The Influence of Socio-Economic Status on the Morpho-Syntactic Development of Young Indian Children

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The socioeconomic status is one of the key factors impeding the overall child development, whose impact on language skills is least explored in Kannada speaking Indian children. This study focused on assessing the morpho-syntactic language of children from higher socio-economic (HSE) and lower socio-economic (LSE) status using a picture description task.59 typically-developing Kannada speaking children aged between 2 and 5 years were categorized into three age groups. The participants from each group were further equally divided into LSE and HSE subgroups. Using a picture description task, language samples were extracted and were analyzed for the morpho-syntactic (total number of utterances and morphemes) units. Descriptive statistics were performed to obtain the mean and SD of both the units of each participant across the age groups. Non-parametric tests determined the level of significance between and across the LSE and HSE subgroups (for all age groups). An overall increase in the morpho-syntactic units was observed across the age groups for the HSE and LSE participants. These findings provide an insight into how early and to what extent socio-economic statusimpacts the morpho-syntactic development in 2, 3, and 4 year-old children..

Keywords: morphemes, morpho-syntactic development, socio-economic status, Kannada.

Language deficits in children can be attributed to factors such as the maternal education, gender, intelligence, personality of the child, environment of upbringing, family history of developmental communication disorders, and low socioeconomic status (SES) (Playford, Dibben, & Williamson, 2017; Romeo et al., 2018). The social standing of an individual is referred to as the SES (Hoff, 2006)(2. Researchers determined SES based on the familial education or occupational status of the heads of the family (Hart & Risley, 1995), while others categorized them based on social status and income (Arriaga, Fenson, Cronan, & Pethick, 1998). The Kuppuswamy Scale of SES and its revised versions (Sharma, 2012, 2013)are majorly used by researchers in India to determine the SES of individuals from either rural, urban, or both populations. The effect of SES on the home environment does subsequently affect their neurocognitive performance (Meir & Armon-Lotem, 2017), mainly their executive and language functions (Playford et al., 2017).

Parents from low SES spent a smaller amount of time in engaging in conversations with their children (Snow, Dubber, & Blauw, 1982), exhibiting dictatorial and restraining parenting methods (Hashima & Amato, 1994). These parents talk less to their children, using a more commanding approach (Hoff, 2003), with increased use of restrictions as opposed to parents from high SES families. This method of upbringing has resulted in the poor usage of language skills of the low SES children, putting them at a disadvantage when compared to their high SES peer group with a much more favorable environment. Studies have found associations between language and SES especially during the first three years of life (Gain, 2014). Facilitative home environments (Hurt & Betancourt, 2017) did indicate family members to play a crucial role in the language development of children (Islam et al., 2017). One of the earliest evidence for differences in language abilities of children between higher and lower SES backgrounds was revealed by a series of research by Bernstein (1958, 1960, 1962b,

1962a). Bernstein proposed the 'deprivation hypothesis,' wherein he observed that in contrast to the working-class, the middle-class youths tended to use a more elaborated code, which consisted of morpho-syntactically complex language. Tizard and Hughes(1984) found a difference in the stylistic use of language by the mothers of middle-classes and working-classes. A longitudinal study done by researchers (Hart & Risley, 2003b)though, is why this should happen when it does. Homeostasis, which explains how the body is able to maintain itself, cannot explain why things change. Our reasoning was that in any homeostatic state, there might exist two systems in disequilibrium, which eventually collide to create the 'catastrophe' of change. Our research showed that a constant daily output of melatonin throughout life was in disequilibrium with increasing body mass throughout childhood. These two systems permit the progressive decrease in the circulating concentration of melatonin in the growing child until it drops below a critical threshold, which then creates the 'catastrophe' of puberty. Catastrophe is destined to overthrow the established order, whereas homeostasis protects it. Catastrophe is always a transient moment that is rapidly supplanted by the re-imposition of homeostasis

.","author":[{"dropping-particle":"","family":"Hart","given":"Betty","non-dropping-particle":"","parse-names":false,"suffix":""},{"dropping-particle":"","family":"Risley","given":"Todd R","non-dropping-particle":"","parse-names":false,"suffix":""}],"container-title":"Education Review","id":"ITEM-1","issue":"1","issued":{"date-parts":[["2003"]]},"page":"1-6","title":"The Early Catastrophe","type":"article-journal","volume":"17"},"uris":["http://www.mendeley.com/documents/?uuid=41ddfd09-6b1a-410a-97ce-65963ea40061"]}],"mendeley":{"formattedCitation":"(Betty Hart & Risley, 2003bon children from low and welfare families did reveal disadvantaged children to produce shorter responses to questions. This poor language growth observed in lower SES children (Arriaga et al., 1998), which can be attributed to the difference in language exposure of these two classes. Children compared to their high SES peers were noted to exhibit poor linguistic performance (Maguire et al., 2018)previous

studies have often focused on infants or preschoolers and primarily used static measures of vocabulary at multiple time points. To date, there is no research investigating whether SES predicts a child's word learning abilities in grade school and, if so, what mediates this relationship. In this study, 68 children aged 8-15 years performed a written word learning from context task that required using the surrounding text to identify the meaning of an unknown word. Results revealed that vocabulary knowledge significantly mediated the relationship between SES (as measured by maternal education which may persist into their academic years (Morgan, Farkas, Hillemeier, Hammer, & Maczuga, 2015) as well. Children from LSE backgrounds are at greater risk to have reading difficulties in the future (Hagans & Good, 2013). Primary school-going Bengali children from lower SES families have been found to exhibit lower language recognition and recall compared to the peers from middle and high SES families (Manna, Pal, & Dhara, 2016). Though studies have indicated SES to be a key indicator of the presence of language delays in 12 to 35 month-old Indian children (Sidhu, Malhi, & Jerath, 2013), other studies have revealed no such associations (Mondal et al., 2016). Coll et al.(1996) have indicated communication deficits in children from lower SES may go unnoticed, due to the use of standardized language tools that may be insensitive to identify differences in language disorders arising from cultural and linguistic variations.

Inglebret et al. (2017)inspected scientific articles with a language focus that were published in American Speech-Language-Hearing Association journals and stated the concern of considering the SES background of the research participants. With the SES of a family having being found to affect language development, a thorough understanding of its influence is necessary for a country like India, wherein 26% and 42% of the citizens live in urban and rural communitites respectively. Since the SES of a child's family is a major contributing factor influencing the development of language, it would be interesting to study the language profile of children brought up in a

multicultural and multilingual country like India, wherein many families are within the spectrum of having a socio-economic disadvantage. Since the period of early childhood is vital in the understanding of socioeconomic and other social disparities throughout life (Mollborn, Lawrence, James-Hawkins, & Fomby, 2014), it would be fascinating to study the morpho-syntax in Indian children coming from different socio-economic backgrounds. Morpho-syntax (Morphology and Syntax) also known as grammar is crucial for the communication development of an individual. Morphology is considered as the study of words and the rules of formations; whereas syntax can be considered as the study of sentences and its rules of formation. Studying the morpho-syntactic patterns have been deemed to be essential than other language skills (Golestani, Jalilevand, & Kamali, 2018). With Kannada being a native language of the state of Karnataka, the present study is targetted to study the morpho-syntactic language skills of typically developing Indian Kannada speaking children between 2 and 5 years of age from different SES (higher and lower SES) backgrounds.

Method

The current study followed a cross-sectional design with a non-probability sampling technique and was conducted between January 2016 and January 2017. Ethical approval was obtained from the Institutional Ethical Board prior to its commencement.

Participants

A total of 60 typically developing Kannada (L1 language) speaking children from local residential homes within the Mangalore taluk of Dakshina Kannada district participated in the present study. The sample size for the current study was calculated based on the work done by Prasad and Prema(2013) on older Kannada speaking children. This was determined using the formula: n= 2(zα + zβ)2 *Σ2/d2; wherein zα=1.96 at 95% confidence level, zβ=1.28 at 90% power, and Σ=74.07 and d=4.74 are standard deviation and mean respectively. The participants were divided into three groups (Group I: 2-2.11-year-olds, Group II: 3-3.11-year-olds, and Group III: 4-4.11-year-olds) based on their age. Each group included an equal number of participants from Low Socio Economic (LSE) and High Socio Economic (HSE) status. The HSE and LSE allocation was done based on the latest version of the Kuppuswamy's Scale for Measuring SES (Gadhave & Nagarkar, 2015).The Kuppuswamy Scale assessed the SES based on the education and occupation of the head of the family, and the income per month from all sources with a total SES score ranging from 0 to 29. This scale classifies the population based on five socio-economic classes (SECs) - upper, upper middle, lower middle, upper lower, and lower SEC. As the current study aimed to classify the population based on two major classes (LSE and HSE), participants who obtained a total score of 15 or below were grouped under the LSE subgroup, whereas those who obtained a score of above 15 were grouped under HSE category (highest attainable score being 29). Here the LSE sub-groups comprised of the lower, upper lower and lower middle socio-economic class; while the HSE sub-groups were of the upper middle and upper SES. Prior to the initiation of the study, the parents of the participants were enlightened regarding the purpose of the study and a written consent was attained from them. Table 1 demonstrates the number of participants identified under each SES subgroup under all the three age groups based on the Kuppuswamy's scores of SESs'.

Table 1. Distribution of participants under each SES subgroup (Group wise) based on the Kuppuswamy's scores.

Kuppuswamy's SES (scores)	Total number of participants					
	Group I		Group II		Group III	
	SES					
	LSE	HSE	LSE	HSE	LSE	HSE
Upper (26 - 29)	-	10	-	9	-	5
Upper middle (16 - 25)	-	0	-	1	-	5
Lower middle (11 – 15)	3	-	3	-	5	-
Upper lower (5 – 10)	7	-	7	-	5	-
Lower (<5)	0	-	0	-	0	-
Total participants	10	10	10	10	10	10

Each participant obtained the age appropriate cognitive skills based on The COM-DEALL developmental checklist (Karanth, 2007); as well as age appropriate language skills based on the Assessment of Language Development (ALD) (Lakshanna, Venkatesh, & Bhat, 2008). Participants who did not meet age appropriate cognitive and language scores were excluded from the study. Also, the ones having a history of hearing impairment, and/or those with an uncorrected visual impairment putting them at risk of developing typical speech and language skills were excluded from the study. Table 2 includes details of the parents (father and mother) based on the three domains of the Kuppuswamy's Scale – the highest educational qualifications received, current occupation, and family income per month.

Stimuli

Ambridge and Rowland (2013) advocated the use of picture description tasks over single pictures, to be an efficient measure to elicit language skills in children with communication disorders. Two pictures ('A bustling railway station,' and 'A lively city street') were shortlisted for the current study, which incorporated a central theme with several events taking place at a given time. Every event comprised of several characters that were taking part in a discourse with a communication partner. Each communication partner had an objective, being engaged in a specific activity. The 'lively city street' was designated to be a trial stimulus, while the 'bustling railway station' was the test stimulus. The Appendix shows the details of the test and trial stimulus, which involves the multiple events taking place in it, the involved characters in the scene, and the overall scope for dialogues.

A total of 10 (5 open-ended and 5 closed-ended) probe questions (in Kannada) were formulated for both the trial and test stimuli. Both the stimuli were validated by two experienced speech language pathologists (judges) for the appropriateness to the objective of the study. The judges rated the probe questions using a 5-point Likert scale for its potentiality to produce a rich language sample. Each question was assessed for targeting the relevant morpho-syntactic measures, and its comprehensibility in order to meet the objectives of the study. The suggestions by the judges included the simplification of the vocabulary used in the questions, and modifying certain questions aiming at generating the targeted response. The recommended changes were incorporated, and the stimuli were ready for administration.

Instructions and Settings

The instructions for the test and trial stimulus targeted to elicit a spontaneous language sample. The instruction was, "Look at this picture over here. There are many things happening here. You need to tell me what is happening in this picture. Are you ready? Let us now start". The instructions were prepared in Kannada, with the participants requiring responding in the same language. The setting included for the conduction of the study was the participant's home, in order to account for the naturalness and comfort the child would be in, during their spontaneous language productions. The procedure was done on a floor mat where the examiner and the child were seated. A hand-held voice recorder (Sony ICD-UX533F/SCE) was placed at a distance of 8-10 inches from where the participant was seated.

Procedure

The quality and quantity of provided parental stimulation were collected prior to the initiation of the data collection. Parents were asked information pertaining to the duration of time spent with the child, varieties of activities their child was involved in, and the reciprocative language used by the parents during these interactions. This was followed by a rapport building session with the participant, which included interactive play activities (puzzles and picture books). The examiner provided the instructions before beginning with the trial stimulus. All 10 probe questions were provided in order to elicit a language sample. With familiarity with the trial stimulus, the examiner introduced the test stimulus along with the corresponding probe questions. With the presentation of each probe question, each participant was given adequate time to respond. With an inappropriate or absent response from the

participant, the questions were repeated once more. Further, if the participant failed to respond to or comprehend the question, the examiner proceeded to the next question. If any non-verbal response was obtained, the participants were encouraged to provide the verbal counter-part before moving on to the next question. Each participant took a total of 15–20 minutes to complete the task. All narrative samples elicited from each of the participants were recorded using the voice recorder.

Table 2: The details of the parents based on their highest educational qualifications received, current occupation, and family income per month (based on the Kuppuswamy's Scale).

	Total number of parents			
	HSE		LSE	
	Father	Mother	Father	Mother
Highest Educational Qualification				
Literate	-	-	-	-
Primary school certificate	-	-	5	5
Middle school certificate	-	-	13	10
High school certificate	-	-	12	15
Intermediate or post high school diploma	6	5	-	-
Graduate or post graduate	15	18	-	-
Profession or Honors	9	7	-	-
Occupation				
Unemployed	-	6	-	-
Unskilled worker	-	-	7	17
Semi-skilled worker	-	-	10	11
Skilled worker	-	-	13	2
Clerical, Shop-owner	2	1	-	-
Semi-professional	12	9	-	-
Professional	16	14	-	-
Family income per month in Indian rupees				
<1977		-		-
1978-5875		-		-
5876-9793		-		1
9794-14,689		-		7
14690-19,586		-		22
19,587-39,173		2		-
>39, 174		28		-

Analysis

The recorded narrative samples were phonetically transcribed by the examiner and subjected to further analysis. Morpho-syntactic (total number of utterances and the total number of morphemes) measures were extracted from the language samples generated from each probe question. The ratio of the two was used to estimate the mean length of utterance (MLU). All samples were analyzed without the consideration of maintaining a common text length across the age groups. This method of analysis was followed in order to account for the quantitative information generated by the participants, avoiding an under representation of the child's linguistic abilities. One of the participants from Group I (LSE sub-group) was excluded from the study as the generated sample was not quantitatively suitable for analysis, thereby making the total sample size of N=59. An example of a language analysis done is mentioned as follows.

Trial stimulus. Event: No 1.

Utterances generated by the participant:

1. /na:nu/ /dɔɟʌ/ /ga:di/ /no:diðene/ (I have seen a big car)

2. /ʌvʌru/ /ʌp/ /hoguθa/ /lɖare/ (They are going up)

3. /ʌp//hogu/ (Go up)

Analysis

Morpho-syntactic measures:

Total number of morphemes generated: 13

Total number of utterances generated: 3

MLU calculated: 4.33

Caution was taken to avoid considering utterances for analysis, that were unrelated, irrelevant, and unintelligible to the central theme. However, utterances were included which were incomplete yet related to the central theme, utterances which were related to the central theme but of a different language, utterances related to the central theme but deviated from the focused response, and utterances with the presence of acceptable phonological processes (substitutions, syllable structure processes and assimilations). The total number of utterances and total number of morphemes were identified to be the dependent variables. In order to obtain the developmental trends across the two dependent measures, descriptive statistics were done using SPSS software (version 16.0). The data were subjected to normality based statistical measures which included Kolmogorov-Smirnov and Shapiro-Wilk tests. Non-parametric tests were performed using the Kruskal-Wallis test to obtain the level of significance of the language measures across the groups. Mann-Whitney U test was done to compare the dependent variables between the HSE and LSE subgroups of each Group I, II and III.

Results

The descriptive statistics which was done to obtain the mean and SD of the total number of morphemes and utterances are mentioned in the below table.

Table 3. The mean and SD of the morpho-syntactic measures of the HSE and LSE subgroups.

		Total number of morphemes		Total number of utterances	
		Mean	SD	Mean	SD
Group I	I HSE	39.2	19.17	17.2	6.82
	I LSE	54	38.55	17.44	7.98
Group II	II HSE	112.6	51.29	32.4	10.98
	II LSE	57.9	20.38	23.3	8.34
Group III	III HSE	106.2	87.47	30.7	14.59
	III LSE	83.4	54.07	29.2	9.55

The results of Kruskal-Wallis test indicated a significant difference (p <0.05) across the HSE (I-HSE, II-HSE, and III-HSE) and LSE (I-LSE, II-LSE, and III-LSE) subgroups for the total number of morphemes and utterances. Mann-Whitney U test was done to determine the level of significance between the HSE and LSE subgroups (under Group I, II, and III) for the total number of morphemes and utterances. Table 3 depicts the level of significance obtained for the total number of morphemes and utterances produced between the subgroups of the HSE and LSE under Group I, II, and III.

The HSE and LSE subgroups were compared under each group (I, II, and III). Mann-Whitney U test was done for each group (I, II and III) to determine the level of significance between the SES subgroups. The results revealed a poor, significant difference between Group I-HSE (p=0.623) and Group I-LSE (p=0.967) in their production of total number of morphemes and utterances. Group II-HSE and Group II-LSE showed evidence of a significant difference (p <0.05) in their morpho-syntactic productions, while Group III-HSE (p=0.518), and Group III-LSE (p=0.648) portrayed no significant difference in the total number of morphemes and utterances generated.

Table 4. The level of significance for the morpho-syntactic measures between the HSE and LSE subgroups.

SES	Groups	Level of significance	
		No. of morphemes	No. of utterances
HSE	I-II	0.000	0.010
LSE	I-II	1.000	0.653
HSE	II-III	0.496	0.880
LSE	II-III	0.059	0.067
HSE	I-III	0.003	0.004
LSE	I-III	0.253	0.024

Note: The level of significance is maintained at p <0.05

SES: Socio-Economic Status; HSE: High Socio-Economic; LSE: Low Socio-Economic

Discussion

This study aimed at assessing the morpho-syntactic development in Kannada speaking children between 2 and 5 years of age from higher and lower socio-economic classes. A variance was observed in the total number of morphemes and utterances generated between the two SES groups. For the HSE subgroup, more than a two-fold increase in both the morpho-syntactic measures was observed by 3-year-olds when compared to the 2-year-olds; but the 4-year-olds performed almost like the preceding group. In contrast, for the LSE subgroups, the 2- and 3-year-oldsattained near similar mean scores, while the 4-year-olds showed an increasing growth in their morpho-syntactic measures. The results positively correlated with the amount and richness of language input the children received (Newman, Rowe, & Ratner, 2015; Schwab & Lew-Williams, 2016)and the child's ability to process that input, are likely to impact the child's language acquisition. We explore how these factors inter-relate by tracking the relationships among: (a as well as their age of entry into preschool. Most of the HSE participants began pre-school/daycare by the age of two years, while their LSE counterparts began preschool at Anganwadi centers after three years of age. The results are in accordance with the previous findings (Skibbe, Connor, Morrison, & Jewkes, 2011), wherein at three years of age, children who had greater years of school experience were found to have better early literacy skills in comparison to those who had just begun schooling. However, after two years of schooling at pre-school, both groups performed similarly and were equally ready for formal schooling (Skibbe et al., 2011). In the present study, most LSE participants performed significantly poorer than their HSE counterparts at three years of age. However, by five years of age several participants who had been attending Anganwadi schooling from the age of three years showed language skills which were at par with their HSE counterparts.

Morpho-syntactic development, in particular, can be measured by the MLU which closely corresponds to the chronological age of typically developing children (Brown, 1973)Eve, and

Sarah -- The expository plan of this work -- Stage I. Semantic roles and grammatical relations -- The available data -- Characterizations of the data -- The role of word order -- The major meanings at Stage I -- Sensorimotor intelligence and the meanings of Stage I -- A grammar for late stage I English -- Stage II. Grammatical morphemes and the modulation of meanings -- The order of acquisition -- The grammar of the fourteen morphemes -- The semantics of the fourteen morphemes -- The frequency of the fourteen morphemes in parental speech -- Determinants of the order of acquisition -- The problem of variability -- The problem of segmentation.","author":[{"dropping-particle":"","family":"Brown","given":"Roger","non-dropping-particle":"","parse-names":false,"suffix":""}],"id":"ITEM-1","issued":{"date-parts":[["1973"]]},"number-of-pages":"437","publisher":"Harvard University Press","title":"A first language : the early stages","type":"book"},"uris":["http://www.mendeley.com/documents/?uuid=82dfa4a1-943e-4f26-ae9a-6ab8596febfa"]}],"mendeley":{"formattedCitation":"(Brown, 1973. The developmental trend in MLU was studied across the HSE and LSE subgroups. A steady increase was observed across the HSE subgroups (2-year-olds HSE, 3-year-oldsHSE, and 4-year-olds HSE scored 2.28, 3.43, and 3.51 respectively). On the contrary, 2-year-olds LSE attained the highest mean MLU (3.09), which is in accordance with the large variation in the total number of morphemes and utterances generated by the participants. The 3-year-olds LSE obtained the least scores (2.5), with 4-year-olds LSE following closely (2.78). The mean scores in 2-year-olds LSE might have been strongly influenced by the performance of one of the participants who attained scores at par with participants of 4-year-olds LSE. History revealed that the child had a rich communicative environment at home (Ronfani et al., 2015; Schwab & Lew-Williams, 2016)Socioeconomic Status, Maternal IQ and Early Child Neurocognitive Development: A Multivariate Analysis of Data Collected in a Newborn Cohort Study","type":"article-journal","volume":"10"},"uris":["http://www.mendeley.com/documents/?uuid=516f08ff-fd02-40c9-96dd-613c01406426"]},{"id":"ITEM-2","itemData":{"DOI":"10.1002/wcs.1393","IS

SN":"19395086","PMID":"27196418","abstra ct":"Young children's language experiences and language outcomes are highly variable. Research in recent decades has focused on understanding the extent to which family socioeconomic status (SES, despite both parents being working professionals. Also, unlike other participants of the LSE subgroup who began attending preschool at Anganwadi centers after three years of age, this participant aged 2.11 years was also attending a private playschool since the age of 2.6 years.

When the HSE and LSE subgroups were compared under each group, a statistically significant difference was obtained for the total number of utterances and morphemes generated by the 3-year-olds (HSE & LSE). However, in accordance with a previous study (Binu, 2014), the mean scores between the two subgroups (HSE and LSE) showed consistent differences in participants from two to five years of age. The 2-year-olds LSE participants attained higher mean scores for the total number of morphemes generated than the 2-year-olds HSE. However, both groups generated the same mean total number of utterances. With the exceptional performance of one participant, the results must be interpreted with caution. Based on the performance of both the SES subgroups, it can be inferred that the 2-year-olds performed in a similar manner in the morpho-syntactic measures with participants from both subgroups showing large variations in their language performance. The mean MLU showed a variance between the two SES subgroups, with 2-year-olds LSE obtaining a mean MLU greater than its HSE counter-part. This was in contrast to the findings of Hoff (2003) Parenting, and Child Development presents cutting-edge thinking and research on linkages among socioeconomic status, parenting, and child development. The contributors represent an array of different disciplines, and approach the issues from a variety of perspectives. Accordingly, their \"take\" on how SES matters in the lives of children varies. This volume is divided into two parts. Part I concerns the constructs and measurement of SES and Part II discusses the functions and effects of SES. Each part

presents four substantive chapters on the topic followed by an interpretive and constructively critical commentary. The chapters--considered as a whole--attest to the value of systematically examining the components of SES and how each flows through an array of specific parenting practices and resources both within and outside the home environment to help shape the course of child development. The result is a more fully delineated picture of how SES impacts the lives of children in the 21st century--a picture that contains a road map for the next generation of studies of SES and its role in the rapidly evolving ecology of family life.","author":[{"dropping-parti cle":"","family":"Hoff","given":"Erika Errika","non-dropping-particle":"","parse-names":false," suffix":""}],"container-title":"Socioeconomic Status, Parenting, and Child Developme nt","editor":[{"dropping-particle":"","family": "Bornstein","given":"M.H.","non-dropping-particle":"","parse-names":false,"suffix":""},{"-dropping-particle":"","family":"Bradley","given": "R. H.","non-dropping-particle":"","parse-names":false,"suffix":""}],"id":"ITEM-1","issued":{"date-parts":[["2003"]]},"page":"147-160","publisher":"L-awrence Erlbaum Associates","title":"Causes and consequences of SES-related differences in parent-to-child speech","type": "chapter"},"uris":["http://www.mendeley.com/documents/?uuid=df4aa9e1-046d-4b2e-a715-392a03e9230d"]}],"mendeley":{"formattedCit ation":"(E. E. Hoff, 2003, who found children between 16-31 months of age belonging to HSE and LSE subgroups to attain similar mean MLU scores.

The 3-year-olds HSE and LSE showed evidence of a significant difference in their morpho-syntactic productions, wherein the HSE subgroup obtained higher mean MLUs than their LSE counter-parts. This is consistent with the findings of Wells(1986), who found minimal differences in the MLU between the HSE and LSE groups at 3½ years of age. At this stage, a significant observation during the analysis was the heterogeneity of the data with respect to the choice of language used by the children between the HSE and LSE subgroups. The generated utterances ranged from complete sentences in Kannada such as

'ivarubagiluhathirajananodtharekuthkondu', to sentences which had instances of Kannada and English code mixes such as 'alli look out madthaiddare'. Additionally, instances of complete English sentences were also evident, such as 'there is a police man and they are all buying tickets.' The HSE participants showed a considerable shift in the choice of language used (Hammer et al., 2014) (from Kannada-L1 to English-L2) while responding to the Kannada probe questions. The language preference was indicative of English (L2), the medium of instruction at school, becoming their stronger (Jisa, 2000; Paradis, Nicoladis, & Genesee, 2000) and more dominant language (Dahl, Rice, Steffensen, & Amundsen, 2010) with participants preferring to use L2 at all times. Several instances of code switching and mixing which adhered to adult like structural constraints were evident. Participants used utterances such as 'alli fall aitha' and 'avluhomigehogthaiddare.' This occurred either as a result of the interaction of the two independent linguistic systems (Cantone & Müller, 2008) or when the child did not know the target word in L1 (Wei & Lee, 2001). The latter reason was also true for some instances of code switches and mixes observed in the morpho-syntactic measures of the LSE subgroup such as 'avalustairsallihogthaiddare.' Kannada being a synthetic language has most words made up of several morphemes, while English has most words that are made up of free morphemes. Using MLU as a measure of morpho-syntactic development is found to have a poor reliability especially when considering the MLU value beyond 3.0 (Klee, Fitzgerald, & Shriner, 1985). In addition, the absence of a good normative data (Bates, Dale, & Thal, 1995) has been one of the reasons for not considering it as a good measure of language development. In the present study, there was a potential for obtaining similar MLU values despite having different morpho-syntactic abilities (Bates et al., 1995; Rollins, Snow, & Willett, 1996). For example, in the two sentences 'namtharadubatte' and 'trainallihathathare,' the participants used different grammatical markers and sentence structures. When considering the former utterance, the 'subject' was omitted, whereas, for the latter, the 'verb' was found to be omitted. Although the presence of such

varied utterances, the MLU value was noted to be similar (4.0).

The 4-year-olds HSE and LSE portrayed no significant difference in the number of utterances and morphemes generated. However, the mean scores indicated the 4-year-olds HSE participants to have greater mean total number of morphemes and utterances, thereby obtaining a higher MLU than the LSE counter-part. The differences in the two groups can be attributed to the home environment(Hoff, 2003), type of schooling (Manhas & Qadiri, 2010), amount of language stimulation at home (Tamis-lemonda & Rodriguez, 2015) and overall development of the participants of the two sub-groups. Although all 4-year-olds (HSE & LSE) participants were attending preschool, the age of school entry (Skibbe et al., 2011), the school environment (Manhas & Qadiri, 2010), medium of instruction, and the variations in the dialect of language used may have contributed to the subtle differences in performance between the two groups. Additionally, the present study revealed that the 4-year-olds HSE participants had generated discourse predominantly in L2 (English) with a few instances of Kannada switches. By this age, English became the dominant language of the HSE children, with the parents of these children communicating largely with them in English at home. The use of Kannada was restricted only to situations such as conversing with grandparents and other elderly family members. For example, three of the participants from the 4-year-oldsHSE group generated only L2 utterances despite being constantly reminded to respond in L1. On the contrary, two participants of this subgroup, whose parents continued to use Kannada at home, responded to the probe questions mostly in Kannada with few instances of English code switches. These findings are at par with the findings of another study (Hammer, Davison, Lawrence, & Miccio, 2009), where the usage of English at homes of Spanish-English bilingual children, negatively affected the children's growth of Spanish (their L1).

The participants of both the SES groups had several similarities and differences between them. A significant factor attributing to the difference in performance between the

participants included the age of commencement of school, medium of instruction, and the type of school (Skibbe et al., 2011). With the educational qualification of parents being an important issue in child development (Playford et al., 2017), the present study did observe parents from both subgroups (HSE and LSE) having noticeable differences. The qualifications of the parents of the LSE subgroup ranged from a primary to high school certificate; while the HSE subgroup had qualifications ranging from having a post high school diploma to honours. However, parents of both the subgroups were working professionals. When taking into account the type of language used by the LSE and HSE children, children from the former subgroup were exposed to more discouragements and directive communication, while those from the latter group heard more positive language which included encouragements and affirmations, through continuous conversations, as observed by other studies as well (Bradley, Corwyn, McAdoo, & Coll, 2001; Hart & Risley, 2003a). All HSE parents did report that the use of such reciprocative language was more during story-telling, meal time, watching TV, reading, and other interactive activities. However, the frequency of conversations that were held between the children and parents, the time spent by the parents in activities, and the duration of the conversations held were quite similar between the HSE and LSE subgroups.

Conclusion

The present study highlights the role of socio-economic status on the morpho-syntactic development of language in young Kananda speaking children. The findings of the study do provide an insight into the various influencing factors such as the language environemnt, parental education, and schooling,which may be associted with the morpho-syntatic development in children from lower and higher socio-economic families.

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Appendix

	Event no.	Type of event	Characters involved in the event	Overall scope for dialogue for all events
Trial stimulus	1.	People in an ambulance.	People	Labeling Describing attributes Describing agent -action. Describing action-object. Making inferences
	2.	An adult male cycling on the street.	Adult male	
	3.	Policemen in a police vehicle.	Policemen	
	4.	A gas station.	Vendor/customers	
	5.	People entering a shop.	Vendor/customers	
	6.	People in a fire engine	Firemen	
	7.	A bus stop	People	
	8.	Some activity happening at a distant park.	People	
	9.	A newspaper stall.	Vendor/customers	
	10.	People crossing the road.	People	
	11.	People in a truck.	Truck drivers/ passengers	
	12.	People sitting and eating at a restaurant	Diners/waiters	
	13.	Moving vehicles on the road	Bikers/Drivers	