder and specific language impairment.

Characteristics of Syntax in Children with Language Disorders

(i) Hearing Impairment

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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, pronominalisation, 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
- Difficulty with the use of appropriate articles

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

(ii) Autism

Language in children with autism is more often instrumental in content (designed to get a need for 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 & colleagues (1976) described the particular difficulty that children with autism have is the developmental use of verb endings such as past tense and present progressive. The researchers did not interpret the 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. They 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 dysphasia. 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 behaviour in the autistic child's limited production and comprehension of language.

(iii) Learning Disabled/Language learning disabled

Generally language impaired/children with language disability have difficulty understanding Wh-questions, processing and using pronouns and possessives. Other aspects of

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syntax that often cause difficulty are the passive construction, negative constructions, relative clauses, negations, contractions and adjective transformations (Vogel, 1975; Wiig & Semel, 1975). 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 the 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 and Gerber 1999).

(V) Mental Retardation

In general the overall sequence of development of syntactic structures is similar for the mildly retarded and the non-retarded populations however the rate of development is slower (Ingram 1972, Lackner, 1968; McHeavey, Toomey & Dempsey, 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 contains specific order of grammatical markers that needs to be assessed for both receptive & expressive language skills, whereas other assessment tools provide data on development of sentence length, variety and complexity (Lee., 1966, 1974; Carrow, 1974; Garman, 1986 & Scarborough, 1990).

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Compared to the assessment/screening tools for syntax that are presently available for the children with language disorders there are only few training materials/manuals developed in western countries for children with language impairment. (Hegde et al. 1979; Daniel, Zuitmanetal 1979; Betty & Kenneth; 1985). But there are no substantial works done to develop intervention tools/manuals for training the grammatical markers or for order of increasing the MLU from two-word utterance, especially in Indian languages.

A few descriptive studies on syntax development in Dravidian language such as Tamil were developed by Sudha (1981). But there is no substantial work done in Indian context regarding the development of treatment programme for correcting syntactic errors in children with language disorders. Thus, the present study tries to develop an intervention manual for treating syntactic deficiency/errors in Tamil for 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 I

Development of a Manual

This includes the development of a manual. The manual comprised of pictures for depicting different grammatical markers in Tamil. The markers were selected based on studies done for syntax development in Tamil speaking children. The manual has tasks such as choosing the correct answer and judgment 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, case markers and post positions in Tamil.

Phase II

Method of Data Collection

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

Procedure

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

- (i) **Choosing the correct answer**

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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 were 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.

Phase III

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

Results & Discussion

❖ **Choosing the correct answer (comprehension)**

Following are the results with respect to the 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.

Pronouns

The pronouns included were; 'he' (avan/ivan), 'she' (avan/ivan), 'this' (idu/inda) and 'that' (anda/adu)-proximate and remote. It was found 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 4.6-5.6 years and 8 in the age range of 3.6-4.6 years have acquired the concept of "that". The concept of 'this' was acquired by ten children in the age range of 4.6-5.6 years and 9 in the age range of 2.6-3.6 and 3.6-4.6 years. From the results it can be interpreted that almost all the pronouns are acquired by the age of 2.6-3.6 years.

Adjectives

The adjective markers taken were size, colour and quantity. The colours included were red, blue, and yellow, green, black and white. The size included was big; small, fat & long. The quantity included were 'more', 'less'. It was found that ten children in all three age range have acquired the concept of 'black' and 'white'. The concept of 'green' was acquired by 1 child in the age range of 2.6-3.6 years, 9 in 3.6-4.6 years and 10 in the age

range of 4.6-5.6 years, whereas 5 in the age range of 3.6 -4.6 years and 9 in the age range of 4.6-5.6 years have acquired the concept of 'blue' colour. The number of children in each age range who have acquired the concept of 'red' colour was three, four and nine respectively.

Tenses

Verb tenses included were present tense, past tense and future tense. The results showed that the order of acquisition of tenses by the children were along present, past and future from younger age group(2.6 -3.6 yrs) to older age group (4.6-5.6 yrs.) proved by Broen and Santema (1983).

Adverbs

The adverb subtests included were manner, place and adverb of time. Manner adverb included concepts and terms for 'clear', 'fast' and 'quiet'. Time adverbs include 'morning', 'afternoon' and 'night'. The place adverbs include 'middle', 'corner' and 'in the'. The results showed that children acquired place adverb by the age range of 2.6-3.6 years followed by manner and time adverbs by the age range of 3.6-4.6 years. The above results are with respect to choosing the correct answer task. However the terms such as 'beauty', 'heavy' & 'high' 'there', 'middle' & 'first', were included in manner and place adverb during the judgment task and the results showed that children acquired the concepts by the age of 4.6-5.6 years, however not 100% of them acquire in the given age. The results could be explained under two folds (i) their inability to judge the sentence appropriately correct or failed the task even though they understand the concept in grammatically or (ii) they wouldn't have acquired the concept itself, because of which they might be unable to judge sentences appropriately.

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. It was also found that children in the age range of 2.6-3.6 years have acquired almost all the case markers. As stated by Bloom (1973) locative, instrumental and dative markers are acquired first during the stages of three-four word combinations.

Postpositions

The postpositions included were 'Front', 'Near', 'By', 'Through' and 'on' for choosing the correct answer, whereas terms such as 'Down', 'In', 'On', 'Out', 'Round' and 'Up'. The results showed that postpositions such as 'on', 'near' and 'by' was acquired earlier followed by 'front' and 'through' in the former task. With respect to the judgment task, it was found that the children acquire the concepts by the age of 4.6-5.6 years, however not 100% of them acquire in the given age. The results could be explained under two folds (i)

their inability to judge the sentence appropriately correct or failed the task even though they understand the concept in grammatically or (ii) they wouldn't have acquired the concept itself, because of which they might be unable to judge sentences appropriately.

So, it can be concluded that the concept of postpositions can be incorporated in therapy in this specific sequence. 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 populations.

❖ **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 2.6-3.6 years did not acquire any of the selected markers in this task. Thus, it can be concluded that children above 4.5 years will acquire the concept of judgment. So the performance varies depending upon the task provided to the children.

❖ **Description Task**

The use of grammatical markers by the children in the three age range was labelled 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 it meaningful. Results showed that markers such as pronouns, adjectives (colour) etc can be considered as optional, while others can be considered as obligatory. For adjectives colour, 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.

❖ **Imitation Task**

The subject's 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 given importance in the field of assessment and treatment of child language disorders. E.g. Assessment tool called "The Oral Language Sentence Imitation Screening Test" by Zachmenet al., (1977a; 1977 b) use imitation task for assessment of syntax.

Summary & Conclusion

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:

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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 seen that by the age of 4.6-5.6 years children 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:

Grammatical Markers	Age of acquisition
Pronouns	2.6-3.6yrs
Quantity adjectives	2.6-3.6yrs
Case markers	2.6-3.6yrs
Place adverbs	2.6-3.6yrs
Post positions	3.6-4.6yrs
Manner adverbs	3.6-4.6yrs
Time adverbs	3.6-4.6yrs
Tenses	3.6-4.6yrs
Colour adjectives	4.6-5.6yrs

The above conclusions are drawn from the results of correct responses of at least more than 50% of subjects for each marker. This show 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 range s 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 increase from two-word utterances to simple sentences by incorporating the markers such as postpositions, place adverbs, case markers, quantity, size adjectives and tense markers 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 in therapy for children with syntactic errors during verbal production. However this needs to be standardized on large groups of normal and clinical population.

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Vedhasorubini. K. M.Sc. (SLP)

Lecturer

Department of Speech-Language Pathology

Madras ENT Research Foundation - Institute of Speech & Hearing

1/1, South Canal Bank Road

Mandavelipakkam

Chennai-600028

Tamilnadu

India

vedha208@gmail.com

Dr. Shyamala. K. Chengappa,

Prof. & HOD

Department of Speech - Language Pathology,

All India Institute of Speech and Hearing

Language in India www.languageinindia.com

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Vedhasorubini.K. M.Sc., (SLP) & Shyamala K. Chengappa, Ph.D.

Manual for Enhancement of Syntax in Tamil for Children with Language Impairments 654

Manasa Gangotri, Mysore - 570006
Karnataka
India
shyamalakc@yahoo.com

Language in India www.languageinindia.com

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Vedhasorubini.K. M.Sc., (SLP) & Shyamala K. Chengappa, Ph.D.

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