



Adaptation of Child Language Experience and Proficiency Questionnaire in the Indian Context

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Abstract

The Language Experience and Proficiency Questionnaire (LEAP-Q) is a tool to collect data of bilingual and multilingual individual's language experience and proficiency, further it was adapted for use with children. This study aims to modify and adapt the Child LEAP (Language Experience and Proficiency) questionnaire into the Indian context. The study was undertaken in three phases. The first and second phases included the modification and adaptation of Child LEAP-Q to the Indian context. The third phase was conducted by administering an adapted questionnaire. It was administered in two groups (Group 1: Telugu-English; Group 2: Hindi-English) of bilingual participants between 5 and 15 years of age. Descriptive statistics were performed to determine the mean and standard error (S.E). Repeated measures ANOVA was used to analyze the differences between and within the groups. The data revealed that the first language (L1) was acquired earlier than the second language (L2), whereas there was a significant difference in the usage of L1 and L2 in both groups. L2 was used more than L1 in the school. Participants were more likely to be exposed to L1 than L2 by family members in both groups, and no significant difference was observed between the groups. Regarding language proficiency, a significant difference was found between the languages but not between the groups. It was found that the important contributor and exposure for learning L1 were friends and family members, and for L2, it was interacting with teachers, whereas the least important contributor and exposure for L1 was interacting with teachers, and for L2, it was interacting with caregivers. There was a significant difference found in languages, as L2 was more influenced by other languages (L1) than L1, but not in the groups. The Child LEAP questionnaire in an Indian context is the first initiative to adapt a questionnaire for bilingual children in an Indian context. It will be clinically useful for speech language pathologists and linguists dealing with bilingual and multilingual children to assess their language proficiency and the factors contributing to it.

Keywords: Bilingualism; First Language (L1); Second Language (L2); Questionnaire; Language Proficiency

Abbreviations

L1: First Language; L2: Second Language; LEAP: Language Experience and Proficiency; Q1: Interacting with Friends; Q2: Interacting with Family; Q3: Interacting with Caregiver; Q4: Interacting

with Teacher; Q5: Reading Alone or with Someone; Q6: Additional Language Subjects; Q7: Watching TV; Q8: Using Smartphone; Q9: Listening Music; G1: Group 1(Telugu-English Bi/Multilingual); G2: Group 2(Hindi-English Bi/Multilingual)

Introduction

Language is a system of arbitrary verbal symbols arranged in a conventional code that evolved as a social tool to communicate ideas and influence others’ behavior [1]. Every human being is brought up in an environment where they can be monolingual, bilingual, or multilingual [2]. Bilingualism is the ability to communicate in more than one language and can be thought of as a continuum of language skills in which proficiency in any of the languages used may fluctuate over time and across social settings, conversational partners, and topics, among other variables [3,4]. Many children grow up in a bilingual environment where the acquisition of more than one language starts at birth. Pearson (2007) stated that social and environmental factors determine whether a child becomes bilingual or adopts and speaks only the majority language [5]. India has a vast diversity of cultures and languages. According to the eighth schedule of the Indian Constitution, 22 languages are spoken in India. India has 122 major languages and 1599 other languages [6]. Hindi is the most common language spoken in India. According to the Census of India, 485 million people speak Hindi [7]. Hindi is written in the Devanagari script. Along with Hindi, English is the official language of India. Hindi is the most used language in northern India than in the south. Telugu is a south-central Dra-

vidian language. It is the primary language spoken in the states of Andhra Pradesh and Telangana. Telugu is ranked fourth (7.77% of the Indian population.) among the largest number of native speakers in India [7]. The Language Experience and Proficiency Questionnaire (LEAP-Q) is a tool to collect data of bilingual and multilingual individual’s language experience and proficiency further it was adapted for use with children [9].

Materials and Methods

The current study aimed to modify and adapt the Child LEAP [Language Experience and Proficiency] questionnaire into Indian context and was administered to bi/multilingual children in the age range of 5-15 years. The study was conducted in three phases. Phase 1: Permission from the original author; Phase 2: Modification of the questionnaire according to the Indian context, Phase 3: Administration of the questionnaire. In this study, 60 bilingual and multilingual subjects were included. The participants were divided into two groups of 30, i.e., Group 1 and Group 2, with Telugu-English and Hindi-English, respectively. Table 1 gives the details of the participants. Group-1(G1: 30 Telugu-English Mean = 10.13; Std. Deviation = 3.53 years) and Group-2 (G2: 30 Hindi-English Mean = 9.53; Std. Deviation = 3.15 years).

Table 1: Mean and Standard deviation (SD) for the age of participants.

Groups	No of participants	Languages	Mean Age (In Years)	Std. Deviation
Group-1	30	Telugu-English bi/multilingual	10.13	3.53
Group-2	30	Hindi-English bi/multilingual	9.53	3.15
Total	60	-	-	-

Inclusion criteria

All participants were selected randomly from a school.

- The educational qualifications of the child’s parent/caregiver should be at least intermediate or equivalent.
- The child’s parent/caregiver should have basic proficiency in understanding, speaking, reading, and writing English.
- All participants should be native speakers of Telugu and Hindi and have L2 in English for both academic and communicative purposes.
- Participants varied in age from 5 to 15 years.

Exclusion criteria

- Non-native speakers of Telugu or Hindi.
- L2 other than English
- History of speech and language problems.
- With major health problems.
- With sensory, motor, cognitive, and neurological impairments.

Phase 1: Permission from the author

Before adapting the Child LEAP questionnaire into the Indian context, permission from the authors was obtained through email. A detailed explanation was written about the need to adapt the questionnaire to the Indian context.

Phase 2: Modification of the questionnaire according to the Indian context

The questionnaire was given to two teachers, two parents, and five speech language pathologists dealing with bilingual children in the age range of 5–15 years for suggestions in the questionnaire, according to the Indian context. They were asked to add or delete questions as needed. The child LEAP questionnaire has been modified according to the suggestions. Then, it was given to five speech language pathologists and one linguistic for rating the appropriateness. The questionnaires were assessed for syntactic structure, semantic content, familiarity, ambiguity, and appropriateness in the Indian context. It was rated on a scale of 5 points (0-inappropriate, 1-slightly inappropriate, 2-neutral, 3-slightly appropriate, 4-appropriate) by each judge. Later, the questionnaire, Child LEAP in the Indian context, was finalized.

Phase 3: Administration of the Questionnaire

Permission for the study was obtained from the school administration, and a parent–teacher meeting was arranged. Informed consent was obtained from the parent/primary caregiver. Before that, they were informed about the need, procedure, and approximate duration of the investigation. The adapted questionnaire (Child LEAP in Indian context) was given to the parents/primary caregivers and were asked to fill based on their child’s language experience. Each question was explained, and the participants were allowed to clarify any doubts. All response sheets based on the questionnaire were tabulated.

Statistical analysis

The tabulated responses were analysed using the SPSS statistical package for Social Sciences 20. Descriptive statistics were per-

formed to determine the mean and standard error (S.E). Repeated measures ANOVA was used to analyse the differences between the groups and determine the difference between L1 and L2 within the group.

Results

A modified version of the existing Child-LEAP-Q (Language Experience and Proficiency Questionnaire) was developed. The questionnaire contains 39 questions. Five questions in the questionnaire were intended to collect detailed information about the order of languages learned, the order of language dominance, languages learned in school, past school history, and medical history. The remaining 34 questions with their subsections were more relevant to assessing the proficiency of the child language. The questions were divided into eight domains: age of acquisition, language usage, language usage at school, language exposure in the family, language proficiency, extent of language contribution, extent of language exposure, and influence of other language accents.

Age of acquisition

The first domain, i.e., age of acquisition, is intended to collect information about the age at which the child started hearing the languages (i.e., L1 and L2) and the age at which the child acquired the ability to produce single words, phrases, and complete sentences in both groups (G1- Group1 and G2- Group2). This revealed a significant statistical difference between the languages L1 and L2 ($p < 0.01$). There was a statistically significant difference between the groups based on age of acquisition ($p < 0.01$), except for age of hearing (Table 2).

Table 2: Age of acquisition.

ITEM	GROUP	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Started hearing	G1	.00	.00	4.56	.22	698.8	.00**	3.05	.08
	G2	.00	.00	4.00	.22				
Produced single word	G1	1.30	.09	4.83	.19	398.3	.00**	5.16	.02*
	G2	1.27	.09	4.20	.19				
Produced phrase	G1	2.16	.08	5.43	.19	393.4	.00**	13.04	.00**
	G2	1.96	.08	4.53	.19				
Produced complete sentences	G1	2.96	.12	6.23	.20	258.4	.00**	9.43	.00**
	G2	2.93	.12	5.30					

** indicative of significant difference for $p < 0.01$

Language usage

The second domain, i.e., language usage, is intended to gather information about the language spoken and heard by the child regularly. It had a five-point rating scale (i.e. 1-never, 2-rarely, 3-some-

times, 4-often, and 5-always) to be used by parents or caregivers. Analysis of the data revealed a highly statistically significant difference between L1 and L2 based on the usage of language ($p < 0.01$). Both Group1 (G1) and Group 2 (G2) had similar results, which showed no statistical difference (Table 3).

Table 3: Language usage.

Item	Group	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Speak	G1	4.86	.05	3.36	.17	131.85	.00**	.01	.89
	G2	4.93	.05	3.26	.17				
	Total	4.90	.03	3.31	.12				
Hear	G1	4.90	.05	3.46	.17	123.34	.00**	.28	.59
	G2	4.93	.05	3.30	.17				
	Total	4.91	.03	3.38	.12				

** Indicative of significant difference for $p < 0.01$

Language exposure at school

The third domain, language exposure at school, collected information about the child’s exposure to languages at school through a five point rating scale (i.e. 1-never, 2-rarely, 3-sometimes, 4-often, 5-always). The collected data revealed a significant statistical dif-

ference between L1 and L2 ($p < 0.01$). In both groups, the language exposure at school was the same, and no statistical difference was found between the groups based on language exposure at school, except for the language heard in school (Table 4).

Table 4: Language exposure at school.

ITEM	Group	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Speak	G1	3.80	.22	4.06	.15	11.04	.00**	2.57	.11
	G2	3.06	.22	4.30	.15				
	Total	3.43	.15	4.18	.11				
Hear	G1	3.80	.23	4.30	.14	28.69	.00**	5.47	.02*
	G2	2.70	.23	4.70	.14				
	Total	3.25	.16	4.50	.10				

** Indicative of significant difference for $p < 0.01$

Language exposure in family

The 4th domain acquired information about the exposure of languages that the child get from the family members, through a five point rating scale (i.e. 1-never, 2-rarely, 3-sometimes, 4-often,5-always) showed a statistical difference between L1 and L2 ($p < 0.01$), as the family members used more L1 than L2. There was no difference found between the groups.

Language proficiency

The fifth domain (language proficiency) gathered information about the understanding, speaking, and reading skills of the child. It has a five-point rating scale (1-very poor, 2-poor, 3-fair, 4-good, 5-excellent) where parents rate their child’s language proficiency. The results show that in both groups, the proficiency for under-

Table 5: Language exposure in family.

ITEM	Group	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Std. error	Mean	Std. error	Frequency	P	Frequency	P
Father	G1	4.80	.12	3.36	.21	75.14	.00**	.61	.43
	G2	4.80	.12	3.10	.21				
	Total	4.80	.08	3.23	.15				
Mother	G1	4.76	.12	2.60	.22	110.76	.00**	1.18	.28
	G2	4.83	.12	2.90	.22				
	Total	4.80	.08	2.75	.15				
Siblings	G1	4.80	.11	3.00	.20	87.44	.00**	1.98	.16
	G2	4.80	.11	3.43	.20				
	Total	4.80	.07	3.21	.14				
Grandparents	G1	4.73	.16	1.83	.21	191.63	.00**	.00	.92
	G2	4.70	.16	1.90	.21				
	Total	4.71	.11	1.86	.15				

** Indicative of significant difference for p < 0.01

Table 6: Language proficiency.

ITEM	Group	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Understanding	G1	4.83	.05	4.13	.19	25.57	.00**	1.43	.23
	G2	4.97	.05	4.36	.19				
	Total	4.90	.03	4.25	.13				
Speaking	G1	4.80	.06	3.70	.22	50.29	.00**	.04	.84
	G2	4.86	.06	3.70	.22				
	Total	4.83	.04	3.70	.15				
Reading	G1	4.56	.14	4.03	.21	13.57	.00**	.18	.66
	G2	4.36	.14	4.03	.21				
	Total	4.47	.10	4.03	.15				

** p < 0.01 indicating highly statistically significant

standing and reading in L1 and L2 was good to excellent, and the speaking proficiency in L1 was also good to excellent, whereas it was fair in L2. There was a significant statistical difference between L1 and L2 (p < 0.01), but no significant difference between the groups (Table 6).

Extent of language contributor and exposure

The sixth and seventh domains collect information about different factors that contribute to the child language acquisition and the exposure from different situations (i.e. Q1-interacting with friends, Q2- interacting with family, Q3- interacting with caregiver, Q4- in-

teracting with teacher; Q5- reading alone or with someone, Q6- additional language subjects, Q7- watching TV, Q8- using smartphone, Q9 - listening music). Both the domain has a five point rating scale (for language contribution: 1-not a contributor, 2-slightly important contributor, 3-moderately important contributor, 4-very important contributor, 5-extremmely important contributor, for language exposure: 1-never, 2-rarely, 3-sometimes, 4-often, 5-always Note). The analysis of the data revealed that interacting with friends (Q1) and family members (Q2) was the most important contributor to learning L1. For L2, it was interacting with teach-

ers (Q4), whereas the least important contributor for L1 was interacting with teachers (Q4), and L2 was interacting with caregivers (Q3). For both groups, factors contributing to language learning were greater in L1 than in L2. There was a highly significant difference found between L1 and L2 for all factors (i.e. Q1-interacting with friends, Q2- interacting with family, Q3- interacting with care-

giver, Q4- interacting with teacher, Q5- reading alone or with someone, Q7- watching TV, Q8- using smartphone, Q9 - listening music) that the child gets exposed to and contributes to learning language, except the additional language (Q6) subject factor ($p < 0.01$). There was no statistical difference found between the groups in terms of language exposure and contribution (Table 7, 8).

Table 7: Extent of language contribution.

ITEM	Group	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Q1	G1	4.47	.22	3.93	.21	4.68	.03*	.66	.41
	G2	4.57	.22	4.20	.21				
	Total	4.51	.16	4.06	.15				
Q2	G1	4.83	.07	3.13	.24	93.09	.00**	.62	.43
	G2	5.0	0.7	3.26	.24				
	Total	4.91	.05	3.20	.17				
Q3	G1	3.33	.31	1.93	.24	35.28	.00**	3.4	.06
	G2	4.03	.31	2.36	.24				
	Total	3.68	.22	2.15	.17				
Q4	G1	2.10	.16	5.00	.00	710.46	.00**	2.5	.11
	G2	1.73	.16	5.00	.00				
	Total	1.91	.11	5.00	.00				
Q5	G1	3.60	.24	3.70	.20	10.35	.00**	1.4	.23
	G2	3.66	.24	4.33	.20				
	Total	3.63	.16	4.01	.14				
Q6	G1	2.83	.28	2.73	.26	.93	.33	.78	.38
	G2	3.16	.28	3.06	.26				
	Total	3.0	.20	2.90	.19				
Q7	G1	4.2	.21	3.40	.23	25.31	.00**	.21	.64
	G2	4.27	.21	3.10	.23				
	Total	4.23	.14	3.25	.16				
Q8	G1	4.23	.22	3.43	.23	21.61	.00**	1.39	.24
	G2	3.87	.22	3.13	.23				
	Total	4.05	.16	3.28	.16				
Q9	G1	3.87	.25	2.76	.25	21.97	.00**	2.75	.10
	G2	3.2	.25	2.43	.25				
	Total	3.53	.18	2.60	.18				

** p < 0.01 indicating highly statistically significant

Table 8: Extent of language exposure.

ITEM	Group	L1		L2		L1 vs. L2		G1 vs. G2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Q1	G1	4.63	.17	3.93	.21	9.89	.00**	.16	.68
	G2	4.63	.17	4.10	.21				
	Total	4.63	.12	4.01	.15				
Q2	G1	4.96	.04	3.26	.25	79.28	.00**	.00	.92
	G2	4.93	.04	3.33	.25				
	Total	4.95	.02	3.30	.17				
Q3	G1	3.36	.32	2.03	.25	37.08	.00**	1.98	.16
	G2	3.96	.32	2.36	.25				
	Total	3.66	.22	2.20	.18				
Q4	G1	2.16	.16	4.93	.06	670.8	.00**	2.66	.10
	G2	1.73	.16	4.93	.06				
	Total	1.95	.11	4.93	.04				
Q5	G1	3.66	.24	3.76	.19	8.82	.00**	.23	.63
	G2	3.46	.24	4.23	.19				
	Total	3.56	.17	4.00	.14				
Q6	G1	3.03	.27	2.83	.25	.56	.48	.58	.44
	G2	3.20	.27	3.20	.25				
	Total	3.11	.19	3.01	.18				
Q7	G1	4.20	.22	3.50	.23	15.59	.00**	.61	.43
	G2	4.20	.22	3.13	.23				
	Total	4.20	.16	3.31	.16				
Q8	G1	4.23	.22	3.50	.23	24.07	.00**	.84	.36
	G2	3.96	.22	3.23	.23				
	Total	4.10	.15	3.36	.16				
Q9	G1	3.93	.25	2.83	.24	23.41	.00**	1.91	.17
	G2	3.40	.25	2.56	.24				
	Total	3.66	.17	2.70	.17				

** p < 0.01 indicating highly statistically significant

Influence of other language accents

The 8th domain collected information about the influence of the first and second languages on each other using a five point rating scale (1-never, 2-rarely, 3-sometimes, 4-often, 5-always) and revealed that L1 was never to rarely influenced by other languages, whereas L2 was influenced sometimes to often. In addition, there was a significant difference between L1 and L2 (p < 0.01), and no difference between the groups (Table 9).

Discussion

The result of domain 1 shows that L1 was acquired prior to L2 by the participants in both the groups. This could be attributed to the fact that the exposure of the participants to the surroundings and environment was maximum for L1. In both groups, L2 was introduced only when they began schooling, and the language was learned most while interacting in the educational setup and while acquiring literacy skills. L1 was the native language and was used mostly in every situation, whereas L2 was mostly acquired during

Table 9: Influence of other language accents.

ITEM	Group	L1		L2		L1 vs. L2		L1 vs. L2	
		Mean	Standard error	Mean	Standard error	Frequency	P	Frequency	P
Language Influence	G1	1.50	.14	3.66	.18	215.17	.00**	.03	.86
	G2	1.60	.14	3.50	.18				
	Total	1.55	.10	3.58	.13				

** p < 0.01 indicating highly statistically significant

schooling [8,9]. The cultural and environmental factors also contribute to the fact that L1 has the highest usage compared with L2. L1 of Group I (Telugu-English) was heard more in the school than L1 of Group II (Hindi-English). This may be because Telugu is the most common language used across Telengana, and the study was conducted in Hyderabad, which is a city in Telengana state. Collier and Verginia proposed a model to explain the acquisition of a second language in school [10]. This model emphasizes the development of language due to the use of L2 in formal education. Constant use of L2 in school can be an important factor in language acquisition [10-12]. Hakuta(2003) ,Anstrom (1997), and Hasson (2006) reported that family members’ language exposure to L1 was greater than that to L2 [13-15]. Dunn., *et al.* (2009) indicated that a larger percentage of participants’ contact with L1 users during childhood has been viewed as an important factor in language learning [12]. This study revealed that proficiency in L1 was better than that in L2. A similar finding was reported by Marian, Blumenfeld, and Kaushanskaya (2007), who studied Spanish-English bilinguals and found that the age of attainment of L1 proficiency was prior to L2 [9]. In terms of L2 schools, the environment plays a crucial role in a child’s ability to learn. The presence of peers who are also learning the language creates a supportive community, encouraging practice, and reducing the fear of making mistakes. Collier., *et al.* (1995) and Marian, Blumenfeld, and Kaaushanskaya (2007) reported that for L2, learning in the school environment was an important factor [9,10]. The remaining contributing factors for language learning were also supported by the study. Hasson., *et al.* (2006) concluded that friends and family are the most important contributors to learning L1 [15]. This study revealed that L1 was never to rarely influence by other languages, whereas L2 was influenced more often. In addition, there was a significant difference between L1 and L2 (p < 0.01). Flege., *et al.* (1997), and Drummond., *et al.* (2010) studied the influence of the native language on second language production accuracy, and their results showed that L2 was influenced by L1 [16,17].

Conclusion

The Child LEAP questionnaire in the Indian context is the first initiative to adapt a questionnaire for bilingual children in an Indian context. It will be clinically useful for speech-language pathologists and linguists dealing with bilingual and multilingual children to assess their language proficiency and the factors contributing to it. This will be useful in research on bilingual children to compare their level of language proficiency. In addition, it adds to the comprehensive bilingual and multilingual assessment of children’s language. The type of bilingualism and gender comparison were not considered in this study. Future research should be conducted on a larger population in different Indian languages, a multilingual population, and speech and language disorders.

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Conflicts of Interest

There is no conflict of interest between the authors.

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