



A Comparison of Grammatical Structures in Kannada - English Bilingual Preschoolers

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Abstract

Language acquisition and development of grammar in preschool children is a complex continuum. Research evidences suggest that language development in bilingual children may be qualitatively different from that of monolingual children and the progression may differ in the two languages. The study aimed to compare the development of grammatical structures in Kannada and English languages in Kannada speaking English language learners. The participants were evaluated for their knowledge of grammatical rules in each of the languages using a sentence completion task. The results showed that the linguistic abilities of children increased with age, thereby revealing a developmental trend. The order of acquisition of grammatical structures was found to vary between Kannada and English with better performance evidenced in Kannada language. These findings are discussed with regard to the importance of assessing language abilities in both languages known to bilingual children and the development of suitable tools for the same.

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Key Words

*Grammatical structures
Preschool
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INTRODUCTION

Human communication through language provides meaningful arrangements of words that represent ideas by using a combination of arbitrary symbols and rules (Owens, 2012). "Language is the systematic and conventional use of sounds (or signs or written symbols) for the purpose of communication or self-expression" (Crystal, 1996). It includes a combined skill of reception and expression of sounds, vocabulary, sentences and whole text in speech and writing. Chomsky (1969) defined language as "a system of phonological, semantic and syntactic rules which can be applied in an orderly manner for communicative purposes".

Language acquisition is a complex process in which humans learn to comprehend and produce words to make sense of the world around them (Crain & Lillo-Martin, 1999). Language acquisition takes place in different stages, starting from birth to several years of life. Children develop language naturally with the environment playing an important role in learning language and when exposed to people talking around them in different situations (De Houwer, 1995). Language development involves growth in the areas of oral language skills, print knowledge and

phonological processing. An oral language skill refers to the entity of words in a child's vocabulary and their ability to comprehend and express the meaning (i.e., syntactic and narrative skills). Print knowledge encompasses children's early understanding of the forms and functions of written language (e.g., letters of the alphabet, the sounds made by letters and directionality of print). Phonological processing refers to the development of the sound structure of their native language (e.g., that words are combinations of syllables or phonemes) and the ability to use the knowledge of sound structure information during cognitive tasks.

Acquisition of language and its development is quite rapid in young children, particularly preschoolers. Development of grammatical system starts from birth in a distinct manner with a definite number of specific elements which are later combined by children in various ways to produce different sentences (Pinker & Longuet-Higgins, 1994). Grammatical markers primarily develop during the preschool years. An immense growth in the vocabulary of preschool children is followed by the development of a complex syntactic structure that helps them in conversational and narrative skills. Among the language components, morphology and syntax play a major

role in the acquisition of grammatical language. Morphology refers to the rules of stringing morphemes in a language whereas syntax is the study of the principles and processes by which sentences are constructed in a language (Owens, 2012). Morphological and syntactical development refers to the internalization of the rules of language that govern the word structure, and the organization of words into sentences in that particular language respectively. Syntactic development is considered as the most important feature of language, proceeding in a mostly uniform pattern in both the type and timing of development (Shonkoff & Phillips, 2000).

A major development noticed in children around the age of 3 years is acquiring proficiency of grammar of their own language. During this period, typically, children produce two to three word affirmative and declarative sentences which lack grammatical endings on noun and verb forms. Full length sentences, questions and negations that are grammatically accurate are produced thereafter. The other aspects of development include vocabulary, articulation of sounds, and phonological awareness properties of their language. Between 3 and 4 years of age, complex, mult clause sentences begin to emerge in children (Turnbull & Justice, 2011). In general, it was found that language development is completed in the first 4 years of life, although, morpho-syntactic development is essentially complete by the age of 4-5 years. Even after the age of 5, children's grammatical complexity of speech continues to develop, because children continue to frequently use complex structures such as expanded noun phrases, adverbial clauses, subordinate clauses, and so on (Hoff, 2005; Turnbull & Justice, 2011).

There have been several studies in the past reporting on the acquisition of syntax in various languages (For example, English: Bloom, 1991; Klima & Bellugi, 1966; Tam & Stokes, 2001; Spanish: Lust, 1999; Felix-Brasdefer, 2006; German: Poeppel & Wexler, 1993). Among the Indian languages, studies have been carried out in Kannada (Prema, 1979; Sreedevi, 1976; Vijayalakshmi, 1981); Tamil (Murthy, 1981); Malayalam (Thomas, Basavaraj, & Goswami, 2011); Hindi (Nagarajan, 1980; Basavaraj, Goswami & Priyadarshi, 2011); and Telugu (Pebbili, Basavaraj, & Goswami, 2011). In general, most of these studies indicate a developmental trend in the acquisition of various grammatical markers. Further, the development of comprehension was most often ahead of expression at all age levels studied.

The order of acquisition of the grammatical rules varies as the child develops and also when the child acquires second language. Language acquisition in bilinguals is a process of mastering two or more languages. Bilingualism is described as the knowledge and usage of two different languages and an ability to make meaningful utterance in another language (Harding & Riley, 1986). Acquisition of first

language in children follows a consistent developmental sequence. Children who are simultaneously acquiring two languages will have the same stages of development as that of monolingual speakers of those languages. Although there are evidences to support that the trajectory followed by monolingual and bilingual children with respect to their vocabulary and grammar development are similar (Conboy & Thal, 2006; McLaughlin, Blanchard, & Osanai, 1995; Parra, Hoff, & Core, 2011), a vast majority of recent literature suggests that bilinguals often lag behind monolinguals when grammatical measures are assessed in a single language (Hoff et al., 2012, Hoff & Core, 2013, Ramírez-Esparza, Garcia-Sierra, & Kuhl, 2017). There would be unequal progress in one language compared to the other. One language is majorly salient from time to time, which can be due to the input the child receives from the other speakers, or less opportunity to use one language compared to the other language (McLaughlin, Blanchard, & Osanai, 1995). Children learning a second language that differ considerably in its grammatical morphology from their native language may have difficulty in mastering the grammatical morphology of the second language (Bialystok & Miller, 1999; Jia, Aaronson, & Wu, 2002). Snow and Hoefnagel-Höhle (1978) studied acquisition of morphological rules in 3-5 years old children who speak English and Dutch as their second language and reported variations between the two languages. In English, children start acquiring the language at 3 years of age whereas the same rules were achieved at around 4-5 years of age in Dutch. Children were able to perform better and acquired the grammatical rules earlier in their native language (English) compared to Dutch. Studies in the past have also reported cross-linguistic influence on morphosyntactic abilities in bilingual children leading to variations in the grammatical abilities between bilinguals and monolinguals (Meir, Walters, & Armon-Lotem, 2017; Rothweiler, Schonenberger & Sterner, 2017; Sorace & Serratrice, 2009).

Linguistic abilities play a significant role in the development of literacy in children. Literacy is defined as a process which includes psychological and linguistic elements of reading and writing which the child develops with the help of meaning (Heath, 1980). The development of literacy is correspondent with the changes in the linguistic knowledge. Research evidences support the strong relationship between oral language abilities and subsequent literacy development (Bishop, & Adams, 1990; Catts, 1993; Silva, Williams, & McGee, 1987; Stark & Tallal, 1988). Among preschoolers, the most apt language skills responsible for literacy development are the skills related to print and oral language which support emergent literacy (Durgunoglu & Oney, 2000; Shanbal, 2010). Analogous to the disparity in language development in bilingual children, there are differences in the literacy skills in these children. Researchers have found that the language and literacy development were faster in monolingual com-

pared to bilingual children (Bialystok, Shenfield, & Codd, 2000; Durgunoglu & Oney, 2000).

In the Indian scenario, most children are found to be bilinguals, as they learn two languages simultaneously (i.e. both the languages at home or one language at home and the other at school). Kannada is a Dravidian language which is spoken by almost forty million speakers in the southern Indian state of Karnataka, where it is considered as the official language. Unlike English, Kannada has an extremely frequent and salient character of morphology, i.e argument structure. Kannada is a verb final inflectional language consisting of an unmarked subject-object-verb (SOV) constituent order, and it has relatively free word order (Agesthalingom & Sakthivel, 1973). In addition, noun phrases marked for case and verbs in Kannada typically are in agreement with the subject in person, number, and gender (Sridhar, 1990). In English, the order of subject-verb-object (SVO) is preserved quite rigidly, compared to the world's other languages. Children speaking English are exposed to many variations in the basic SVO structure (Owens, 2005; Retherford, 2000). There are variations seen in the development of the grammatical structure and language concepts of children having English as their native language compared to those who have English as their second language (Nag, 2007). Duncan and Gibbs (1987) studied the acquisition of syntax in Punjabi-English bilingual children aged between 6.5 and 8.5 years and reported that the development of second language follows the first language.

To summarize, language abilities of preschool children, particularly syntactic abilities, play an important role in later literacy development (Bishop, & Adams, 1990; Catts, 1993; Stark & Tallal, 1988). Research has shown that children know more about language and literacy before they start formal schooling, which helps in better development of their reading abilities (Burns, Griffin, & Snow, 1998). Therefore, assessment of language skills during preschool years is essential to identify children with language and literacy deficits. Further, given the differences in the language development of bilingual children and the inherent characteristics of languages, it is essential to evaluate the language abilities of preschool children in both the languages they are exposed to. This may be especially true when the two languages of a bilingual follow different phonological, morphological and writing systems, as is the case in Kannada and English. Thus, the present study was taken up to assess language fundamentals during the preschool years in Kannada-English bilingual children. Assessment in both Kannada and English would provide insights into the language development patterns of these children. Such insights may provide useful information in the development of tools for assessment of language abilities in bilingual preschool children. The objective of the study was to compare the development of grammatical structures in Kannada and English languages in preschool children (3-6 years) who are native speakers of Kannada and

studying in schools with English as the medium of instruction.

METHODS

Participants

A total of 120 typically developing children between 3 and 6 years of age with six months interval (3;0-3;6, 3;6-4;0, 4;0-4;6, 4;6-5;0, 5;0-5;6, 5;6-6;0 years) were selected from schools of Mysore city. 20 participants (10 boys & 10 girls) were included in each age group. All children were native speakers of Kannada and studying in schools following State curriculum with English as the medium of instruction and were therefore referred as Kannada-speaking English Language Learners. They were not exposed to languages other than Kannada and English. The families of all children belonged to the middle socio-economic status as assessed by the revised NIMH Socio Economic Status Scale (Venkatesan, 2011) and the parents had a minimum of 12 years of formal education.

Stimuli

Word Structure subsection of the test Clinical Evaluation of Language Fundamentals Preschool - 2nd Edition (CELF PS-2) (Wiig, Secord, & Semel, 2006) was used as the stimuli. CELF PS-2 is generally used as an assessment tool to classify children as typically developing or language impaired in research investigations (Justice, Bowles, Pence, & Gosse, 2010). It is a clinical tool to identify the nature of a language disorder, assess early classroom and literacy fundamentals and to evaluate the language and communication in context. The word structure section of CELF PS-2 evaluates child's knowledge of grammatical rules in a sentence completion task. Specifically, it assesses the ability to apply word structure rules pertaining to inflections, derivations, comparisons, and use of appropriate pronouns and possessive relationships. A total of 24 stimuli are included in the section encompassing 17 grammatical categories. The material in English was modified to suit the Indian context with relevant cultural and linguistic changes in both the stimuli and pictures where necessary. The adapted stimuli were translated to Kannada conforming to the structure of the language. This was then back-translated to English by a Speech Language Pathologist who was also a native speaker of Kannada language to ensure the quality and accuracy of the initial translation. Owing to differences in the structure of the two languages, there were few instances in which back translation did not result in the original stimulus. However, they were retained to ascertain that the stimulus conformed to the structure of the language.

The pictures were subjected to a familiarity and ambiguity check. Five qualified Speech Language

Pathologists with at least three years of clinical experience were asked to rate both the test stimuli and the corresponding picture stimuli on a 3 point rating scale for familiarity (3-most familiar, 2-familiar and 1-least familiar) and ambiguity (3-most ambiguous, 2-ambiguous and 1-least ambiguous) respectively. The test stimuli rated as most familiar/ familiar and the picture stimuli rated as least ambiguous by all five experts were included in the study. Suitable modifications were made in the other stimuli to ensure that the required criteria were fulfilled.

Procedure

All the participants were tested individually in a quiet environment with adequate lighting and ventilation in the school setup. An informed consent was obtained from the caregivers of all children who participated in the study. The study methods adhered to the ethical guidelines of the Institutional Review Board. The participants were screened using WHO Ten-Question Disability screening checklist (cited in Singhi, Kumar, Malhi, & Kumar, 2007) to rule out any speech, language and hearing deficits. The test was administered in both Kannada and English language with a gap of one week.

The experimental task involved simultaneous presentation of verbal stimuli and the corresponding pictures. The verbal stimuli were spoken by the examiner while the picture stimuli were presented using a laptop placed at a comfortable viewing distance from the participants. The participants were instructed to complete the sentence spoken by the examiner in the context of the picture presented. Initially, two practice trials were given and once the participants were familiarized with the trial items, the test stimuli were presented. During the test administration, one repetition of the stimuli was allowed in the event of a no response from the participant or when the participants requested for repetition. The time taken for completing the task in each language was approximately 10-15 minutes. The responses were recorded on the score sheets for each of the two languages. A correct response was scored as 1 and incorrect response was given a score of 0. The maximum possible score was 24. The raw scores were tabulated and subjected to suitable statistical analyses using the Statistical Package for Social Sciences (SPSS, Version 17).

RESULTS

The mean, standard deviation, median and interquartile range of raw scores obtained by participants on the Word Structure task in both languages (English, Kannada) with respect to age and gender are presented in Table 1.

From Table 1, it can be observed that the mean scores for the Word Structure task was higher in Kannada compared to English language in each of the age

groups and genders. The mean scores increased with increase in age and this was true in both languages. Shapiro-Wilk's test of normality revealed that the data was not normal in few age groups ($p < 0.05$). Hence, further statistical analysis was carried out using nonparametric tests. Gender wise comparison using Mann-Whitney test for each age group did not show any significant difference ($p > 0.05$) between genders in any of the age groups. Therefore, the data was combined for genders for further analysis.

Comparison of age groups separately in the two languages using Kruskal-Wallis test revealed significant differences between age groups in both Kannada ($\chi^2(5)=91.18$, $p < 0.05$) and English ($\chi^2(5)=92.20$, $p < 0.05$). Pairwise comparisons using Mann-Whitney test showed significant differences ($p < 0.05$) between all age groups except between 3;6-4;0 years and 4;0-4;6 years in Kannada. Similarly, in English, results of pairwise comparisons revealed significant differences ($p < 0.05$) between all age groups except between 4;0-4;6 years and 4;6-5;0 years. The results of Mann-Whitney test are presented in Table 2. Wilcoxon Signed Ranks test was done to compare scores between Kannada and English language within each age group. The results, as given in Table 3, indicated significant differences ($p < 0.001$) in scores between the two languages for all age groups.

Qualitatively, it was found that, the development of concepts like prepositions, progressive-ing, objective pronoun, possessive noun and pronoun, third person singular and subjective pronouns in Kannada started between 3 and 4 years of age and were completely acquired by 6 years of age. The objective pronoun *avanu/avalu* was substituted by *ivanu/ivalu* by children until the age of 4 years and was accurately achieved by 5 years. Acquisition of regular plurals, regular past tense, uncontractible/auxiliary copula and noun derivation commenced during the age of 4;0-4;6 years and continued up to 5;6-6;0 years. Other concepts like comparatives and superlatives began to emerge during the age range of 5;6-6;0 years. Similarly, in English, prepositions, progressive-ing, third person singular, contractile copula, and possessive noun, began emerging between 3 and 4 years of age. However, the other concepts were conceived only after 4 years of age and were not achieved completely even by the age of 6 years.

DISCUSSION

The present study intended to compare the acquisition of grammatical structures in Kannada-speaking English Language Learners using the Word Structure task from the CELF PS-2. The results revealed that the performance on the Word Structure task involving various grammatical structures increased with age, conforming to the well-known fact that language development occurs along a continuum. These findings draw support from studies of language development in children which reported

Table 1: Mean, Standard Deviation (SD), Median and Interquartile Range (IQR) of scores obtained for each age group and gender in Kannada and English

Age (in years)	Gender	Kannada				English			
		Mean	SD	Median	IQR	Mean	SD	Median	IQR
3;0 – 3;6	Male	10.70	1.88	10.00	2.75	04.60	1.77	04.50	3.00
	Female	10.80	2.09	10.50	3.25	05.20	1.68	05.50	3.00
3;6 – 4;0	Male	13.80	2.09	14.00	2.25	07.90	1.44	08.00	2.50
	Female	13.80	1.93	13.50	3.25	08.20	1.75	08.00	3.25
4;0 – 4;6	Male	16.30	3.16	16.00	6.25	09.80	0.91	10.00	1.00
	Female	13.90	0.87	14.00	0.50	10.00	3.23	09.00	1.25
4;6 – 5;0	Male	17.50	2.59	18.00	4.50	10.10	1.91	09.00	2.50
	Female	17.80	2.65	17.50	4.50	09.70	1.63	10.00	1.50
5;0 – 5;6	Male	19.90	1.85	20.00	4.00	13.10	0.73	13.00	1.25
	Female	20.20	1.87	20.00	3.25	12.70	1.94	12.50	2.75
5;6 – 6;0	Male	21.70	0.94	22.00	1.25	13.70	1.82	14.00	2.25
	Female	21.80	1.22	22.00	2.25	14.00	1.24	14.00	2.00

Table 2: Results of pairwise comparisons for age groups using Mann-Whitney Test

Pairs of age group (in years)	/Z/	
	Kannada	English
3;0-3;6 & 3;6-4;0	3.92*	4.46*
3;0-3;6 & 4;0-4;6	4.56*	5.43*
3;0-3;6 & 4;6-5;0	5.21*	5.37*
3;0-3;6 & 5;0-5;6	5.43*	5.44*
3;0-3;6 & 5;6-6;0	5.44*	5.44*
3;6-4;0 & 4;0-4;6	1.44	2.93*
3;6-4;0 & 4;6-5;0	4.12*	3.01*
3;6-4;0 & 5;0-5;6	5.31*	5.28*
3;6-4;0 & 5;6-6;0	5.44*	5.36*
4;0-4;6 & 4;6-5;0	2.95*	0.30
4;0-4;6 & 5;0-5;6	4.55*	4.63*
4;0-4;6 & 5;6-6;0	5.23*	4.78*
4;6-5;0 & 5;0-5;6	2.92*	4.25*
4;6-5;0 & 5;6-6;0	4.73	4.77*
5;0-5;6 & 5;6-6;0	3.02	2.04*

Note: * - $p < 0.05$

Table 3: Results of Wilcoxon Signed Rank Test comparing between Kannada and English in each age group

Age group (in years)	/Z/
3;0-3;6	3.94*
3;6-4;0	3.93*
4;0-4;6	3.59*
4;6-5;0	3.93*
5;0-5;6	3.93*
5;6-6;0	3.93*

Note: * - $p < 0.001$

that the major developmental process in all the language domains (semantic, morphology, phonology and syntactic rules) predominantly occurs during the age of 4 and 6 years (Bhuvaneshwari, 2010; Chomsky, 1969, Crystal, 1996; Prema, 1979).

Considering the acquisition of concepts specifically in each of the two languages studied, it was found that children begin acquisition of some of the grammatical structures in Kannada language

between 3;0 and 3;6 years and others between 3;6 and 4;0 years. However, the concepts were completely achieved by 6 years of age. On the other hand, in English, the acquisition of concepts starts between the age of 3 and 5 years and is completely achieved only after 6 years of age. Comprehension of the grammatical aspects starts between the age of 3 and 4 years whereas, expression of the same begins only after the age of 4 years in both languages. These findings are in accordance with earlier studies which reported that comprehension of grammatical structures were better and earlier than the production (Lenneberg, 1962; Lewis, 1951; 1963; McCarthy, 1954).

The results also indicated evident differences in the development of word structure involving various grammatical concepts between Kannada and English languages across participants of all age groups considered in the study. Few of the grammatical structures that were achieved earlier in Kannada were realized later in English. For example, concepts like objective pronoun and possessive pronoun were acquired at an earlier age in Kannada language compared to acquisition of the same in English. *Objective pronouns* (e.g.: ivanu/avanu/ivalu/ivaru) in Kannada were achieved between 4 and 5 years of age whereas, in English, (he/she) it was achieved between 5 and 6 years of age. Comprehension of simple past and future tense with specific gender markers begin at the age of 3 years in Kannada whereas in English, it was around 4 years. This draws attention to the differences in the development of grammatical structures between Kannada and English and is in consonance with similar findings in literature (Bhuvaneshwari, 2010; Vijayalakshmi, 1981). However, variations in the acquisition of concepts in the two languages could be due to the limited exposure and usage of English, which is the second language of participants in this study, mostly acquired in school rather than home environment. The variations could also be attributed to the differences in the grammatical morphology of the two languages. It may be noted that few of the structures present in English were absent in the grammar

of Kannada language (e.g.: reflexive pronoun, irregular past tense). The results also offer support to the earlier studies reporting differences in the acquisition of grammatical morphology of the second language in bilinguals compared to their native language (Bialystok & Miller, 1999; Jia et al., 2002).

CONCLUSIONS

The present study revealed that the linguistic abilities of children increased with age, conforming to the developmental progression of language skills. Significant differences were also observed between Kannada and English with the order of acquisition of grammatical structures varying between the two languages. Children were able to perform better in Kannada than English language, which may be attributed to the limited exposure to English language in the population under study. These findings emphasize the importance of assessing linguistic skills in both languages that bilingual children are exposed to. They also have an implication in the development of preschool language assessment tools in a bilingual context.

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