Standardization of Receptive Expressive Emergent Language Skills for Kannada Speaking Children

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Abstract

Language development is a process that starts early in human life, when a person begins to acquire language by learning it as it is spoken and by imitation. Child language development moves from simple to complex. Many tests have been developed to assess language in toddlers. Even though they have been developed many decades back, they are still in practice in almost all clinics in India. But the tests need to be revised and standardized because children are observed to be developing many skills at very early years of age. The present study was undertaken to standardize REELS (Receptive Expressive Emergent Language Scales – Bzoch and League 1971.) for children exposed to Kannada language. 720 children from all over Karnataka with age range of 0-3yrs served as subjects for the study. The children were divided into different age ranges 0-3 months to 33-36months. The milestones in REELS both receptive and expressive skills were adapted (modified to suit south Indian context of Kannada), numbered and used for the study as questionnaire that was administered to the parents/caregivers. The responses were tabulated and analyzed. The results collected from all three regions of North, South and Coastal Karnataka was gathered and standard deviation was calculated. There was highly significant differences seen in 1st to 3rd year however, the milestones did not differ significantly in the lower age group that is less than 1 year. The revised REELS contain the skills, which have been shifted to lower age group using 80% criteria. . Further the scale need to be standardized separately for rural and urban areas with equal number of skills throughout the age ranges.

Key words: Language acquisition, Developmental scales, Standardization, Validation

Language development is a process that starts early in human life, when a person begins to acquire language by learning it as it is spoken and by imitations. Children's language development moves from simplicity to complexity.

Usually, language starts off as recall of simple words without associated meaning, but as children age, words acquire meaning and connections between words are formed. In time, sentences start to form as words are joined together to create logical meaning. As a person gets older, new meanings and new associations are created and vocabulary increases as more words are learned.

Infants use their bodies, vocal cries and other preverbal vocalization to communicate their wants, need and dispositions. Even though most children begin to vocalize and eventually verbalize at various ages and at different rates, they learn first language without conscious instruction from parents or care takers. It is a seemingly effortless task that grows increasingly difficult with age. Of course, before the learning can begin, the child must be biologically and socially mature enough.

The most intensive period of speech and language development for humans is during the first three years of life, a period when the brain is developing and maturing. These skills appear to develop best in a world that is rich with sounds, sights, and consistent exposure to the speech and language of others.

There is increasing evidence suggesting that there are "critical periods" for speech and language development in infants and young children. This means that the developing brain is best able to absorb language, any language, during this period. The ability to learn a language will be more difficult, and perhaps less efficient or effective, if these critical periods are allowed to

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pass without early exposure to a language. The beginning signs of communication occur during the first few days of life when an infant learns that a cry will fetch food, comfort, and companionship. The newborn also begins to recognize important sounds in his or her environment. The sound of a parent or voice can be one important sound. As they grow, infants begin to sort out the speech sounds (phonemes) or building blocks that compose the words of their language. Research has shown that by six months of age, most children recognize the basic sounds of their native language.

Language development during these very early years of life from birth to about 2 ½ to 3 years is very dramatic and rapid. From birth to 2 ½ years is the period usually labelled as infancy and adulthood. Infants eventually recognize much of what they hear and gain more control over their speech structures. Even though they may alert to hearing a familiar word or produce a string of sounds that are almost recognizable, there abilities are still pre-linguistic, that is, they precede true language. Nonetheless, they represent the needs of conventional language behaviours.

Midway through their 1st year, infants begin to babble, playing with sound much as they play with their fingers and toes. At approximately the same age that they take there first step; many infants produce their first words. Early in their 2nd year, the babbling of the pre linguistic infant gives way to words, for most children. Once infants begun to speak, the course of language development appears to have some universal characteristics.

As in other areas of linguistic research, it is important to recognize that different constraints act upon the child's comprehension and production of a particular form. Language does not develop in isolation nor has a separate system of behaviour with special status. The behaviours that eventually evolve into recognizable language behaviour are supported by the child's whole development in the motor, cognitive, and social domains.

Each domain- motor, cognitive, and social- builds on development in the others. Although our focus is on language, it is important to view the entire process and to understand how these related domains set the stage for language to evolve.

The 1st year is an eventful one, so many changes occur so rapidly in all the domains- motor, cognitive, and social. The changes in these systems do more than precede language. These changes continuously channel infant's evaluation towards true language.

Elardo, Bradley & Caldwell (1977) employed a process-oriented research strategy to examine relations among various aspects of the early home environment and children's language development. Infants' home environments were assessed when they were 6 and 24 months old with the Home Observation for Measurement of the Environment (HOME). When 3 years of age, each child was administered the Illinois Test of Psycholinguistic Abilities. Results demonstrated that it is possible to specify some of the parameters of early experience related to certain aspects of language development. The HOME subscales "Emotional and Verbal Responsivity of Mother," "Provision of Appropriate Play Materials," and "Maternal Involvement with Child" showed the strongest overall relation to language competence. Among the 10 psycholinguistic abilities measured, auditory reception, auditory association, visual association, and grammatical closure were most strongly associated with the quality of stimulation found in the early environment.

Wright, Huston, Murphy, Peters, Piñon, Scantlin & Kotler (2002) used two cohorts of children from low- to moderate-income families, time-use diaries of television viewing were collected over 3 years (from ages 2-5 and 4-7 years, respectively), and tests of reading, math, receptive vocabulary, and school readiness were administered annually. Relations between viewing and performance were tested in path analyses with controls for home environment quality and primary language (English or Spanish). Viewing child-audience informative programs between ages 2 and 3 predicted high subsequent performance on all four measures of academic skills. For both cohorts, frequent viewers of general-audience programs performed more poorly on subsequent tests than did infrequent viewers of such programs. Children's skills also predicted later viewing, supporting a bidirectional model. Children with good skills at age 5 selected more child-audience informative programs and fewer cartoons in their early elementary years. Children with lower skills at age 3 shifted to viewing more general-audience programs by ages 4 and 5. The results affirm the conclusion that the relations of television viewed to early academic skills depend primarily on the content of the programs viewed.

Thus it has been an area of great interest for researchers to measure the language in the typically developing toddlers. As we know that language develops rapidly during the critical age period and it is important to know the domains of language which are acquired during this stage. Also the level of acquisition of language from infancy needs to be studied. Many researchers have listed the skills which are achieved across

the stages of language development. Many of these serve as tests to assess language abilities in children with language impairment.

Receptive Expressive emergent Language Scale (REELS) was given by Bzoch & League (1971) for children in the age range of 0 to 3 years. It is an untimed test although may take approximately 10 minutes. The test aimed at determining whether expressive and receptive language skills are following normal developmental patterns during first 36 months of life. The test consists of an outline of developmental stages for expressive and receptive language presented in 22 sections. There are 3 receptive and 3 expressive items per sections and these are divided across the age bands so that 12 items apply to year one, 6 items apply to year two and 4 items apply to year three.

Scales of Early Communication Skills (SECS) was given by Moog & Geers (1975) for children in the age range of 3 to 8 years. This test assesses speech and language development in children with hearing impairment. The test is divided into 4 parts; receptive language skills, expressive language skills, non-verbal receptive language skills and non-verbal expressive language skills.

3-Dimentional Language Acquisition Test (3DLAT) was given by Harlekar (1986) for children in the age range of 9 months to 3 years. The test makes a possible examination of the relation among cognition, comprehension and production skills in normal and in specific groups of language deviant children. According to age at which various aspects of language of emerge they have been divided into nine age groups which cover the age groups from 9 months to 36 months. Each age group has a range of 3 months except for last group which has average of 4 months. Three items each for expression, repetitions and cognition for every age group are selected. Hence the test includes 72 items under each section.

Prathanef & Pongajanyakul (1998) establish a Thai Speech and Language Test for Thai children between zero and 2 years of age. The authors reviewed both Thai and international speech and language development tests and studies related to factors associated with speech and language development. A Thai Speech and Language Test for children between zero and 2 years of age (TSLT2) was then formulated. The test was used with 419 typically developing Thai children in Khon Kaen, north-east Thailand.

Wiig & El-Halees (2003) gave an account of general and specific issues associated with developing an Arabic-language screening test for children aged between 3 and 12 years. The product is a screening test of verbal and related non verbal abilities with parallel components for children of preschool (3-5 years) and elementary school age (6-12 years). Normative data were collected for 750 Arabic-speaking children in Jordan and Palestine, distributed fairly equally between the ages of 3 and 12 years.

Bzoch, League & Brown (2003) took 1,112 children to revise the REELS (Receptive Expressive Emergent Language Test) according to 2000 census. It is designed to help identify infants and toddlers who have language impairments or who have other disabilities that affect language development. It is especially useful as an assessment and planning instrument in early childhood intervention programs. The first version of REELS was developed in the year 1971.

Hence it was an area of interest for researchers to measure the language in the typically developing toddlers. As we know that language develops rapidly during the critical age period, it was important to know the domains of language which is acquired during this stage. Also the level of acquisition of language from infancy was studied. Many researchers have listed the skills which are achieved at across the stages of language development. Many of these serve as tests to assess language abilities in children with language impairment.

Need for the Study

Most of the tests were developed for western population. To adopt these tests to Indian population they need to be standardized. There are several reasons to this statement of why we need to standardize. One of the important needs is the cultural variations in different parts of the globe. According to the literature socio-culture is one of the most important variable to account for the language development. Typically developing children do differ in language acquisition even when exposed to same region, so the variation in language acquisition is highly influenced by the environmental exposure to the children in different regions. Mother/caretaker interaction also varies with different socio- economic status. Socio-economic condition is lower in India as compared to western countries.

Importantly the tests which are used to assess language have been developed 3-4 decades back. Amount of stimulation along with physiological and psychological maturation is been increased as years pass. So the tests may not accurately assess the language abilities in children. Children are faster at skills in the present days as compared to the children of older

generation. So the tests need to be revised as well as standardized.

Aim of the Study

The study aimed at standardizing REELS for Kannada speaking population.

Method

Subjects: Selected for the study were a total of 720 children, in the age range of 0-3yrs from all over Karnataka. Both male and female children were considered for the study.

Selection criteria

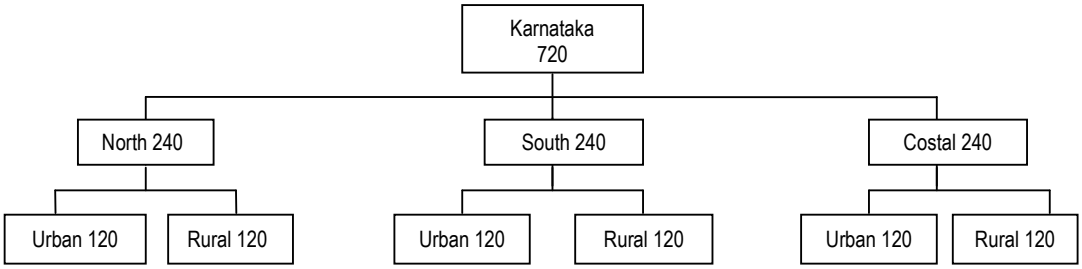
- For the present study we considered children without any pre, peri, and post natal complications.
- Children not having any behavioural, psychological, physiological, or sensory problems.
- All children have Kannada (a Dravidian language) as their mother tongue and first language.

Material Used: Developmental milestones specified in Receptive Expressive Emergent Language Scales-REELS [Bzoch & League, 1971] were used as questionnaire for our study. REELS, is a measure of reception and expression language skills. The milestones is been divided into 3 months intervals ranging from 0-3 months to 33-36 months. The skills mentioned in this test were taken as questionnaire for both receptive and expressive skills which were numbered and administered. As the test was developed for children in western country, direct adaptation is difficult, due to cultural variations. Hence the material was modified in order to match with cultural background of Karnataka population (See R17 and E32 in Appendix).

All children underwent informal screening for "Hearing". "Hearing" screening was done using non verbal sounds like 'clap', 'bell', 'knock'.& verbal sounds like 'name call' stimuli presented at 3 feet and at 5 feet distances.

Procedure

A total of 720 children in the age range of 0-3 years from all over Karnataka were included in the study comprising both males and females. Data was collected from 3 regions of Karnataka that is North, South, and Coastal. The samples were collected from North Hubli and Bellery district. From south it included Mysore, Mandya and Chamarajanagar and from coastal region it included Dakshina Kannada and Udupi district. Equal number of children from all these regions participated in the study. Children between 0-3 years age range were divided into 12 subgroups with 3-months interval between each consecutive groups. (0-3months to 33-36months).



Data was collected from the hospitals, houses, and Anganvadis and play homes, depending on the availability of the children. In addition to this, a survey was done in the nearby villages for children below 3 years and data was collected. The data collection began with the Hearing and Vision screening followed by administration of the questionnaire to the parents or care takers. Hearing screening was done informally by presenting verbal (name call) and non-verbal sounds (clap and knock) at 3ft and 5ft distances. If the child responded for 3 out of 5 times the stimuli presented, he/she was considered to have normal hearing. Similarly screening for vision was carried out. The visual screening protocol by Bishop (1989) was adopted. Protocol was administered following the brief birth history and family history to rule out vision problems. Task used and the material required for the vision screening is depicted in table 1.

The questionnaire consisted of a total of 86 questions for both receptive and expressive language skills separately (86 x 2 = 172). The questionnaire was administered to the parents or care givers of the children (listed in the increasing order of difficulty). The procedure was same for both receptive as well as expressive skills. Administration of the questionnaire was stopped at the point where the parents or care givers reported that the particular task is not achieved by the child. The scores were noted down in the evaluation form. The evaluation form consisted of separate

columns for both receptive and expressive skills. Speech was recorded in children above 2 yrs of age. Data entered in the evaluation forms were the specific numbers corresponding to the number of questions in the questionnaire (skills achieved by the child) last fulfilled by the child.

The Screening Sequence According to the Protocol		
Task	**Materials**	**Distance**
Pupillary response	Response Light	Near
Blink Response	Hand	Near
Convergence	Light or toy	Near
Muscle Balance	Light; hand	Near
Fixation	Object: 4" x 5"	Near (8" to 18")
Fixation	Object: 1"	Near (8" to 18")
Fixation	Object: 4"	Distance (10')
Tracking	Light or toy	Near
Eye preference	(observational)	(any distance)
Shift Gaze	Two objects	Near
Visual Fields	Toy; light	Near

Table 1: The Visual Screening Sequence According to the Protocol by Bishop (1989)

Results and Discussion

The results obtained for the entire 3 regions was compiled and tabulated. The data was arranged according to specific age range starting from 0-3 months till 33-36 months. The mean, standard deviation and t-value were calculated for each of the age groups and the scores obtained in our study were compared with the normative developed in the older version of REELS (1971). The upper limit at which skills are acquired in each age range was tabulated and this depended on the number in the questionnaire, where the test has been stopped for a particular child. For example, 15-18 months in older version of REELS children could satisfy at question number '45' whereas in our study children are able to satisfy till 54th question. Tabulated scores for both receptive and expressive skills for the older version of REELS and for the present generation is been depicted in Table 2 and 3.

Table 2 shows the mean, standard deviation and t-value for receptive language skills for both older and present data. As the Table 2 depicts, there is significant difference between the skills achieved from 6-9months to 33-36months. There was no significant difference between the skills acquired at 0-3 months and 3-6monhs. The difference in the skills increased as the age progressed. Greater difference in the skills between older and new data was seen between 1-2 years of age. The difference was very less in the first year of age and 2-3years of age falling between these two. This shows that children in present generation acquire skills earlier between 2-3years of age and it decreases as the age progresses from 3-4years of age.

Sl no	Age range	Groups	Mean	SD	t- value
1	0-3months	Old New	9 8.25	3.6	0.77 ns
2	3-6months	Old New	18 19.63	4.29	-0.11 ns
3	6-9months	Old New	27 34.17	5.67	0.00 **
4	9-12months	Old New	36 41.7	5.1	0.00 **
5	12-15months	Old New	40 44.66	7.25	0.02 *
6	15-18months	Old New	45 54.0	4.09	0.00 **
7	18-21months	Old New	49 57.18	5.18	0.00 **
8	21-24months	Old New	54 59.8	2.68	0.00 **
9	24-27months	Old New	57 62.31	3.80	0.00 **
10	27-30months	Old New	60 65.0	3.90	0.00 **
11	30-33months	Old New	63 67.7	3.50	0.00 **
12	33-36months	Old New	66 70.0	2.51	0.00 **

(old = data of REELS in 1971, New = data for present population, * = significant, ** = highly significant and ns = not significant)

Table 2: Showing mean, standard deviation and t-value for receptive language skills for both older data and the present one.

Table 3 shows the mean, standard deviation, and t- value for expressive language skills for both older and present data. As the table depicts, the differences were very less in the first year of life, but as the age progressed the difference in the skills increased. These differences are significant from 6-9months till 12-15months and are highly significant from 15-18 months till 33-36 months of age for expressive language skills. This shows that the children in the present generation acquire skills earlier between 2-3years of age and it is gradual as the age progresses from 3-4yrs.

According to both the tables 2 and 3 receptive as well as expressive language skills have improved across the decades, seemingly there is highly significant difference between the skills acquired by 1-3yrs of age. This is because language is another form of behaviour which is acquired as a response to the stimuli in the environment and then it is learnt. Children's creativity with language and level of linguistic

alignment help them in learning language. Learning is a voluntary response which is strengthened or weakened depending on positive or negative consequence. These aspects seem to be increasing in the present generations. Parental stimulation and environmental exposure seemingly are the important factors for the increased linguistic development for the present generation. Present findings are in agreement with Elardo, Bradley & Caldwell (1977) who stated that language development is dependent on early stimulation at home.

Sl no	Age range	Groups	Mean	Standard Deviation	T-value
1	0-3months	Old New	9 7.83	3.01	0.2 ns
2	3-6months	Old New	18 18.68	1.97	0.14 ns
3	6-9months	Old New	27 31.23	4.86	0.02 *
4	9-12months	Old New	36 38.84	3.67	0.03 *
5	12-15months	Old New	40 43.0	3.53	0.05*
6	15-18months	Old New	45 50.54	4.25	0.00**
7	18-21months	Old New	49 55.45	5.30	0.00**
8	21-24months	Old New	54 57.9	3.27	0.00**
9	24-27months	Old New	57 61.0	3.86	0.00**
10	27-30months	Old New	60 64.0	3.74	0.00**
11	30-33months	Old New	63 68.0	2.70	0.00**
12	33-36months	Old New	66 69.92	2.11	0.00**

(old = data of REELS in 1971, New = data for present population, * = significant, ** = highly significant and ns = not significant)

Table 3: Showing mean, standard deviation and t-value for Expressive language skills for both older data and the present one.

As we found that children achieved both expressive and receptive skills in equal amount early in life with reference of REELS I edition developed in 1971 we revised it for present generation. According to Table 2 and 3, we observe that age progressed there was highly significant difference between older and new data. This difference was minimal during first year of life but highly significant in second and third year of life. Hence our aim was to standardize and revise the test. During revision we followed 80 % criteria, that is if 80% of the children in a particular age group are passing or able to achieve a particular milestones that skill was moved to lower age group. This was done for both Receptive and Expressive skills. The modified REELS for children who are exposed to Kannada language is as seen in the Appendix. As seen in Appendix the milestones have been shifted to the lower age groups when they are found to be achieved in 80% of the children. But we were not able to maintain equal number of milestones for each of the age ranges. That is some age range have more number of milestone and others have lesser. And also in each age ranges equal number of Receptive and Expressive skills has not been maintained.

Conclusions

The present study was aimed at standardizing REELS (Receptive Expressive Emergent Language Scales) for children exposed to Kannada language. A total of 720 children with age range of 0-3years from all over Karnataka who were exposed to Kannada language were included in the study. Data was collected from all three regions of Karnataka (North, South and Coastal). The data was tabulated and analyzed to check the significant difference between older version of REELS as compared with the present generation. Results revealed that there was significant difference seen in second to third year of life than in first year, for both receptive and expressive skills. The standardized scale has been developed, by shifting the skills that are achieved at particular age, using 80% criteria to the lower age group. As we included children from all over Karnataka, both from rural and urban areas, the scale can be administered to any children below the age 3 from any part of this region. Further the scale needs to be standardized separately for rural and urban areas. Further, equal number of receptive and expressive skills needs to be maintained throughout the age ranges.

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