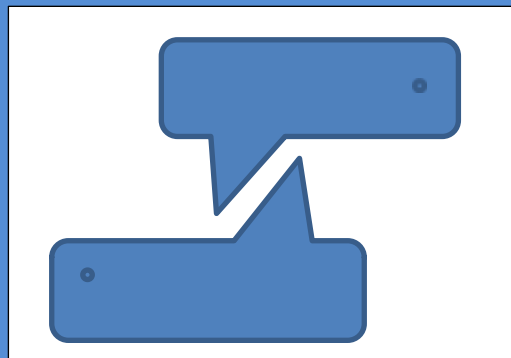


**Journal of
Child Language Acquisition
and Development
JCLAD**



2021

Vol: 9

Issue: 3

ISSN: 2148-1997



Editor-in-chief

Mehmet OZCAN, Ph.D., Psycholinguistics
Burdur Mehmet Akif Ersoy University
editor@science-res.com

Editorial Board (Alphabetically)

Boluwaji OSHODI- Adekunle Ajasin University, NIGERIA

Çiğdem Sağın ŞİMŞEK - Middle East Technical University, TURKEY

Howard LASNIK-University of Maryland, USA

Inmaculada GÓMEZ SOLER- University of Memphis, USA

John RYAN -University of Northern Colorado, USA

Juan URIAGEREKA -University of Maryland - USA

Mehdi B. MEHRANI - University of Neyshabur, IRAN

Mehmet Ali AKINCI - l'Université de Rouen, FRANCE

Ramandeep KAUR - Father Muller College of Speech and Hearing, INDIA

Ruth BERMAN- University of Tel Aviv, ISRAEL

Tim BEYER- University of Puget Sound, USA

Vandana V.P - Speech Pathology and Audiology NIMHANS, Bangalore, INDIA

Vanessa GIACCHINI - Federal University of Santa Maria, Brazil

Yalda KAZEMI - Isfahan University of Medical Sciences, IRAN



Reviewers for this issue (Alphabetically)

Aaron Albin	Kobe University
I-Ping Wan	National Chengchi University
Lekh Nath S Pathak	Tribhuvan University, Kathmandu
Minjung Kim	California State University, Fullerton
Nontawat Wanna	Lancaster University
S. P. Goswami	All India Institute of Speech and Hearing, Mysuru, India

Table of Contents

Articles

Language experience and phonological development: a case study of a bicultural/monolingual family in Korea 288-305
Jihye Seong

Pragmatic Language Difficulties in Children with Specific Language Impairment – A Systematic Review 306-320
Swapna Narayanan, Kavya Vijayan, Prashanth Prabhu P., Mekhala V. G.,
Animesh Barman

Early Trilingual Language Acquisition of Spanish, English, and French by a Two-Year-Old American Child 321-334
Paul de Nijs

Phonology Acquisition in Nepal: A Preliminary Study 335-342
Prabha Dawadee, Pratima Dawadi



Language experience and phonological development: a case study of a bicultural/monolingual family in Korea

Jihye Seong¹

The State University of New York at Buffalo

Received : 17.10.2018
Accepted : 12.08.2021
Published : 30.09.2021

Abstract

This case study investigates the influence of maternal speech on a child's phonological acquisition of Korean consonants examining conversational speech data collected from a dyad of a Korean-speaking child (aged 3;8 – 4;1) and his Vietnamese mother - a late Korean learner - for a six-month period. Correlation of the mother's speech accuracy and her child's consonant production were examined. The results showed the child exhibited a delay in phonemic acquisition while his error patterns were not congruent with those of his mother. The mother's Korean phonemic awareness was more accurate than her child's one, and her errors in production was induced by her native language. The findings suggest that the maternal influence is not correlated with the child's phonemic acquisition while it is still probable that his mother's non-salient production may have led difficulties for the child to build phonological contrasts.

Keywords Korean, early language experience, maternal influence, phonological development, language delay

1. Introduction

A large body of studies stated that children's phonological development is guided by their early experience with sets of sounds (or features) (Maye et al. 2002; Yoshida et al. 2010). The children increase their sensitivities to distinguish certain pairs of sounds based upon input of acoustic implementations of sounds (Aslin and Pisoni 1980). Cristià (2011) demonstrated that the more salient the caregivers' acoustic cue was, the better children exhibited in sound discriminations. Hunter and Pisoni (2017) suggested that the quality of phonological representations was affected by both the quantity and the quality of early language input – delayed exposure to language, impoverished language input, and enriched language input – by investigating phonological awareness among different groups of children.

Van Heugten and Johnson (2017) suggested that speech variants in a single language may lead to a different developmental trajectory among children when compared to monolingual children. They found the variability in children's language input affected children's word recognition. This inconsistent and/or insufficient input of sound variants may adversely affect the child's phonemic awareness, which is known to be a significant predictor of latent language development.

The language development of children from immigrant families in South Korea become a huge issue since marriage-based immigrant has been growing for the past two decades (Ministry of Gender Equality and Family 2016; Korean

¹ Jihye Seong is a Ph.D. candidate in Linguistics at the State University of New York at Buffalo. Her areas of interest and research are in phonological developments by first and second language learners. Her recent published work was on English-loanwords production by Korean speakers. Corresponding email: jihyeseo@buffalo.edu

National Statistical Office 2017; Ministry of Justice 2017; Lee, 2008). In this family, immigrant parents' native language is not supported (Kim et al., 2010; Park et al. 2012), and Korean is set as the primary home language (Seol, 2009). The children rarely learn their non-Korean parent's native language (Jeong et al., 2013). In the family, which is a multicultural but monolingual, the linguistic input that the child receives is different from non-immigrant families.

Since immigration is led by immigrant women and they become a main care giver to children, their Korean language proficiency doesn't reach a sufficient level at the time when a child requires linguistic input from his/her mother. Most of the women start learning Korean upon arrival in Korea (National Korean Language Institute 2007) and Lee et al. (2006) reported that 54.2% of the mothers had difficulties when communicating with their children in Korean.

A large body of literatures reported a child's delayed language development was linked with their mother's Korean language proficiency (Choi 2012; Oh et al. 2009; Woo et al. 2008; Chae 2008; Oh 2005; Jeong 2004). Those children showed a delayed development in Korean language. The children's expressive and receptive vocabulary sizes were relatively smaller and morphosyntactic competence was lower than their non-immigrant children counterparts. Kwon et al. (2010) examined thirty-two published papers on children's language development in multicultural families. Their findings demonstrated that children in the multicultural setting showed a delay in phonemic awareness, phonological development, semantic knowledge, and morphological understanding. They pointed out that the mothers' proficiency in Korean and the length of their residence in Korea were the two most dominant factors associated with the child's language development.

When demonstrating the influence of maternal speech on children's language development, most of the studies compared mothers' and children's test performance scores obtained from a standardized assessment tool such as the Urimal Test of Articulation and Phonology (Kim & Shin 2002), Preschool Receptive-Expressive Language Scale (Kim 2000), and Korean Oral Syntax Expression Comprehension Test (Bae et al. 2004). Since the assessment instruments provide age-adjusted criteria based on a large population of normally developing children, it is easy to gauge at which developmental stage a test taker is situated and in what area the participant showed the most difficulty. However, there have been concerns regarding the exploitation of the assessment tool with multicultural families.

First, the assessment tools have limitations in their ability to explain non-developmental errors, such as native language influence on a target language production. Second, merely showing test scores of mothers and children does not elucidate the relation between maternal speech and children's speech. The results simply show in what areas the test taker has the most difficulty. Lastly, the test examines children's language abilities at a specific point of time, but does not provide information on how their linguistic understanding improves over time. Shin and Ahn's study (2008) on sixty-nine children from ages five to ten in multicultural families showed that the older the child was, the better their phonological awareness was.



Consequently, in order to have a comprehensive understanding of children's phonological development in relation to the mother's productions, a different methodological approach is needed. More longitudinal data are needed to determine the linguistic relationship between children and their Korean L2 mothers. This approach also can also provide information as to detailed phonetic variants in mother's speech. Assuming the course of a child's language development will be (at least in part) the result of their interactions with his/her mother, a detailed analysis of the distinctive features of maternal speech should provide a clear picture why the children experienced the language delay under the assumption that the child's language delay is associated with the influence of the mothers' speech.

Extending Selinker's notion of interlanguage (1972) to mother's target language production, mothers may exhibit traits of their native language when producing Korean sounds, or experience difficulties of producing specific sounds or applying certain phonological rules, which may not exist in their native languages. The interlanguage is formed by learners' experiences with another language, and the variabilities in utterance are caused by the differences between learners' L1 and the target language. Following this perspective, the mothers' phonetic variance in her utterance may have caused by the linguistic differences between Vietnamese and Korean: phonemic inventories and phonological constraints. Examining the 'accentedness' in the mothers' speech is important since the recent study by

Considering the mother's speech variation and the recent findings on the role of input variation, it is probable that a child in a multicultural family may demonstrate a different developmental trajectory when compared with children from non-immigrant families. To determine whether a child in a multicultural family is on a typical developmental trajectory, it is crucial to know how normally developing children adopt Korean phonemes and obtain phonological awareness.

The current study unfolds two parts: mother's phonemic awareness, especially consonantal acquisition of Korean and the child's developmental stage of the Korean consonantal awareness compared to children from non-immigrant family. Of two main approaches to studying early child language - one is to examine a large sample of children collected at periodic intervals and the other is to concentrate on a smaller sample collecting dense amount of data - the current study used the latter method to guarantee sufficiently detailed data so as to investigate the complex relationship between language interactions and acquisition to gauge the effect of maternal speech on her child's speech, distinctive characteristics in the mother's speech were examined to determine whether they were reflected in the child's speech.

2. Methodology

2.1 Participants and data collection.

One mother from Vietnam and her son (3;8) participated in the study for six months. The mother is from Ho Chi Mihn City in Vietnam and learned the Korean language upon her arrival to Korea. She is the main care giver to the child and the child spent time with his father at night or on weekends. The

participants do not have any medical disorders related to articulation or hearing (such as cleft-palate, dyslexia, or aphasia).

Speech samples were collected by recording verbal interactions between the mother and her child without interference of the researcher for a six-month period. During this period, the participants were asked to record their free conversations bi-weekly with a hand-held Zoom H1 Handy Recorder and lapel microphone. As a supplementary measure, a picture-based word elicitation task called the Korean Standard Picture Articulation Test was employed (Seok et al. 2002; KS-PART hereafter).

2.2 Data analysis

Speech samples were segmented into word tokens. When deconstructing a speech into tokens, a morphological formation and prosodic boundaries were considered. A bound morpheme was not counted as a single token but included as a part of the content word to which it was affixed. For instance, a content word with a nominative marker, -i/ka was counted as one token instead of two. This inclusion was needed since phonological procedures accompany with morphological formations (Sohn 1999). In the case of a predicate, no matter how many morphemes were inflected, it was counted as one token for the same reason.

Prosodic boundaries based upon accented phrases were considered when decomposing a running speech into tokens. For instance, the word *speak* in Korean can be said either [mal#he] with two accented phrases (one for an object — mal— meaning speech and the other for a predicate —he — meaning do) or [ma.le] with one accented phrase where the weakest sound, [h], is dropped and resyllabified in a formation of CV.CV. The former was counted as two word tokens; the latter was counted as one word token. After parsing, each token was marked either "correct" or "incorrect" by comparing its actual production with the target sound production.

Correctly pronounced words were decomposed into syllable-sized units and then further into a set of phones. Each of the phones was examined for accuracy. As for the mispronounced word tokens, errors were classified into phonemic or phonological errors. A phonemic error occurs when a word token contains only a single mispronounced phoneme. A phonological error occurs when a word token includes one or more mispronounced phones due to the misapplication of a phonological rule, i.e. linking, nasalization, tensing, or aspiration. Of the two error types, word tokens, classified as a phonemic error, were further analyzed since they still included correctly pronounced phonemes in addition to incorrect one.

Of all the phonemes in Korean (nineteen consonants and seven cardinal vowels), the scope of the study lied on understanding of obstruent and phonological processes. To measure the phonemic acquisition, the accuracy rates were calculated as follows: inaccuracy rates of each phoneme = the number of incorrect occurrences / the total number of incorrect and correct occurrences (%). The accuracy of phonemes was determined based on three factors: place of articulation, manner of articulation, and three-way distinctions in obstruents (lenis, fortis, and aspirated). There were five subgroups in manner: plosives [p, t, k, p*, t*, k*, p^h, t^h, k^h], fricatives [s, s*, h], affricates [tʃ, tʃ*, tʃ^h], nasals [m, n, ŋ], and a lateral liquid [l]. There were five



subgroups in place: labial [p, p*, p^h, m], alveolar [t, t*, t^h, s, s*, n, l], alveo-palatal [tʃ, tʃ*, tʃ^h], velar [k, k*, k^h], and glottal [h]. The obstruents were divided into three subgroups: lenis [p, t, k, s, h, tʃ], fortis [p*, t*, k*, s*, tʃ*], and aspirated [p^h, t^h, k^h, tʃ^h]

Articulatory and phonological errors were divided into the following types: deletion, insertion, place or manner alternation, tensing or aspiration of obstruents, linking, nasalization, assimilation, and syllabic changes, such as blending multiple syllables or a complete change of syllables. In deletion, the location where the phoneme disappeared was examined along with its manner of articulation. Place alternations were classified into two types: fronting and backing. Contexts where phonological alternations did not apply, i.e. nasalization, consonantal linking, or [h] deletion, were examined as well. The child's speech was examined in two-time frames from ages three to four during the given six-month period. The first period was the first four months (3;8 – 3;11) and the other was last two months (4;0 – 4;1). The prior studies traced children's phonological development based upon their age by year. In order to compare the findings of the current study with the previous findings, the break was made by age rather than 2-3-month periods. The supplementary phonological assessment test was conducted at 4;2. Performance of each month was included in Appendix.

3. Findings

The literature examining children's production of consonantal phonemes delineates an order of sound acquisition in terms of manner and place (Lee & Kwon 1979; Kwon et al. 1979; Eom 1986 as cited in Kim 1996). In consistent with the previous literature, the phonemic accuracy of the child and mother was examined by place of articulation, manner of articulation, and the three-way distinctions in obstruents.

The correctly pronounced phonemes were categorized by the three factors (place of articulation, manner of articulation, and three-way distinctions in obstruents) and the results are demonstrated in Figure 1-3. Figure 1 demonstrated the percentage of correctly pronounced phonemes in place of articulation. The bar graphs represented the child's data (the first bar is the results when he was 3; the second bar is when he was 4). The line drawn above the bars were the results of mother's. The mother's performance was better than the child's except velar. The child's production was improved as he got older. In the production of bilabial sounds, he outperformed his mother as he turned to four.

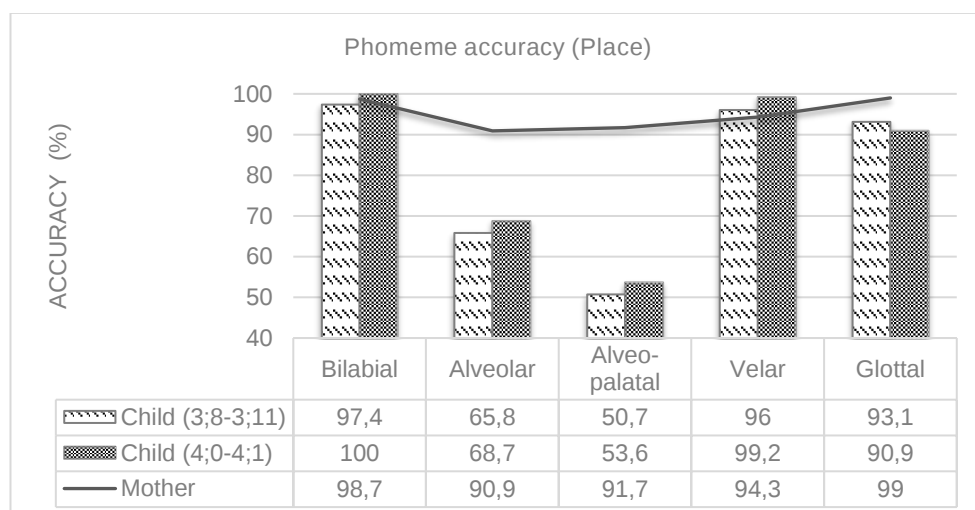


Figure 1. Correctly pronounced phonemes in place of articulation (%)

The results of production in manner of articulation is illustrated in Figure 2. Similarly, the child showed improvements in production as getting older except fricatives. Across all the manners, the mother showed fairly high accuracy rates (over 90%) except liquid (below 70%). Under the low production of the liquid, the child's production of the liquid improved and outperformed his mother's.

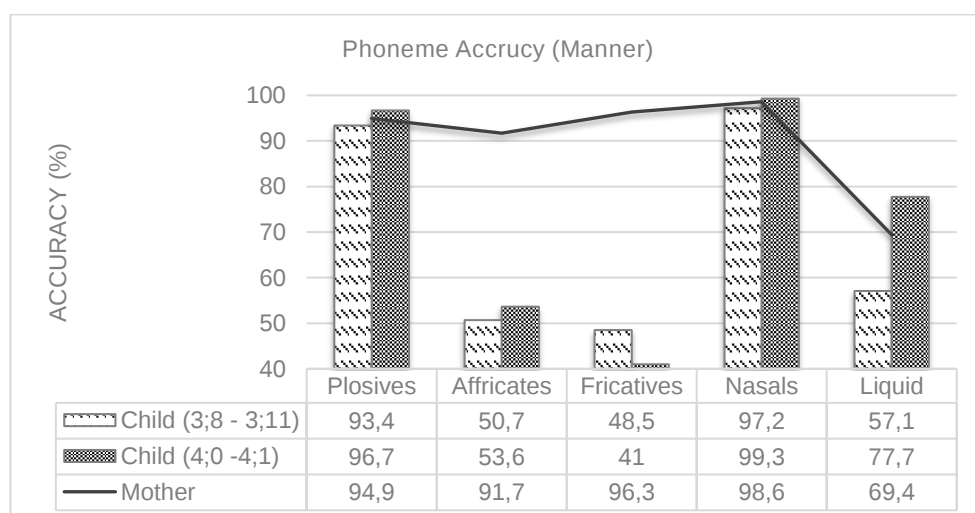


Figure 2. Correctly pronounced phonemes in manner of articulation (%)

The results of the three-way distinction in obstruents were illustrated in Figure 3. The mother exhibited better production than the child did. She showed more difficulties producing fortis sounds, which lacks in her native language (Hwa-Froelich & Edwards 2002). The child increased his production as he got older. Like his mother exhibited, he struggled more with the fortis sounds than the other features.

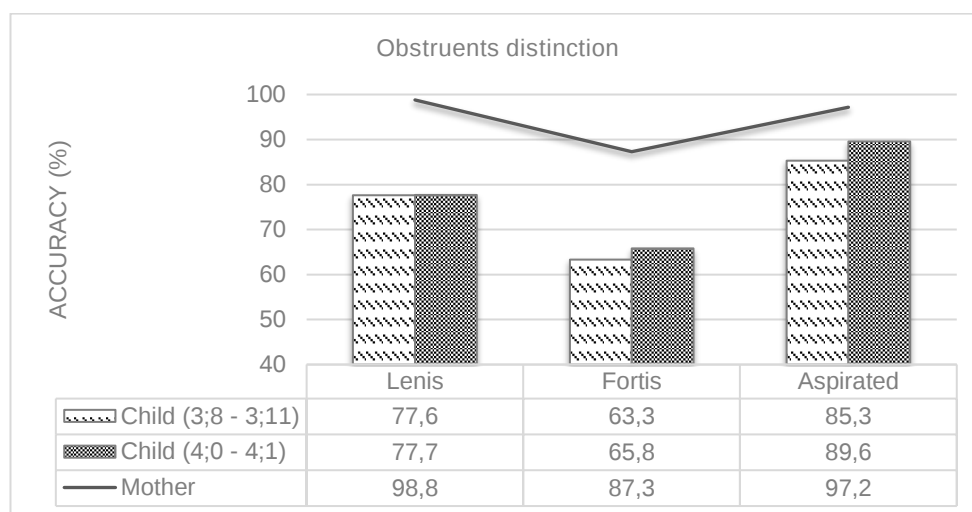


Figure 3. Correctly pronounced obstruents in the three-way distinction (%)

Overall, the results demonstrated that mother's performance was better than that of the child across all three categories (place of articulation, manner of articulation, and a three-way distinction in obstruents). The mother exhibited unbalanced performance; especially showed a lower production of liquid. To examine how the discrepancy between the Vietnamese and Korean sound inventory affected the mother's phonemic production, the Korean consonantal phonemes were divided into two groups: phonemes shared with Vietnamese and ones only in Korean, as seen in Table 1. The numbers after the phoneme represented the percentage of inaccuracy rates.

Table 1

Error rates of phonemes produced by mother (%)

Phonemes shared with Vietnamese	Inaccuracy	Phonemes only in Korean	Inaccuracy
p	0.5	p*	0.5
t	3.2	t*	3.7
k	2.3	k*	8.3
t ^h	1.4	p ^h	0
s	0.7	k ^h	0.7
h	0.5	s*	5.1
m	2.1	tʃ	1.6
n	2.3	tʃ*	2.8
ŋ	1.2	tʃ ^h	1.2
l	62.2		

When comparing the inaccuracy rates of the sounds, the difference in the two groups was not great. All of the sounds recorded lower than 10% of inaccuracy rates except the /l/ (over 60%) even though the lateral liquid is shared both Vietnamese and Korean. The results suggested her native language's phonological constraints affected the results not the phonemic discrepancy.

In Vietnamese, only six consonants are allowed in a coda position: /p/, /t/, /k/, /m/, /n/, and /ŋ/ (Cheng, 1991). The syllabic constraints on the /l/ led the errors in /l/. In the data, she showed the highest errors of /l/ especially when it was on the coda position.

The accuracy of each phonemic production was examined in relation to the acquisitional stages (Kim 1996), illustrated in Tables 2 and 3. His developmental stage of each phoneme was compared with the findings in Kim (1996) and Seok et al. (2002). Table 2 exhibited the child's data when he was three. When comparing the child's results with other children of his age, he showed lower accuracy rates on affricates and alveolar fricatives. He had the most difficulties producing a fortis alveolar fricative. When turning four, he improved the production of the aspirated affricate and a lateral liquid as demonstrated in Table 3. However, he still experienced the difficulties in the fortis alveolar fricative and other affricates.

Table 2

Acquisition stage of the child participant (age 3)

Age	Acquisition (100 – 95%)	Master (94 – 75%)	Customary (74 – 50%)	Emerging (49-25%)	Below 24%
3;0 – 3;11 (Kim 1996; Seok et al. 2002)	p, p ^h , p [*] t, t ^h , t [*] k, k ^h , k [*] n, m, ŋ h	tʃ, tʃ [*] , tʃ ^h , s [*] l	s		
3;8 — 3;11	p ^h , p [*] t k m, n, ŋ	p t [*] , k [*] t ^h , k ^h h	tʃ ^h l	tʃ, tʃ [*] s	s [*]

Table 3

Acquisition stage of child participant (age 4)

Age	Acquisition (100 – 95%)	Master (94 – 75%)	Customary (74 – 50%)	Emerging (49-25%)	Below 24%
4;0 – 4;11 (Kim 1996;	p, p ^h , p [*] t, t ^h , t [*] k, k ^h , k [*]	s			



Seok et al. 2002)	tʃ, tʃ*, tʃ ^h , n, m, ŋ s*, h l				
4;0 — 4;1	p, p ^h , p* t k, k ^h , k* m, n, ŋ	t ^h tʃ ^h h l		tʃ, tʃ* s	s*

As a supplementary measurement, KS-PART (Seok et al. 2002) was employed. The test was taken when the child turned to 4;2. As seen in the naturalistic data, mother's performance was better than the child's except bilabial and plosive sounds. The child showed the lowest accuracy on affricates sounds. The child's results were 87.7% of the accuracy while his mother's was 93.7%. According to the age-adjusted norms of KS-PART, the child was one standard deviation below the norm of age four while the mother was at the four-year-old norm.

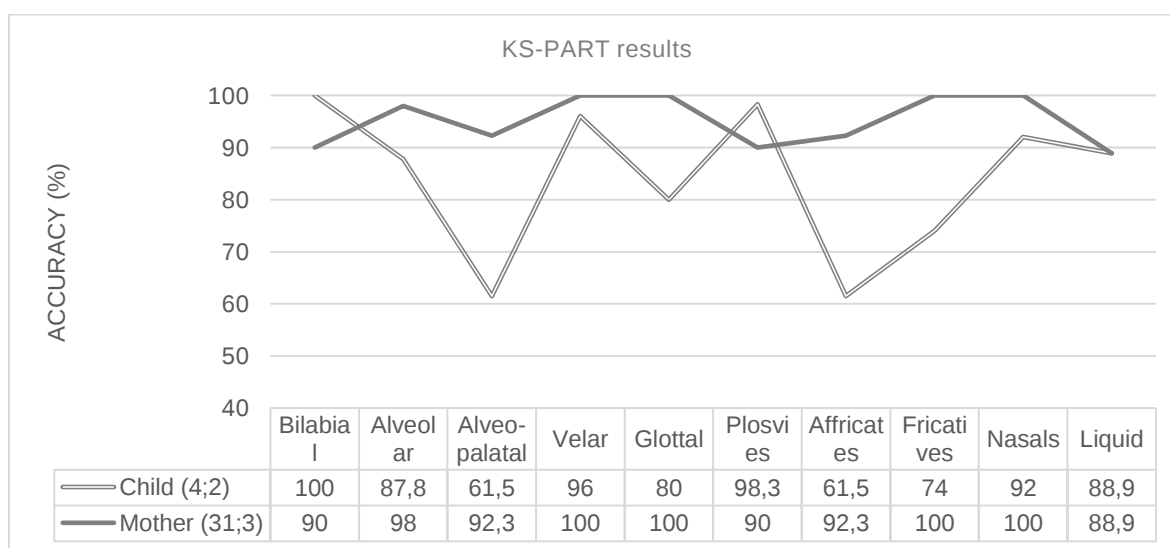


Figure 4. Results of KS-PART by the child and the mother

The types of phonological errors produced by the mother and her child was examined as listed in Table 4. Of all the errors committed in the given period, how much each phonological error type contributed was calculated. The lowest low showed the total number of phonological errors. The raw counted number was in the parenthesis. The number provided in each table showed the percentage of each phonological error.

Table 4

Articulatory error types (% , raw counts in parenthesis)

Types	Child		Mother 30; 9 – 31;2
	3;8 — 3;11	4;0 – 4;11	
Insertion	1.5 (7)	0 (0)	2.2 (13)
Deletion: Onset	5.7 (27)	4.0 (5)	0.9 (5)
Deletion: Coda	7.5 (36)	5.6 (7)	2.6 (15)
Place: Fronting	18.7 (89)	23.2 (29)	2.4 (14)
Place: Backing	6.1 (29)	5.6 (7)	24.4 (142)
Manner: altered to plosives	41.1 (196)	51.2 (64)	1.4 (8)
Manner: altered to affricates	1.3 (6)	2.4 (3)	0 (0)
Manner: altered to fricatives	0.8 (4)	0.8 (1)	0 (0)
Manner: altered to nasals	4.4 (21)	0.8 (1)	44.2 (257)
Manner: altered to liquids	0.2 (1)	0 (0)	0.5 (3)
Plain/Aspirated to Fortis	6.3 (30)	4.0 (5)	2.9 (17)
Fortis to Plain/Aspirated	0.6 (3)	0 (0)	15.3 (89)
Plain/Fortis to Aspirated	2.9 (14)	2.4 (3)	0.9 (5)
Aspirated to Plain/Fortis	2.9 (14)	0 (0)	2.2 (13)
Total	477	125	581

Both mother and the child showed similar patterns in deletion. Both showed that deletion was more common than insertion. Of the two places (onset or coda), phonemes appearing in the coda position were more prone to be deleted. For the rest of types, their patterns were unrelated. In place alternation, the child showed more errors in fronting while the mother showed more backing. In manner change, the child altered sounds to plosives while his mother was prone to change sounds to nasals. In distinction of obstruents, both the child and mother showed more errors on fortition (either fortifying non fortis plosives or non-fortifying non-fortis obstruents) than aspiration fortition (either aspirating non-aspirated plosives or non-aspirating non-aspirated plosives). However, the directionality of the fortition and aspiration errors differed. The child tended to produce non-fortis obstruents as fortis obstruents while his mother produced fortis obstruents as lenis obstruents. Likewise, the



child aspirated sounds more often while his mother did not aspirate sounds that needed to be aspirated.

Other types of errors related to the phonological processes were examined, including syllabification (a morphophonological process when a bound morpheme is attached), nasalization, and aspiration (alternation of plain plosives to aspirated due to preceding [h] sound) and so on.

Table 5

Other articulatory error types (% , raw counts in parenthesis)

Types	Child		Mother 30; 9 – 31;2
	3;8 — 3;11	4;0 – 4;11	
No application of syllabification	12.5 (2)	25 (1)	45.2 (19)
Alternation of a syllable (C(V))	75 (12)	25 (1)	14.3 (6)
Deletion of a syllable (C(V))	12.5 (2)	50 (2)	-
No application of nasal assimilation	-	-	21.4 (9)
Voiced	-	-	19 (8)
Total	16	4	42

Of the phonological errors, the child exhibited the highest errors in a syllable alternation (75%). Not a phonemic segment but a set of phonemes consisting of a syllable was. Other errors that he showed were a deletion of a syllable and no application of syllabification, 13.5% respectively. Unlike the child, the mother exhibited the greatest error in syllabification. The syllabification accompanies with a morphological formation. For instance, when a nominative case marker, **-i**, is attached to a closed syllable (CVC), syllables are rearranged as CV.**Ci**. Similarly, the nasal assimilation occurred through a morphological formation: a preceding consonant is nasalized when followed by a nasal sound through conjugation. When a morpheme whose initial sound is a nasal like, *-nin.de* meaning *but*, is attached to an independent morpheme, *ep*, it is realized as /**em**.nin.de/. The results were attributed to mother's lack of understanding in a morphophonological process in Korean. Another type of error showed that mother over-employed her Vietnamese sound contrasts. Normally, word-initial obstruents are voiceless in Korean while they are voiced in an intervocalic condition. However, she often altered the voiceless feature of word-initial obstruents into voiced. Her language experience in two languages was represented in these errors.

4. Discussion and Conclusions

This study is to demonstrate how the maternal speech influences the child phonological influences. The accented variants of the immigrant mother may have affected on the child phonological acquisition. In order to attest the hypothesis, speech data obtained from both the child and his mother were examined in the following aspects: phonemic accuracy in production, patterns associated with production errors, and phonological errors related to influence of native language. Overall, the results showed that the child showed an

increased accuracy in phonemic production over time, and the improvement is unrelated to the types of errors that his mother made.

First, the child in this study demonstrated the similar developmental trajectory of acquiring phonemes as attested in the previous literature. The child showed acquisition of anterior sounds (bilabials) before post-arterial sounds (velars and glottals) and higher accuracy in nasals and plosives than affricates and fricatives. However, the child showed a delay in acquiring the affricates [tʃ] and [tʃ*], and fricatives [s] and [s*] (below 50% of the accuracy) in free speech. The accuracy of [s*] was surprisingly lower than 24%. According to Seok et al. (2008), three-year olds exhibited over 80% accuracy in production of affricates and showed over 50% accuracy in [s] and [s*]. The child's performance of those sounds was significantly low. When examining the mother's performance of those sounds, she showed over 90% accuracy in production [tʃ] and [s] and over 75% accuracy in [s*] and [tʃ*].

The late acquisition of those sounds, which are [tʃ], [tʃ*] and [s*] could be explained by the child's individual variation. It is probable that difficulties of forming articulatory gestures when producing those sounds may have caused the delay. Across the data, the child altered [s*] to [t*], [tʃ] to [t], and [tʃ*] to [t*] quite consistently. That is, he maintained a three-way distinction among obstruents while altering manner to plosives. His perceptual awareness of those sounds would be better than his production as evidenced by maintaining the fortis feature. The alternation was motivated by difficulties of employing tongue laminar and body when articulating fricatives and affricates. Fronting his articulators and simplifying the manners — from keeping a narrow gap to make a blockage and from a sequence of movements to one blocking movement — would be his strategy for those sounds.

The mother exhibited the lowest accuracy of the lateral sound across all phonemes. Her errors occurred when the liquid appeared at coda positions. She altered the coda [l] in three different ways: deletion, alternation to [ŋ], or alternation to [n]. When examining the coda [l], 49% changed to [ŋ]; 45% altered to [n]; and 15% were deleted. There were two cases when coda position [l] altered to either [m] or [t]. However, the coda [l] predominantly altered to either [ŋ] or [n]. When speculating the sonority of the liquid and nasals, the direction of manner alternation can be expected. However, in case of [ŋ], the place change from alveolar to velar was odd compared to the alternation to [n], which shares the same place feature of [l]. Thus, it was decided to examine neighboring contexts where [ŋ] and [n] appeared.

In the context where the coda [l] was altered to [ŋ], the neighboring environment 53% of the time. Nonetheless, in 10.7% of the cases, the sound following the liquid was an alveolar. The coda [l] was altered to [n] when followed by an alveolar sound 21.5% of the time. There were still 14.9% of the cases when it was followed by a velar sound. It is hard to state that place feature of the following consonants has led to the choice of [n] and [ŋ]. However, over half of the cases when [l] altered to [ŋ] were followed by a following velar sound. Thus, what has made the speaker alter the coda [l]? The reflection of constraints imposed by Vietnamese phonology has affected the mother's speech. There are only six consonants that can appear on a coda, which are [p], [t], [k], [m], [n], and [ŋ] (Cheng 1991). The lateral approximant exists in the Vietnamese phonemic inventory; however, it does not appear in



syllabic final position. Due to the influence of her native language (L1 hereafter), the coda [l] altered to other nasal sounds. In case of Korean, of the 19 consonantal phonemes, seven of them can appear on the coda: [p], [t], [k], [m], [n], [ŋ] and [l] (Sohn, 1999). The syllabic constraint affected the low accuracy in the coda /l/ production.

Then, would the mother's low accuracy in the /l/ production affect child's acquisition of the /l/ sound? The child also exhibited a high error in the liquid. Over time, however, his accuracy of [l] was improved from a customary level (50.3%) to a mastery level (78.2%), while the mother's accuracy of [l] production remained at a mastery level of 68.6%. The child increased his production of [l] with prevailing errors of [l] in the mother's speech. The results demonstrate that the child developed his phonemic awareness even though he was exposed to erroneous sounds. Similar findings were obtained in other sounds involving bilabial and velar, and plosives and nasals.

When examining errors other than errors related to phonemic articulation, the child exhibited more errors of alternation or deletion of syllables, which corresponded to 85% of the phonological errors. The child showed the errors when he did not know a word correctly. He corrected his errors with the aid of his mother. Whenever the child misproduced a word, his mother corrected it and helped him recall the word with detailed descriptions of the word or anecdotes associated with the word. It is probable that such syllabic alternation and deletion were caused by his lexicon. When he could not correctly recall the words, he produced them in ill forms with the errors. The mother's phonological errors were involved with a resyllabification, which corresponded to 44.2%. Most of the consonantal linking accompanied morphological formations with an attachment of grammatical morphemes. When the morpheme is attached to a closed syllable, a coda of the closed syllable moved to an onset in the following syllable, which ultimately rearranges the syllables in a formation of CV.CV. The mother failed at making the consonantal movement. Another type of errors was nasalization. A consonant at a coda position altered to nasal sounds when followed by nasal sounds. She failed at applying the nasal assimilation, which accounted for 20% of errors. 13% of the errors were involved with syllabic alternation. This alternation was different from the child's one. Her errors were more related to selecting an incorrect grammatical morpheme, which is an error of morphology rather than in phonology. Under the influence of her L1, she was prone to alter word-initial voiceless plosives into voiced ones. While Vietnamese has a voicing distinction, Korean does not distinguish plosives in voicing while lenis plosives become voiced intervocalic conditions.

Overall, the features of this maternal speech were not reflected in the child's speech. The child has been exposed to varying sounds, which came from his mother and other Korean monolingual speakers. His delay in phoneme acquisition was affected by a low production of a few specific sounds: affricates and fricatives. His strategy of altering the manner seemed to keep the production rates of those sounds lower than the other sounds. His mother altered the coda [l] and demonstrated a low accuracy rate of the sound. However, the child improved his production of [l]. The influence of the maternal speech was not a significant factor influencing the child's

phonological development. The impact of the maternal speech may be mitigated since the child must have received linguistic input not only from his mother but also from other language models such as his other family members or peers. It is probable that a child constantly reshapes linguistic notions in his mind with his own processing abilities.

The assessment tool, KS-PART, represented a similar pattern of phonemic or articulatory errors though there were a few inconsistent cases. The tool can provide a brief glimpse of phonemic awareness of participants. In addition, it allows for us to examine each phoneme at different positions of a syllable within a word. It is useful when investigating the contextual influence on a phoneme. However, it does not reflect a deeper analysis of the morphophonological process since the assessment only uses a selected number of words where morphological formation is not applied.

The current case study focused on only one mother and child dyad and the results may not extend to a larger population. However, it presents empirical evidence suggesting that the influence of maternal L2 speech may not negatively impact the child's phonological development. This contradicts what previous studies had argued. Park and Kim (2014) provided similar findings when investigating the phonological awareness of twenty-one children aged from three to seven in multicultural families and another twenty-one non-immigrant children using Assessment of Phonology and Articulation for Children (Kim et al. 2007). The results showed that both groups displayed no differences. There could be other factors associated with the child's language delay, which are frequently observed in multicultural families. Choi and Hwang (2009) suggested the child's language development was influenced not only by their mother's proficiency in Korean but also by aspects such as the parents' educational levels and income levels. Ahn and Shin (2008) suggested similar results by pointing out the influence of socio-cultural backgrounds on children's phonological development. It has been well known that children's language abilities are affected by the income-level of families, which was also closely linked with home literacy environment (Payne et al. 1994). Children from low socio-economic status (SES) backgrounds were more likely to experience language delay than those from high-SES backgrounds (Ginsborg 2006).

In sum, the current study examined an influence of maternal speech on a child's phonological by examining one Vietnamese mother and child from a multicultural family. The results demonstrated that there existed no correlation between the maternal speech and the child's speech when examining phonemic awareness, articulatory error types, and phonological error patterns. It is suggested that the mother's influence on the child's phonological development might not be a significant factor. However, this finding cannot exclude the possibility that mother's phonological realizations caused the language delay. Also, it is probable that the prevalent language delay observed in multicultural families may be associated with other factors, which are related with socio-economic backgrounds.



References

- Ahn, S., & Shin, Y. (2008). A Compare Study of Multi-Cultural Background Children's and Low-Income Children's Phonological Awareness Ability. *Journal of speech-language & hearing disorders*, 17(4), 87-94.
- Aslin R. N., & Pisoni D. B. (1980). "Some developmental processes in speech perception," in *Child Phonology*, Vol. 2: Perception, edited by Yeni-Komshian G. H., Kavanagh J. F., and Ferguson C.A. (Academic, New York), pp. 67-96.
- Bae, S., Yim, S. Lee, J. & Jang, H. (2004). *Korean Oral Syntax Expression Comprehension Test*. Seoul: Seoul Community Rehabilitation Center.
- Chae, H. (2008). Literacy of young children from immigrant marriage families and their home literacy environment. (Masters Thesis). Seoul National University, Seoul.
- Cheng, L. (1991). *Assessing Asian language performance: Guidelines for evaluating limited-English proficient students (2nd ed.)*. Oceanside, CA: Academic Communication Associates.
- Choi, H., & Hwang, B. (2009). Effects of Mother`s Korean Abilities on their Children`s Korean Abilities in Multi-cultural Family. *Journal of Special Education*, 10(4), 315-329.
- Chung, H., Kim, Y., & Lee, A. (2013). Study on current situation and improvement on bilingual education of children from multicultural families. Seoul. Ministry of Gender Equality and Family.
- Cristià, A. (2011). Fine-grained variation in caregivers' /s/ predicts their infants' /s/ category. *The Journal of the Acoustical Society of America*, 129(5), 3271-3280.
- Ginsborg, J. (2006). Language and social disadvantage: the effects of socio-economic status on children's language acquisition and use. In Judy Clegg & Jane Ginsborg (Eds.) *Language and social disadvantage: Theory into practice*, pp. 9-27.
- Hunter, C., & Pisoni, D. (2017). Early language experience and underspecified phonological representations. *Applied Psycholinguistics*, 38(6), 1325-1329.
- Hwa-Froelich, D., Hodson, B. W., & Edwards, H. T. (2002). Characteristics of Vietnamese phonology. *American Journal of Speech-Language Pathology*, 11(3), 264-273.
- Jeong, E. (2004). A study on the language development and environment of children from internationally married couple living in an agricultural village. *Journal of speech-language & hearing disorders*, 13(3), 33-52.
- Kim, M., Bae, S., & Park, C. (2007). *Assessment of Phonology and Articulation for Children*. Seoul: Human Brain Research & Consulting.
- Kim, Y. (1996). A study of accuracy of phonemic production among pre-schools using pictures. *Communication Science Disorder*, 1(1), 7-34.
- Kim, Y. (2000). Preschool receptive-expressive language scales. *Korean Journal of Communication Disorders*, 5(1), 77-101.
- Kim, Y., & Shin, M. (2002). *Urimal Test of Articulation and Phonology*. Seoul: Hakjisa.

- Kim, Y., Chung, H., Lee, E., & Chae, S. (2010). *Study on use and succession of language and culture in multi-cultural families*. Seoul: Korean Women's Development Institute.
- Korean National Statistical Office. (2017). *Population dynamics of multicultural families in a year of 2016*. Retrieved from http://kostat.go.kr/portal/korea/kor_nw/2/1/index.board?bmode=read&bSeq=&aSeq=364679&pageNo=1&rowNum=10&navCount=10&currPg=&sTarget=title&sTxt=.
- Kwon, H., Lee, M. & Jeon, B. (2010). The literature analysis on the language development of the children from multicultural families. *Korean Journal of Physical and Multiple Disabilities*, 53(4), 283-306.
- Lee, H. (2008). International marriage and the state in South Korea: focusing on governmental policy. *Citizenship Studies*, 12(1), 107-123.
- Maye J., Werker J. F., & Gerken L. (2002). "Infant sensitivity to distributional information can effect phonetic discrimination," *Cognition* 82, B101-B111.
- Ministry of Gender Equality and Family. (2016). *Multicultural Families in Korea*. Retrieved from social.korea.kr/common/download.do?tblKey=EDN&fileId=211426.
- Ministry of Justice. (2017). *Marriage-based Immigration: 2012-2016*. Retrieved from http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=2819.
- National Korean Language Institute. (2007). Korean language learning experience among marriage-based immigrant women and plans of visiting. Jeonju.
- Oh, S. (2005). A case study on the growing of Kosian children and its social environment. *Journal of Korean Education*, 32(3), 61-83.
- Oh, S., Kim, Y., & Kim, Y. (2009). Preliminary study on language characteristics and related family factors in children from multicultural family. *Journal of Special Education*, 8(1), 137-161.
- Park, S., & Kim, S. (2014). An experimental analysis of the consonant articulation development of the children in multicultural families and its implication to the assessment of their Language development. *Korean Journal of Applied Linguistics*, 30(1), 117-138.
- Payne, A., Whitehurst, G., & Angell, A. (1994). The Role of home literacy environment in the development of language ability in preschool children from low-income families. *Early Childhood Research Quarterly*, 9(3-4), 427-440.
- Selinker, L. (1972). Interlanguage. *IRAL-International Review of Applied Linguistics in Language Teaching*, 10(1-4), 209-232.
- Seok, D., Park, S., Shin, H., & Park, J. (2002). A Study on the Development of Korean Standard Picture Articulation Test. *Communication Science & Disorders*, 7(3), 121-143.
- Seol, D. (2009). Child raising and education of marriage-based immigrants in Korea: On the focus of infants. *Korean Journal of Pediatrics*. 52 (4). 403-409.



- Sohn, H. (1999). *The Korean Language*. New York, NY: Cambridge University Press.
- Woo, H., Juong, H., Choi, N., Yi, S., & Lee, G. (2008). Mothers' Korean language ability and preschoolers' language development in multi-cultural families. *Korean Journal of Child studies*, 30(3), 1- 14.

Appendix

The child's development of phonemic accuracy (3;8 – 4;1)

Age	Acquisition (100 – 95%)	Master (94 – 75%)	Customary (74 – 50%)	Emerging (49-25%)	(24-0%)
3;8	k, p k*, p* k ^h , p ^h h m, n	t ŋ l	t* t ^h tʃ ^h	s tʃ, tʃ*	s*
3;9	t k*, p*, t* p ^h h m, n, ŋ	k, p k ^h , t ^h		s* tʃ, tʃ ^h , tʃ* l	s
3;10	k, t k ^h , p ^h n, ŋ tʃ ^h	p k* t ^h h m	tʃ*	s tʃ l	s*
3;11	k, t k*, p* k ^h , p ^h m, n, ŋ	p t* t ^h h tʃ ^h	s tʃ	tʃ* l	s*
4;0	k, p, t k*, p*, t* k ^h , t ^h h m, n, ŋ tʃ ^h		t' l	s tʃ, tʃ*	s*
4;1	k, p, t k ^h , t ^h , p ^h m, n, ŋ	h l	tʃ, tʃ ^h	s tʃ*	s*



Pragmatic Language Difficulties in Children with Specific Language Impairment – A Systematic Review

Swapna Narayanan¹

All India Institute of Speech and Hearing

Kavya Vijayan²

All India Institute of Speech and Hearing

Prashanth Prabhu P.³

All India Institute of Speech and Hearing

Mekhala V. G.⁴

All India Institute of Speech and Hearing

Animesh Barman⁵

All India Institute of Speech and Hearing

Received : 06.09.2021
Accepted : 23.10.2021
Published : 11.11.2021

Abstract

Specific Language Impairment (SLI) is a developmental disorder wherein a child fails to acquire age-appropriate linguistic skills. The study attempted a systematic review of articles pertaining to pragmatics in children with SLI in the last decade. A thorough search of the electronic databases yielded 666 articles, out of which 136 articles were shortlisted. Among these, 14 articles were selected for full length screening based on predetermined criteria. The use of PICOS design for filtering the articles led to the selection of 2 articles. The results of the review revealed a dearth of studies in this area. The two selected articles explored the pragmatic components in the SLI group in depth as against the typically developing peers. The studies highlighted the way in which children with SLI react to pragmatically demanding situations by demonstrating deficits with turn taking, maintaining a topic, unusual content and use of language and difficulties with comprehending context. Also attempts have been made to illustrate the pragmatic patterns within the SLI group to identify children who exhibited disproportionate deficits in pragmatic language versus those who had no pragmatic difficulties. The comprehensive review draws attention to the need for speech-language pathologists to distinguish pragmatic deficits from generalized linguistic deficits in children with SLI. The study also underlines the importance of identifying subgroups of children with SLI.

Keywords Specific Language Impairment, pragmatics, linguistic deficits, systematic review, communication disorder, pragmatic deficits

¹ Associate Professor in Speech Pathology, All India Institute of Speech and Hearing (AIISH), Mysore 570006, Karnataka, India. Email: nsn112002@yahoo.com. Research interests – In the area of motor speech disorders, swallowing and dysphagia.

^{2,4} Research Associate, AIISH, Mysore.

³ Assistant Professor in Audiology, AIISH, Mysore.

⁵ Professor in Audiology, AIISH, Mysore.

Corresponding author:

Kavya Vijayan, Research Associate, Department of Audiology, AIISH, Mysore.
Email: kavya.vijayan@gmail.com

1. Introduction

Communication is one of the functions of language wherein the speaker attempts to convey the meaning behind his/her communicative intent. Spoken language is one of the widest means of communication adapted by humans and innumerable linguistic variations have been made across centuries. Pragmatics in the area of linguistic and communication sciences refers to the usage of contextual meaning in various conversational circumstances. It focuses on areas such as the use of language in social interaction, aspects of meaning not recoverable from linguistic expressions and connected discourse (Leinonen, Letts & Smith, 2000). Pragmatics deals with the process used by the speaker to cognize the intentions while dealing with various situations before expressing the thoughts. The listener then analyzes the intended meaning, investigates their purposes and explores the assumptions of actions with respect to the performance in front of the audience (Siddiqui, 2018). A recent study by Cordier, Munro, Wilkes-Gillan et al. (2014) has described several observable communication behaviors associated with pragmatic language and these behaviors have been classified under five sections including Introduction and responsiveness, Non-verbal communication, Socio-emotional attunement, Executive function and Negotiation.

Language disorders in children are one of the most frequent causes of difficulties in communication, social interaction, learning and academic achievement. One of the prominent language disorders seen in the pediatric population is Specific Language Impairment (SLI). SLI is understood to be a disruption in language acquisition wherein a child does not acquire age-appropriate linguistic skills in spite of having normal hearing abilities and non-verbal intelligence and no associated sensory or neurological impairment (Leonard, 2014; Joanisse & Seidenberg, 1998). The primary sign of SLI is a delay in the acquisition of words or expressive language followed by a subsequent delay in the acquirement of syntax (Rescorla & Lee, 2000). A more recent term proposed is the 'Developmental Language Disorder' (DLD), which will be used by the upcoming International Classification of Diseases-11 (ICD-11) classification in 2022 (Bishop, 2017). The enforcement of this term DLD is the result of years of international work led by Bishop and her colleagues who have championed the development and use of this term (Bishop, 2014; Bishop, Snowling, Thompson & Greenhalgh, 2017). This term includes all the diagnostic criteria of SLI, but excludes using non-verbal ability as a diagnostic criterion, thereby allowing reflection of clinical realities.

Across the last few decades, various studies have focused on investigating the linguistic deficits and patterns in children with SLI. Earlier studies conducted on native speakers of English highlighted that grammatical morphology was the primary deficit for children with SLI, but gradually over the years, light has been thrown on semantic, pragmatic and cognitive-linguistic discrepancies (Bishop & Donlan, 2010; Osman, Shohdi & Aziz, 2011; Tsimpli, Peristeri & Andreou, 2016).

With advancement in research, it was noticed that children with SLI had issues with pragmatic development which could be exhibited as problems with interactive communication. Some of the initial attempts at investigating



the problems with respect to social interaction in this population were begun in the 1980s, wherein pragmatic features such as turn exchange behaviors and conversational management were compared with typically developing (TD) children (Fey & Leonard, 1983; Craig & Evans, 1989). The studies revealed that most children with SLI exhibited discourse regulation deficits with respect to interactive attention, degree and latency of responsiveness and length of turn-taking.

In the following decade, detailed analyses were carried out examining the intricate relationship between semantic and pragmatic development in SLI, which led to the conception of the term 'semantic-pragmatic disorder' (Adams & Bishop, 1989). Theoretical linguistic models were applied to categorize the semantic and pragmatic behaviors, which led to highlighting deficits such as failure to understand literal meanings, volunteering too little information, usage of avoidance strategies and lexical simplification (Mills, Pulles & Witten, 1992). Craig and Evans (1993) further explored the pragmatic abilities by subdividing the SLI groups based on their language as expressive SLI (E-SLI) and combined expressive-receptive SLI (E-R-SLI) and revealed that the two groups differed on pragmatic skills such as turn-taking and cohesion.

During this decade i.e., 1990's, there was an attempt to delineate the various terminologies such as 'pragmatic disability' (McTear & Conti-Ramsden, 1992), 'semantic-pragmatic difficulties' (Vance & Wells, 1994), and the more widely investigated term, viz. 'pragmatic language impairment' (PLI) (Bishop, 1998). There has been a great deal of controversy regarding PLI and the debate has centered over the question of whether it is a subtype of SLI or a part of the autistic spectrum, or a separate condition. Various authors have tried to differentiate between SLI and PLI (Botting & Conti-Ramsden, 1999; Bishop, 2000). The clinical criteria for PLI enumerates that although the child speaks in fluent utterances with adequate articulation, he/she may be poor at turn-taking in conversation and have difficulties following rules for conversation.

At the turn of the 21st century, there was a noteworthy escalation in studies investigating the pragmatic component of language in SLI. Researchers drew the focus to various interrelated aspects of language and behaviors such as social cognition, social self-esteem, behavioral discrepancies among others (Conti-Ramsden & Botting, 2004; Marton, Abramoff & Rosenzweig, 2005). The pragmatic difficulties observed in children with developmental language disorders such as SLI was profiled and the role of PLI was also compared with disorders which occur as part of the behavioral phenotype of organic syndromes such as Autism Spectrum Disorders (ASD) and Attention Deficit Hyperactivity Disorder (ADHD) (Bishop, Chan, Adams, Hartley & Weir, 2000; Reisinger, Cornish & Fombonne, 2011). It was concluded that a sub-group of children with SLI could exist, who demonstrate primary pragmatic deficits and it is therefore essential to identify children with PLI from the heterogeneous SLI group.

Many of the studies relied on the Children's Communication Checklist (CCC) developed by Bishop (1998) as there were no pre-defined standards or protocols to identify PLI or to differentiate it from SLI (Botting & Conti-Ramsden, 2003; Reisinger, Cornish & Fombonne, 2011). A more recent

version of the same (CCC-2, Bishop, 2003b) has been reported to identify children whose pragmatic abilities are not proportionate to their language abilities. The checklist consists of 9 subscales and derives a 'pragmatic impairment score'. Another noteworthy research trend during this period was the interest in a component of social-cognitive development i.e., Theory of mind (ToM), and the contribution of grammar and vocabulary measures to ToM (Miller, 2001; Farrant, Fletcher & Mayberry, 2006).

In the last decade various aspects such as behavioral, emotional and social aspects have been linked to pragmatics and expressive language (St.Clair, Pickles, Durkin & Conti-Ramsden, 2011; Helland & Helland, 2017). In DSM-V (American Psychiatric Association, 2013), the term *Social (Pragmatic) Communication Disorder* (SPCD) was introduced, which is equivalent to PLI. The diagnostic criteria for SPCD are persistent difficulties in the social use of verbal and nonverbal communication, which include deficits in using communication for social purposes, impairment in the ability to change communication to match context, difficulties following rules for conversation and difficulties understanding non-literal meaning of language.

Preschoolers with language impairment are less likely than their peers to initiate topics and their conversational skills are restricted to acknowledgement of the communication partner's utterance (Kaderavak, 2015). As children with SLI reach school-age, pragmatic difficulties could result in social communication problems (Rice, 2016). Older children with SLI exhibit difficulties in entering into conversations and struggle to make conversational repairs. Furthermore, children with SLI demonstrate poor theory of mind which could affect social communication and social cognition (Shyamala, Tiwari, & Krishnan, 2011). These linguistic problems in their preschool years signal the occurrence of failures later in academic, vocational and social areas and thereby make SLI an insidious and lifelong disability.

From the review it can be noted that a relatively limited body of research has been dedicated to describing and systematically documenting the pragmatic deficits and identifying clinical markers in children with SLI as opposed to the other linguistic domains. The studies in the last few decades have mainly investigated the language patterns with emphasis on grammatical morphology and syntax, as it was considered to be the primary deficit. Very few studies have attempted the comparison of verbal and non-verbal pragmatic aspects of young children with SLI relative to the typically developing peers. Therefore, there is a lacuna with respect to research in this particular domain of language in the SLI group. Studies also attempted to delineate the diagnostic features by comparing various neurodevelopmental disorders such as ASD, ADHD, SLI and PLI or SPCD. There have been very few studies in the past dedicated specifically to investigating, identifying and profiling the pragmatic features in children with SLI across age groups. Detailed investigations in this area are crucial for effective, evidence-based interventions and will minimize the long-term effects of pragmatic language deficits. Keeping the above mentioned aspects in view, it was planned to conduct a systematic review to highlight how pragmatics is often an overlooked component of language in this heterogeneous population. The review also hopes to encourage investigators to carry out research in this



domain in future by tapping the various components of pragmatics in the language impaired population.

The aim of the study was to determine the extent to which the various components of pragmatics of language have been accurately studied, illustrated and profiled in children with SLI in the recent times. The components of pragmatics such as communicative intentions and engagement, verbal and nonverbal rules of conversation were specifically looked into.

2. Methodology

2.1. Database Searches and Article Selection

To identify the articles relevant to the topic, electronic databases were searched and studies involving the investigation of pragmatics in children with SLI were downloaded. The databases included *PubMed* which provides access to the Medline database and *Google Scholar* which is a part of the Google search engine and provides free access to a wide array of research material. Various keywords and their combinations such as language impairment, pragmatics, pragmatic language impairment, social communication deficits, social interaction and specific language impairment were entered in the databases to obtain relevant articles. Also pertinent back references from various articles were referred to for this purpose. In the *Google Scholar* database, search limit was provided for the publication date and the time frame of the research period was set to 'custom range' from 2010 to 2019, in order to obtain the latest trend in investigations related to pragmatics in SLI. Also, the sorting search limits were set to 'sort by relevance' to include full-length articles, patents and citations.

In the preliminary database, a total of 666 articles pertaining to the topic were screened. Among these articles the duplicates were excluded after which 517 articles remained. Out of these articles, after title screening, 136 articles which were relevant to the topic were selected for abstract screening. All the abstracts were screened, keeping in mind various factors such as the timeline of research, nature of access and downloadability.

An exhaustive and intensive review led to the selection of 14 studies for full length screening. These studies were submitted to further scrutiny keeping in mind the inclusion criteria mentioned below. The PICOS (participant, intervention, control, outcome and study) design proposed by Moher, Liberati, Tetzlaff and Altman (2009) was used in order to systematically filter the articles. A thorough review of the 14 articles led to the selection of 2 articles. The other 12 articles were rejected as they did not meet one or more of the inclusion criteria. The process followed has been presented in the form of a flow chart in Figure 1. The two selected articles have been discussed at length in the paper. The summary of the two articles have been outlined in Table 1 below.

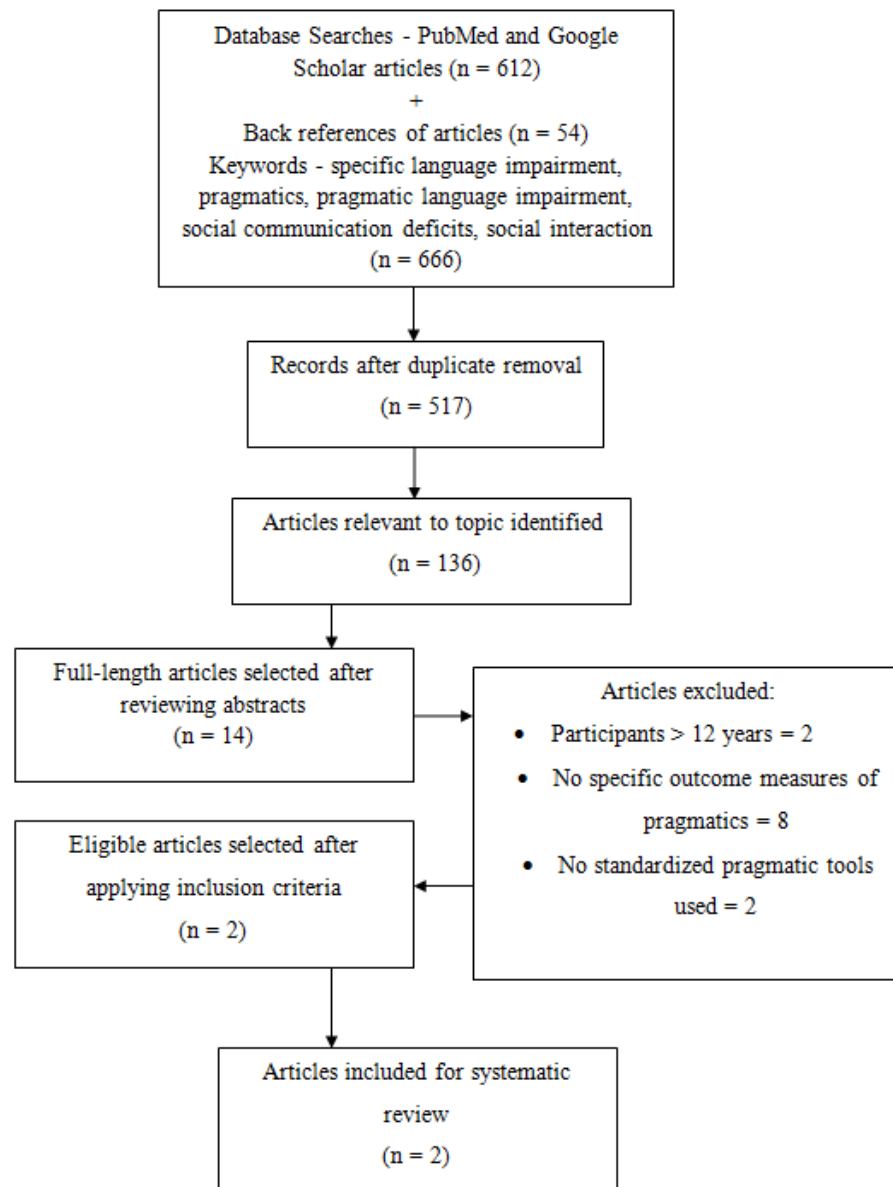


Figure 1. Flow chart depicting the procedure followed for selection of articles for review

The following criteria were used to select relevant articles:

- Participants who were children (≤ 12 years) diagnosed as SLI with no associated conditions.
- Studies investigating one or more of the three components of pragmatics.
- Studies investigating comparison of performance on the three components in groups of individuals with SLI and TD.
- Articles pertaining specifically to the detailed assessment of pragmatics as opposed to other components of language.
- Studies that utilized standardized pragmatic language assessment tools.



Table 1

Descriptive summary of the shortlisted articles based on the PICOS design

Reference	Design	Testing protocol	Outcomes	Results	Comments
Osman, Shohdi & Aziz (2011)	Standard group comparison [SLI group (n=30); TD group(n=30)] Age range– 4-6 years.	Pragmatic screening tool	Paralinguistic parameters, describing object functions, conversational skills, intentionality, narration skills.	Independent sample test and Mann-Whitney test used for analysis. No significant differences in nonverbal paralinguistic skills between groups on most tasks. SLI group was significantly poorer w.r.t pragmatic use of language for conversational skills, intentionality, and narrative abilities.	The pragmatic aspects in young children with SLI (4-6 years) often get overlooked and thus the study is commendable for its detailed pragmatic profiling.
Ryder & Leinonen (2014)	Standard group comparison [SLI group (n=30); TD group(n=67)] Age range- 7-11 years.	TROG, RAPT, TOWK, ITPA, Children's Communicative Checklist.	Story/Scenario context, world knowledge, irrelevant answers.	Mann-Whitney test used for analysis. Between group comparisons made using Kruskal Wallis test. Children with SLI produced more world knowledge and irrelevant answers on verbal task than the story task.	Subgrouping of SLI into children with and without PLI, which leads us to identify the key areas of deficits and its effect on expressive language.

**Note: TROG- Test for Reception of Grammar (Bishop, 2003a), RAPT - Renfrew Action Picture Test (Renfrew, 1988), TOWK - Test of Word Knowledge (Wiig & Secord, 1992), ITPA - Illinois Test of Psycholinguistic Ability (Kirk, McCarthy & Kirk, 1968)*

3. Findings

The study by Osman, Shohdi and Aziz (2011) attempted to identify and illustrate the pragmatic difficulties in preschool children with SLI by comparing them with TD children in the age range of 4 to 6 years. The participants belonged to Cairo-Egyptian ethnicity and the Arabic Pragmatic

Screening tool (Anter, Hoshy, Khaled, Shohdi & Osman, 2008) was used for assessment purpose. *Non-verbal paralinguistic abilities* including eye contact, body posture, suprasegmentals of speech such as intonation and volume, facial expressions, responding to greetings and maintenance of attention to tasks were assessed. In addition, verbal pragmatic abilities to *understand and describe object functions*, *conversation skills* including initiation, turn-taking, making conversational repairs and request for clarification, *intentionality* and *narrative skills* were evaluated by the ability to express greetings, make requests, responding to questions, picture and event description.

The results of the study revealed that with respect to the non-verbal paralinguistic abilities, there was no significant difference between the groups except on two items such as 'responding to greetings' and 'sustaining attention to a task'. However, the verbal tasks revealed a highly significant difference on all items which were attributed to both deficits in expressive language as well as to pragmatics. The children with SLI especially had deficits in conversation skills such as initiating topics, intentionality skills such as describing emotions and narrative abilities. In addition, they preferred the usage of short phrases, relative and referential pronouns, cohesive markers and conjunctions.

Therefore, the authors recommended further categorization of pragmatic assessment tools in order to differentiate between the social and linguistic deficits. Unlike the control group which rephrased sentences in order to convey meanings, the SLI group resorted to using pantomimes or refused to elaborate on their responses. The authors also hypothesized that these pragmatic difficulties may vary or worsen depending on the conversational situations and the speaker's intentions. They concluded that these difficulties could arise from an inherent deficit in processing linguistic information and thereby advocate a thorough screening of the various linguistic domains.

The second and the more recent article by Ryder and Leinonen (2014) focused on the ability of children with SLI to react to pragmatically demanding situations based on the context. The study used implicatures which are meanings derived by integrating conceptual information based on previous inferences. The study consisted of a short verbal task and a storytelling task. The verbal task consisted of two sentences which were read aloud. The sentences were followed by a question and no contextual cues were provided. In the storybook task, a short story which consisted of central characters and a theme was read aloud to the children. The storybook contained pictures and subsequently the children were required to answer simple questions related to the story. In both tasks, the attempt made by the children to verbally answer pragmatically loaded questions by integrating contextual information was analyzed.

The heterogeneous group of children with SLI was compared to age-matched TD children. The SLI group was further sub-divided to include children who exhibited predominantly pragmatic language difficulties or the PLI group and those who had no pragmatic difficulties. Children who spoke in well-formed, fluent and well-articulated utterances, but had pragmatic language difficulties were included in the PLI group. The children in this group



demonstrated deficits with turn taking, maintaining a topic, unusual content and use of language and difficulties with comprehending meaning with respect to context. Standardized language tests such as TROG (Test for Reception of Grammar), RAPT (Renfrew Action Picture Test), ITPA (Illinois Test of Psycholinguistic Abilities) and ToWK (Test of Word Knowledge) were used to assess measures such as receptive grammar, expressive grammar, auditory association and auditory memory in addition to receptive and expressive vocabulary respectively. The Children's Communication Checklist (Bishop, 2003b) was used to evaluate the communicative skills and social behavior.

The results of this study suggested that the PLI group produced more number of irrelevant answers on the verbal task than the SLI group, which was comparable to the TD group. This was attributed to the lack of contextual information in the purely verbal tasks. In addition, the PLI group produced greater number of incorrect answers than the SLI group on story task and they showed a tendency to depend on world knowledge or past experiences of situations whereas the SLI and TD groups relied on usage of story context in addition to world knowledge. These findings highlight that in response to pragmatically loaded questions, children with SLI and the TD children trusted their world knowledge by recalling something that they had previous knowledge of, based on their semantic meanings.

The study thereby indicated that the TD children and the SLI group were able to perform in a given context even though they had not fully interpreted the focal point of the question. The greater number of irrelevant answers by children with PLI on purely verbal tasks denoted a struggle to perform on pragmatically loaded questions, in the absence of contextual cues such as pictures. They also showed a tendency to succeed when the verbal scenarios were compounded by indexical or symbolic referents. In summary, the study concluded that children with SLI were slower than their peers in developing the ability to integrate available information and utilize the pertinent context in the absence of supporting referents.

4. Conclusions

In essence, the comprehensive review reveals the research trend with respect to recent investigation of the relatively neglected topic of pragmatics in SLI. It serves to highlight the dearth of studies pertaining to a systematic and detailed assessment of the pragmatic component of language in children with SLI. However, some studies illustrate the awareness regarding the lack of a 'gold standard' or a standardized assessment protocol to identify and diagnose the so called sub-group of children with SLI who present with a disproportionate deficit in their pragmatic language as opposed to the overall linguistic abilities.

In the current study two databases were searched and the freely downloadable articles were included for the systematic review. The inclusion of a few more databases would probably have given a comprehensive idea regarding similar studies carried out in this area. The inclusion criteria also could have been relaxed, which might have yielded better outcomes. However, keeping the criteria stringent results in a more organized and structured review process. In addition, behavioral issues and other social

and psychological adjustment issues have been avoided in the study and strict adherence to the linguistic aspect of pragmatics has been preserved. Including these features would yield a wider understanding regarding the non-linguistic pragmatic difficulties faced by this population in day-to-day life.

5. Discussion

The present study aimed to shed light on the research carried out in the last decade in the area of pragmatics of language in children with SLI. The study also intended to outline the trend in the development of terminologies, diagnostic criteria and assessment tools with respect to pragmatics in language impaired children and to highlight the limited studies pertaining to it in children with SLI. It is interesting to note that very few studies made an effort at a detailed evaluation of pragmatics relative to syntactic and semantic aspects.

A systematic review of various databases revealed numerous studies which had explored one or more of the different components related to the pragmatics of language. However, very few studies attempted to systematically profile the pragmatic deficits in detail. This could be attributed to the lack of specific test materials probing the various pragmatic components in depth or due to the lack of clarity regarding the diagnostic indicators which could lead to an overlap between children with pragmatic language deficits (PLD) and children with pure SLI. Also, since deficits in morphosyntax and semantics are more evident in this population, researchers tend to focus on these aspects. The studies also tended to compare pragmatic deficits in various neurodevelopmental disorders wherein the focus on SLI was lost.

The widespread review of literature led to narrowing down and selection of 14 articles which elucidated the pragmatic deficits in SLI. It is startling that the outcome of filtering was such a small number of articles (two) which again highlights the limited research carried out in this area. Therefore, the present study highlights the fragmentation of components and lack of uniformity in illustrating the pragmatic deficits in children with SLI.

As it has been documented across the years that deficits in social interaction also form a cluster of deficits in this group, more efforts need to be made in order to develop a detailed testing protocol. Uniformity in assessment of pragmatic components to an extent has to be attempted as this is a heterogeneous group and there is a lack of consensus regarding the diagnostic features due to overlapping conditions.

Of the two selected articles, the study by Osman, Shohdi and Aziz (2011) made an endeavor to investigate and profile purely the verbal and non-verbal pragmatic deficits in children with SLI using a standardized pragmatic screening tool. The study also highlights the importance of early identification of pragmatic deficits which could affect the social communication, peer interaction and literacy acquisition at later stages. It also specifies the importance of looking into the differences between actual expressive deficits versus pragmatic difficulties during evaluation. This study also underlines the need for speech-language pathologists (SLPs) to evaluate



the communicative deficits, specifically the pragmatic performance under generalized situations in children with SLI.

Certain tasks in the study such as conversational skills, description of events, pictures and narrations maybe unable to tap purely the pragmatic aspects and could be influenced by the underlying expressive linguistic deficits. This has been corroborated by previous authors who have outlined the difficulties in differentiating pragmatic impairments from receptive-expressive language deficits using descriptive tasks (Botting & Conti-Ramsden, 1999; Reisinger, Cornish & Fombonne, 2011). The language ages of the participants have not been mentioned in the study and even though the children with SLI had an MLU which was around 5, it can be assumed that they demonstrated notable deficits in their expressive language. Therefore, there is a need to use stringent pragmatic assessment tools which attempt to distinguish between the structural language and pragmatic deficits. The subgrouping of the SLI group could have thrown some light on the effect of poor receptive or expressive language age on the pragmatic output. Further, the experimental and control groups were matched with respect to chronological age. It would be interesting to study the correlation of these trends, if a language-matched group had been included in this study.

The study highlights the necessity for a thorough and detailed evaluation of pragmatic skills while assessing the communication deficits of children with SLI. However, the study fails to explore the diverse nature of the population by sub-grouping them based on pragmatic deficits. This was carried out by Ryder and Leinonen (2014) who divided the SLI group to include children with purely pragmatic language deficits. Although no standardized test materials specific to pragmatic abilities were used, the findings revealed interesting pragmatic strategies used by children with SLI and PLD as opposed to the TD group.

The study by Ryder and Leinonen (2014) was an endeavor to analyze and interpret the strategies used by children with SLI during pragmatic language comprehension and expression. It makes use of the relevance theory and the emergentist view in order to explain these strategies. Using these theories, it has been suggested that pragmatic language development predominantly involved the ability to interpret relevant context and utilized the capability to integrate various sources of information to process and extrapolate language respectively. The study also explored the relation between receptive and expressive grammar and PLD. It is one of the few studies which provided important strategies for pragmatic language therapy in clinical settings with respect to providing additional context in this population. Subgrouping of the SLI group to include PLD was a good attempt to highlight the deficit trends in the pragmatic output.

The study illustrates only a section of pragmatic comprehension and no attempt was made to profile and investigate the pragmatic components of language in detail in children with SLI by making use of standardized testing protocols. Other than the CCC which was used to evaluate the communicative skills and social behavior, no tests were specifically used to diagnose children as PLI. The SLPs were instructed to identify children with PLD in their routine evaluation. Detailed procedure regarding how this

diagnosis was made has not been provided. It would also be interesting to note the correlation of these trends, if a language-matched control group had been included in the study.

The study highlighted the necessity for a detailed evaluation of pragmatic skills for subgrouping children with predominantly pragmatic language deficits in the SLI group. This would have far reaching effects in language intervention wherein contextual cues could be supplemented for the integration of information in pragmatically loaded situations. Since SLI is a heterogeneous group, such differentiation or subgrouping will help in providing additional support. Similar to the first article, this study also draws attention to the urgent need to differentiate between pragmatic and structural language deficits and the necessity to develop stringent assessment protocols for the same. Thus, the present study endeavors to point out to the lacunae in pragmatic language assessment in children with SLI and the need for developing standardized and uniform testing protocols for pragmatics in this population.

The present review will aid future researchers to fill in the lacunae in terms of structured assessment with respect to pragmatics in SLI. The various components and strategies reviewed in this article would also help clinicians to plan appropriate techniques during intervention. It would aid in investigating whether the child has an underlying pragmatic language deficit, which could be affecting the expressive language. Future evidence-based research in this direction would help in identifying and reducing the social interactive deficits faced life-long by children with SLI.

Acknowledgements

The present study is part of an ongoing research project on “Neuroaudiological profiling of children with Specific Language Impairment”, funded by the Department of Science and Technology [No. DST/CSRI/2017/24(G)], Government of India. The authors would like to thank DST for funding the project. The authors also thank the Director, All India Institute of Speech and Hearing, affiliated to the University of Mysore, for providing the infrastructure to carry out the study.

References

- Adams, C., & Bishop, D. V. M. (1989). Conversational characteristics of children with semantic-pragmatic disorder: Exchange structure, turn taking, repairs and cohesion. *International Journal of Language and Communication Disorders*, 24(3), 211-239.
doi:10.3109/13682828909019889
- American Psychiatric Association. (2013). *American Psychiatric Association: Diagnostic Statistical Manual of Mental Disorders*. Retrieved from [http://www.psychiatryonline.org/APA_DSM-5-Social-Communication-Disorder20\(2\).pdf](http://www.psychiatryonline.org/APA_DSM-5-Social-Communication-Disorder20(2).pdf)



- Anter, A. A., El Hoshy, Z. H., Khaled, A. M., Shohdi, S. S., & Osman, D. A. (2008). *Pragmatic development in normal children* (Unpublished MD thesis). Retrieved from <http://www.sciencedirect.com/science/article/pii/S0165587610004957?via%3Dihub>
- Bishop, D. V. M. (1998). Development of the Children's Communication Checklist (CCC): A method for assessing qualitative aspects of communicative impairment in children. *Journal of Child Psychology and Psychiatry*, 39(6), 879-891. doi:10.1111/1469-7610.00388
- Bishop, D. V. M. (2000). Pragmatic language impairment: A correlate of SLI, a distinct subgroup, or part of the autistic continuum? In D. V. M. Bishop, & L. B. Leonard (Eds.), *Speech and language impairments in children: Causes, characteristics, intervention and outcome* (pp. 99-113). Hove, England: Psychology Press.
- Bishop, D. V. M. (2003a). *Test for reception of grammar 2*. London: Psychological Corporation.
- Bishop, D. V. M. (2003b). *The Children's Communication Checklist version 2*. London: Psychological Corporation.
- Bishop, D.V.M. (2014). Ten questions about terminology for children with unexplained language problems. *International Journal of Language and Communication Disorders*, 49, 381– 415. doi:10.1111/1460-6984.12101
- Bishop, D.V.M. (2017). Developmental Language Disorder (DLD): The consensus explained. Retrieved from <http://www.slideshare.net/RADLD/developmental-language-disorder-dld-the-consensus-explained>
- Bishop, D. V. M., Chan, J., Adams, C., Hartley, J., & Weir, F. (2000). Conversational responsiveness in specific language impairment: Evidence of disproportionate pragmatic difficulties in a subset of children. *Development and Psychopathology*, 12(2), 177-199. doi:10.1017/s0954579400002042
- Bishop, D. V. M., & Donlan, C. (2010). The role of syntax in encoding and recall of pictorial narratives: Evidence from specific language impairment. *British Journal of Developmental Psychology*, 23(1), 25-46. doi:10.1348/026151004X20685
- Bishop, D. V. M., Snowling, M. J., Thompson, P. A., Greenhalgh, T., & Catalise-2 Consortium (2017). Phase 2 of CATALISE: A multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *Journal of Child Psychology and Psychiatry*, 58(10), 1068-1080. doi:10.1111/jcpp.12721
- Botting, N., & Conti-Ramsden, G. (1999). Pragmatic language impairment without autism: The children in question. *Autism*, 3(4), 371-396. doi:10.1177/1362361399003004005
- Botting, N., & Conti-Ramsden, G. (2003). Autism, primary pragmatic difficulties and specific language impairment: Can we distinguish them using psycholinguistic markers? *Developmental Medicine and Child Neurology*, 45(8), 515-524. doi:10.1017/s0012162203000963
- Conti-Ramsden, G., & Botting, N. (2004). Social difficulties and victimization in children with SLI at 11 years of age. *Journal of Speech, Language and Hearing Research*, 47(1), 145-161. doi:10.1044/1092-4388(2004/013)

- Cordier, R., Munro, N., Wilkes-Gillan, S., Speyer, R., & Pearce, W. M. (2014). Reliability and validity of the Pragmatics Observational Measure (POM): A new observational measure of pragmatic language for children. *Research in Developmental Disabilities*, 35(7), 1588-1598. doi:10.1016/j.ridd.2014.03.050
- Craig, H. K., & Evans, J. L. (1989). Turn exchange characteristics of SLI children's simultaneous and non-simultaneous speech. *Journal of Speech and Hearing Disorders*, 54(3), 334-347. doi:10.1044/jshd.5403.334
- Craig, H. K., & Evans, J. L. (1993). Pragmatics and SLI: Within-group variations in discourse behaviors. *Journal of Speech, Language and Hearing Research*, 36(4), 777-789. doi:10.1044/jshr.3604.777
- Farrant, B. M., Fletcher, J. & Mayberry, M. T. (2006). Specific language impairment, theory of mind, and visual perspective taking: Evidence for simulation theory and the developmental role of language. *Child Development*, 77(6), 1842-1853. doi:10.1111/j.1467-8624.2006.00977.x.
- Fey, M., & Leonard, L. (1983). Pragmatic skills of children with specific language impairment. In T. Gallagher & C. Prutting (Eds.), *Pragmatic assessment and intervention issues in language* (pp.65-82). San Diego, CA: College-Hill press.
- Helland, W. A., & Helland, T. (2017). Emotional and behavioral needs in children with specific language impairment and in children with autism spectrum disorder: The importance of pragmatic language impairment. *Research in Developmental Disabilities*, 70, 33-39. doi:10.1016/j.ridd.2017.08.009
- Joanisse, M. F., & Seidenberg, M. S. (1998). Specific language impairment: A deficit in grammar or processing? *Trends in Cognitive Sciences*, 2(7), 240-247. doi:10.1016/S1364-6613(98)01186-3
- Kaderavak, J. N. (2015). *Language disorders in children: Fundamental concepts of assessment and intervention*, 2nd edition. Boston: Pearson Publishers.
- Kirk, S. A., McCarthy, J. J., & Kirk, W. D. (1968). *Illinois test of psycholinguistic abilities*. Illinois: University of Illinois.
- Leinonen, E., Letts, C., & Smith, B. R. (2000). *Children's Pragmatic Communication Difficulties*. London: Whurr Publishers.
- Leonard, L. B. (2014). *Children with specific language impairment*. Cambridge, MA: MIT press.
- Marton, K., Abramoff, B., & Rosenzweig, S. (2005). Social cognition and language in children with specific language impairment (SLI). *Journal of Communication Disorders*, 38(2), 143-162. doi:10.1016/j.jcomdis.2004.06.003
- McTear, M., & Conti-Ramsden, G. (1992). *Pragmatic disability in children*. London: Whurr Publishers.
- Miller, C. A. (2001). False belief understanding in children with specific language impairment. *Journal of Communication Disorders*, 34(1-2), 73-86. doi:10.1016/s0021-9924(00)00042-3
- Mills, A., Pulles, A., & Witten, F. (1992). Semantic and pragmatic problems in specifically language impaired children: One or two problems?



- Scandinavian Journal of Logopedics and Phoniatrics*, 17(1), 51-57.
doi:10.3109/14015439209099182
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta analyses: The PRISMA statement. *Annals of Internal Medicine*, 151(4), 264–269.
doi:10.7326/0003-4819-151-4-200908180-00135
- Osman, D. M., Shohdi, S., & Aziz, A. A. (2011). Pragmatic difficulties in children with Specific Language Impairment. *International Journal of Pediatric Otorhinolaryngology*, 75, 171-176.
doi:10.1016/j.ijporl.2010.10.028
- Reisinger, L. M., Cornish, K. M., & Fombonne, E. (2011). Diagnostic differentiation of autism spectrum disorders and pragmatic language impairment. *Journal of Autism and Developmental Disorders*, 41(12), 1694-1704. doi:10.1007/s10803-011-1196-y
- Renfrew, C. E. (1988). *The Renfrew Action Picture Test*. Bicester: Winslow Press.
- Rescorla, L., & Lee, E. C. (2000). Language impairment in young children. In T. L. Layton, E. R. Crais, & L. R. Watson (Eds.), *Handbook of early language impairment in children: Nature*. Albany, NY: Delmar.
- Rice, M. L. (2016). Children with Specific Language Impairment and Their Families: A Future View of Nature Plus Nurture and New Technologies for Comprehensive Language Intervention Strategies. *Seminars in Speech and Language*, 37(4), 311-318. doi:10.1055/s-0036-1587701
- Ryder, N., & Leinonen, E. (2014). Pragmatic language development in language impaired and typically developing children: Incorrect answers in context. *Journal of Psycholinguistic Research*, 43(1), 45-58.
doi:10.1007/s10936-013-9238-6
- Shyamala, K. C., Tiwari, S., & Krishnan, G. (2011). Development of assessment batteries for bilingual Kannada-English and Malayalam-English children with SLI. AIISH Research Fund Project, University of Mysore, Mysore.
- Siddiqui, A. (2018). The principle features of English Pragmatics in applied linguistics. *Advances in Language and Literary Studies*, 9(2), 77-80.
doi:10.7575/aiac.all.v.9n.2p.77
- St Clair, M. C., Pickles, A., Durkin, K., & Conti-Ramsden, G. (2011). A longitudinal study of behavioral, emotional and social difficulties in individuals with a history of specific language impairment (SLI). *Journal of Communication Disorders*, 44(2), 186-199.
doi:10.1016/j.jcomdis.2010.09.004
- Tsimpli, I. M., Peristeri, E., & Andreou, M. (2016). Narrative production in monolingual and bilingual children with specific language impairment. *Applied Psycholinguistics*, 37, 195-216.
doi:10.1017/S0142716415000478
- Vance, M., & Wells, B. (1994). The wrong end of the stick: Language-impaired children's understanding of non-literal language. *Child Language Teaching and Therapy*, 10(1), 23-46.
doi:10.1177/026565909401000102
- Wiig, E., & Secord, W. (1992). *Test of Word Knowledge*. London: The Psychological Corporation.



Early Trilingual Language Acquisition of Spanish, English, and French by a Two-Year-Old American Child

Received : 09.06.2021
Accepted : 14.10.2021
Published : 16.11.2021

Paul de Nijs¹
University of Massachusetts Boston

Abstract

Several factors have been shown to be important to trilingual language acquisition and active trilingualism including language exposure (Chevalier, 2015), input load (Arnaus Gil, Müller, Sette, & Hüppop, 2021), interlocutor language (Wang, 2008), use of the minority language in the household (Arnaus Gil, Müller, Sette, & Hüppop, 2021), and parental language strategies (Ronderos, Castilla-Earls, & Ramos, 2021). This case study investigates the language development of a two-year-old American toddler who has grown up since birth in a trilingual language environment of Spanish, English, and French. The child's language use was observed in his natural environment from age 2;0 to age 2;4. Particular attention was given to the influence of language exposure patterns and parental language strategies on trilingual language development. The findings indicate that the child is growing up with rich exposure to all three languages and that his parents are following practices that promote language development. Additionally, the findings suggest that he is developing active trilingual language abilities, though he does seem to favor English over French and Spanish for spontaneous language production.

Keywords case study, language acquisition, multilingualism, trilingual, trilingualism, active trilingualism, language exposure, parental language strategies

1. Introduction

Being bilingual or even multilingual is common in many parts of the world. How languages are acquired or learned varies greatly. Language acquisition can result in various levels including native-like, competent, or working knowledge (Barnes, 2006), and it can result in active trilingualism in which the individual can actively use all languages in question or passive trilingualism in which the individual can understand but not necessarily produce all languages (Chevalier, 2015). There are multiple contextual factors that influence trilingual language acquisition such as language exposure (Chevalier, 2015), input load (Arnaus Gil, Müller, Sette, & Hüppop, 2021), interlocutor language (Wang, 2008), grandparent language (Braun, 2012), and parental language strategies (Quay, 2012; Ronderos, Castilla-Earls, & Ramos, 2021).

1.1. Influence of Language Exposure Patterns

Language exposure encompasses such elements as home languages (Quay, 2012), number of sources and exposure to language (Chevalier, 2015),

¹ Bio: Paul de Nijs has a M.A. in Spanish and a M.A. in applied linguistics. His research interests include child language acquisition, multilingualism, and heritage language development. Corresponding email: paul.denijs001@umb.edu

interlocutors and interactions (Wang, 2008), and status of the language (Chevalier, 2012). The amount of exposure can affect the level of trilingualism achieved (Chevalier, 2015).

A rich exposure with consistent input to a language can promote active language use (Döpke, 1992) with consistent output from a child (Arnaus Gil, Müller, Sette, & Hüppop, 2021). Conversely, a dearth of language input in the minority language can impede that language's lexical development (Mieszkowska, Luniewska, Kolak, Kacprzak, Wodniecka, & Haman, 2017).

The language or languages used in the home, both child-directed language (Quay, 2012) and parent-to-parent language (Barnes, 2006), can greatly affect language development. Speaking the minority language in the home has been shown to promote active language use (Chevalier, 2015) even when a bilingual context is provided by caregivers (Quay, 2012).

Not using the majority (community) language in the home has shown to have a positive impact on active multilingual development by children (Arnaus Gil, Müller, Sette, & Hüppop, 2021). In her study, Chevalier (2012) found that the child who did not use the community language at home developed active trilingualism, while the child who did use the community language at home with one of her parents showed a low level of active trilingualism.

It is not just parents, however, that play a role in language development. Grandparents can also play an important role in language acquisition (Cantone, 2019; Zhan, 2021). Although trilingual children will not always conform to the monolingual code of grandparents (Zhan, 2021), grandparents who do not speak the community language can serve as motivation for trilingual language practices (Braun, 2012; Braun & Cline, 2010) as well as an important source of home language exposure and input (Braun, 2012).

1.2. *Influence of Parental Language Strategies*

Parental language practices also play a role in trilingual language acquisition and can contribute to language maintenance of home language (Ronderos, Castilla-Earls, & Ramos, 2021). One popular practice is the One-parent-one-language (OPOL) approach in which a child will acquire one language from one parent, a second language from another parent, and a third language from the community (Chevalier, 2015). Consistency with OPOL seems to produce output in children that is consistent with the language of the parent (Chevalier, 2015; Wang, 2008). However, this strategy is not always successful, and children often develop varying levels of multilingualism (Chevalier, 2015; Döpke, 1992). It seems that only speaking may not be enough for the development of active language abilities, and if a parent does not insist on the child using the language, the result may be passive language ability (Volterra & Taeschner, 2007).

Another practice that affects language acquisition is parental discourse style (Chevalier, 2015; Döpke, 1992). An instructive approach to communication and interaction seems to support language development (Chevalier, 2015). That is, parents who are aware of their role as language instructors seem to enhance the language acquisition of their children.



Döpke (1992) found in one instance that a bilingual child was more apt to use English, her father's native language (NL), and not German, her mother's NL. In the study, the child's father used more child-centered discourse and played, read, and sang frequently, seeming more cognizant of his function as language teacher. Her mother mainly employed commands and refusals. In this case, child-centered language appears to have promoted language acquisition as it was correlated with more accelerated language growth and increased language production.

1.3. *Significance of this Study*

Although the study of trilingual language acquisition and development has received more attention over the years (e.g., Albin & Gershkoff-Stove, 2016; Arnaus Gil, Müller, Sette, & Hüppop, 2021; Brito, Sebastián-Gallés, & Barr, 2015), it is still not as robust as the study of monolingual or bilingual language acquisition and development (Mieszkowska, Luniewska, Kolak, Kacprzak, Wodniecka, & Haman, 2017). While there are similarities between bilingualism and trilingualism, trilingualism is not equivalent to bilingualism (Bruto, Sebastián-Gallés, & Barr, 2015) and should be investigated as a phenomenon in its own right (Braun & Cline, 2014; Wang, 2008).

This study examines the early trilingual language acquisition of David (all names are pseudonyms), a two-year-old American child who has had consistent exposure to three languages since birth: Spanish, English, and French. Even though the circumstances, details, and factors of multilingualism vary greatly by individual, this topic is significant because multilingualism is a reality for children the world over. This case study is grounded on several questions related to David's nascent language development. What are the language exposure patterns that David experiences on a daily basis? What are the parental discourse strategies used by his parents? How do they influence his trilingual language acquisition? Is his language development indicative of future active or passive trilingualism?

2. Methodology

In this case study, David's language exposure patterns were examined through his daily interactions with his father, his mother, his older sibling, and his grandparents. Parental discourse strategies were also examined from his interactions with his father and mother. David was videotaped nearly every day in naturalistic settings. Each video lasted from two minutes to 15 minutes. Audio recordings of David's language were also made using the voice memos program on a smartphone. Finally, field notes were taken when spontaneous moments did not allow for the camera or audio recorder to capture the language incident. Daily journal entries were made to describe the researcher's observations, reflections, thoughts, and perceptions.

David is the middle child of three. He was born in the United States and has been naturally acquiring English, Spanish, and French since birth. He traveled to Honduras as a baby (age 0;6 to 0;8). Other than his one trip out of

the country, he has remained in the United States. David was age 2;0 when the study began.

David has had exposure to several language environments including the home (English, Spanish, and French), his paternal grandparents' home (English), church (English and Portuguese), and his maternal grandparents' home (Spanish). His mother is 29 years old. She was born in Honduras. She is a native Spanish speaker with limited English proficiency. David's father is 32 years old. He is a native English speaker who speaks English, Spanish, and French.

The family has three children in total including the oldest son (8;8), David (2;0), and the youngest son (0;4). David's older brother, Antonio, is a native Spanish speaker born in Honduras. He speaks both Spanish and English. His paternal grandmother is a native English speaker. His paternal grandfather is a native Dutch and English speaker. His maternal grandparents are both native Spanish speakers.

David's father speaks exclusively in French with David. He mainly speaks in English with his older sibling but does use Spanish at times. His mother speaks mostly Spanish but usually includes some basic English in her communication with David. His mother speaks Spanish and some limited English with his older sibling. Together, David's mother and father generally use Spanish to communicate and interact with each other. David's paternal grandparents speak only English with him and with his parents. David's maternal grandparents speak only Spanish with him and with his parents. Speaking another language beside the community language is viewed by all as a positive and something to be valued; All the family members are encouraging and supportive of the bilingual and trilingual abilities of the family.

Table 1
Information About the Subject

Child	David
Age	2;0 to 2;4
Data	Video recordings, audio recordings, field notes, journal entries.
Parents Follow OPOL	Yes/No. Father is consistent with OPOL; though the mother consistently uses Spanish, she is prone to use some English in communication
Quantity of Input	Input in all languages. More input from community language (i.e., English) which includes the older sibling and parental grandparents
Parents Communicate in Community Language	No
Array of Sources in Minority Languages	Yes/No. Father is the sole exposure to French. Mother and the older sibling, interactions between mother and father, and interactions with mother's family provide exposure to Spanish

The researcher in this case study was also the father of the subject. The researcher can, therefore, be considered a participant observer in this case



study. While there may be inherent bias in the fact that the researcher is both the observer and parent, as Wang (2008) emphasizes, parents, because they live with their children, have greater access to spontaneous speech and can provide a valuable perspective to the context of language use of their children. This case study used triangulation protocols in that the same linguistic events were examined from multiple points of observation (e.g., observations, field notes, audio, and video recordings). The video recordings were an important component of the data collection for the case study as video offers an effective means for studying those whose linguistic abilities are still developing (Stake, 1995). They also allowed for validation of personal observations and corroboration of consequent analysis.

3. Findings

3.1. *Language Exposure Patterns*

The language exposure that David received varied greatly by language. While his exposure to French was quite limited, being only that of his father, his exposure to both English and Spanish was quite robust (See Table 2). English was the community language, the language of his paternal grandparents, and the preferred language of his older sibling. Spanish was the language used by his mother, in parent-to-parent communication, in parent-to-older-sibling communication, and the language used by his maternal grandparents and other family members.

Table 2
Sources of Language Exposure

Source of Exposure	Language
Mother → Child	Mostly Spanish, Some English
Father → Child	French
Older Sibling → Child	Mostly English, Some Spanish
Older Sibling ← → Mother	Mostly Spanish, Some English
Older Sibling ← → Father	Mostly English, Some Spanish
Mother ← → Father	Almost All Spanish, Occasional English
Maternal Grandparents → Child	Spanish
Paternal Grandparents → Child	English
Community	English

Language exposure was not always a monolingual event. At times, several interlocutors of various languages spoke with David in the same interaction, providing input in two or three languages. This exposure to multiple languages was seen one day when David (2;4) was at his paternal grandparents' house. He was playing with a homemade goo while seated at the kitchen table. However, it was getting late, and it was time to leave.

Mother: [To David] David, ¿Estás listo? ¿Ya nos vamos?
 (David, are you ready? Let's go?)
 David: [To Mother] No!
 Mother: [To Grandmother] Tell him in English.

- Grandmother: [To David] David, are you ready to go?
 David: [To Grandmother] No, I doh wanna.
 (No, I don't want to.)
 Mother: [To Father] Dile en francés.
 (Tell him in French.)
 Father: [To David] David, t'es pret? On va partir?
 (David, are you ready? Are we going to go?)
 David: [To Father] No!

Here, David heard the interlingual synonyms for "Are you ready?" first in Spanish, then in English, and finally in French. While language exposure from his father and grandparents were monolingual in nature, David's mother, in addition to Spanish, provided some input in English.

These language exposure patterns from his father, grandparents, and mother were the norm, that is, only French from his father, only English from his grandparents, and mostly Spanish with some English from his mother. Typically, the English provided by his mother was only a few basic utterances before switching to Spanish or codemixing by adding a few English words to her Spanish.

One day, for example, David (2;3) and his parents were sitting at the kitchen table looking at ads for the supermarket. His mother asked him if he loved certain foods as she pointed to the pictures. David then found a picture of a rotisserie chicken.

- David: [To Mother and Father. He holds up the ad for both to see]
 Chicken!
 Mother: [To David] ¿Hay chicken allí?
 (Is there chicken there?)
 David: [To Mother] No, chicken est là! [Points to fridge]
 (No, the chicken is there!)
 Mother: [To David] Esto es chicken también. [Points to ad and begins
 singsong] Pollo, pollo, pollo! Diga, "pollo."
 (This is chicken, too. Chicken, chicken, chicken! Say, "chicken.")
 Father: [To David] Dis, "poulet."
 (Say, "chicken.")
 David: [Points to chicken in newspaper ad] Dat poulet.
 (That's chicken.)
 Father: [To David] Oui! C'est un poulet!
 (Yes! That's a chicken!)
 David: [Smiling, points once again to the picture of the chicken] Poulet!
 (Chicken!)
 Mother: [To David] ¿Y la gallina? ¿Dónde está la gallina?
 (And the hen? Where is the hen?)
 David: [Crosses arms] N'est pas là!
 (It's not there!)
 Father: [To David] Ce n'est pas là? Où est la poule?
 (It's not there? Where is the hen?)
 David: [To Father] Il est là! Ouside! [Points to window]
 (It is there! Outside!)



Here, in the typical exposure pattern, we can see that David received a great deal of exposure to Spanish from his mother, even though she did use some English in the beginning. David only received exposure to French from his father. Interestingly, David responded to both his mother and father with a mixture of French and English.

3.2. *Parental Language Strategies*

3.2.1. *One-Parent-One-Language*

David's father was very purposeful in his language practices and strictly adhered to the OPOL approach. All input in the interactions with David was in French. In addition, his father began insisting that David also use French to speak with him. At times, when David spoke in English or Spanish, his father simply repeated the utterance in French. Other times, his father pretended not to understand in an attempt to elicit a response in French. David's father occasionally spoke French to the older sibling, Antonio, when David was present even though he does not speak French. This can be seen one day when David (2;3), his father, and Antonio were playing on the trampoline in the backyard. David seemed frightened when Antonio, who was much taller than David, jumped next to him on the trampoline. Whenever Antonio jumped higher and closer to David, David gave him directives in French.

- David: [To Antonio] Saute pas! Saute pas, Antonio!
(Don't jump! Don't jump, Antonio!)
- Antonio: [To David] Ok, ok. [Continues jumping]
- David: [To Father] Say, "Saute pas, Antonio!"
(Say, "Don't jump, Antonio!")
- Father: [To Antonio] Saute pas, Antonio.
(Don't jump, Antonio.)
- Antonio: [To David] Ok, saute pas, Antonio. [Stops jumping]
(Ok, don't jump, Antonio.)

Here we can see that David started speaking to Antonio in French. David's father also spoke in French. Interestingly, Antonio, who is bilingual in English and Spanish, started to respond and even speak in French to David. He also subsequently started using French to start a game on the trampoline by saying, "Un, deux, trois, commence!" (One, two, three, start!) after hearing it several times from his father.

In general, David's mother provided language input in Spanish, but she did, at times mix English and Spanish. However, because of her limited English proficiency, she often switched to Spanish. One day David (2;1) was trying to open a package of muffin snacks.

- Mother: [To David] Good morning, David.
- David: [Trying to open a snack] hep me.
(help me.)
- Mother: [To David] ¿Qué quieres, cariño?

- David: (What do you want, dear?)
 [To Mother] Abi.
 (Abri.)
 (Open.)
 Mother: [To David] ¿Quieres que te lo abra?
 (You want me to open it?)
 David: [To Mother] Yes.
 Mother: [Opens package]

Here David's mother greeted him in English but then switched to Spanish. David followed her lead and switched from English to Spanish. While his mother did not explicitly use Spanish, her limited English meant that she only provided a small amount of English input.

3.2.2. Parental Discourse Styles

David's mother and father seemed to have different parental discourse styles when interacting with David. His mother acknowledged herself as the caretaker, saying it was her job to take care of the kids. During the day, she took care of the infant son and David. She also cared for David's older brother when he arrived home from school. David's mother gave him a bath, let him help with the cleaning and other household chores, listened to music, and watched television with him. She did not frequently engage in play or literacy activities, using more directives than play language.

David's father was more instructive in his interactions, seeing himself as a collaborator in play and learning. With David, he read, played games, jumped on the trampoline, did puzzles, ran around the yard, told stories, drew, painted, and played pretend. This view as a collaborator in play is seen one day when David (2;4) was playing pretend with his father. David had just told his father *ven* (come) and brought him by the hand to his bedroom.

- David: [To Father] Ven.
 (Come.)
 Father: [To David] D'accord.
 (Ok.)
 [David leads his father to his bedroom]
 David: [To Father] Go sleep. Please, papá.
 Father: [To David] Je ne te comprends pas.
 (I don't understand you.)
 David: [To Father] S'il te plaaaaât! Go sleep!
 (Please! Go to sleep.)
 Father: [To David] Ah! Dors, papá?
 (Ah! Sleep, Daddy?)
 David: [To Father] Yes, dors!
 (Yes, sleep!)
 [Father pretends to sleep. David laughs]

Here, his father insisted on French. David began his interaction in English, but his father forced him to use French. When he said he could not understand, David then switched to French to say "please" but continued in



English. When his father asked him in French if he meant sleep (dors), David affirmed and then repeated in French without being asked to do so. It appears the insistence of David using French did not inhibit their playtime together.

3.3. *Language Production as Evidence of Language Development*

During this case study, David's language development progressed in complexity and magnitude, from a one-word stage (age 2;0) to a multi-word stage (age 2;4) in Spanish, English, and French. At age 2;0, David was still in the one-word stage. He also produced many nonsense words and sounds. He pointed to many of the things that he wanted. Examination of the video recordings and field notes revealed that he used more French at this stage than English or Spanish.

At age 2;1, David was frequently communicating with one-word utterances, but he had begun to produce multi-word sentences in English and French. David demonstrated comprehension in all three languages by pointing to the objects and following commands when prompted. For example, when asked in English, French, or Spanish where a certain animal or object was located, he correctly pointed to it. He also correctly followed commands in English (e.g., come here, wait, don't hit your brother), Spanish (e.g., siéntete (sit), abre la boca (open your mouth), dámelo (give me it), ven (come here)), and French (e.g., arrête (stop), bouge pas (don't move), bouge (move), viens (come here)).

At age 2;2, David was counting to three in English and French (Un, deux, fois [un, deux, trois] (one, two, three)). He also started increasing his use of multiple-word utterances, stringing words together in short phrases. He began to ask where someone had gone in English by adding the person's name and "go" after the word "where." For example, "where Daddy go?" "Where Antonio go?" "Where Mommy go?" At this age, David also began to speak more English than Spanish or French.

At age 2;3, David spoke predominantly in English with not only his older brother and grandparents but also with his mother. He continued to consistently demonstrate comprehension in all three languages by pointing to objects and following commands. His linguistic output continued to show preference for English.

At age 2;4, he was answering yes/no questions and consistently using multi-word utterances. He also repeated all words in whichever language that someone prompted him to speak. Analysis of the video recordings revealed that David used more English than French and more French than Spanish in spontaneous speech. In addition, the English used appeared to be more complex and developed (i.e., using more questions, commands, and subject-verb sentences) than his French which consisted of many more noun phrases and fewer questions or commands.

Table 3
Words Used in Spontaneous Speech According to Language

Age	Spanish	English	French
2;0	Ven	Daddy	Ça
	Aquí	My turn	Ça va
	Agua	All done	Là
	Sí	Cookie	Plus
	Oto [otro]	Outsai [outside]	Un
	Bebé	Choos [shoes]	Deux
	Mamá	Open	Fois [Trois]
	Papá	Please	Manteau
		Baby	Écureuil
		Whatayadoin? [What are you doing?]	Manger
		Bubble	Bleu
		Hep me [Help me]	Jaune
		Milk	Pas là
		Fall	Bébé
		Where go? [Where did it go?]	Pas ça
		Where are you?	Chocolat
		Stop it!	Paille
		Juice	Lait
		Fire	Cerf
			Mouche
			Froid
			Chaud
			Merci
			L'eau
			Ot [autre]
			Loup
			Où est?
2;1	Abi agua [abre agua]	Boken [broken]	Feu
	Otro	Car	Le bébé là
	Cushara [cuchara]	Whahappen? [What Happened?]	Viens
	Uno	I dohwannit [I don't want it]	Mechant loup
	Caho [carro]	Go Daddy	Cochon
	Más	Sowi [sorry] Daddy	Bonjour
		Open agua	Froide
		Gain [again]	Chaude
		Open door	Ici
		All done	Sale
		Baby fryin [crying]	Oui, ça va
			Paille pas là
2;2	Leche	Out please	Ot fois [autre fois]
	Abi leche [abre leche]	Gimme [give me]	S'il plaît [s'il te plaît]
	Dos	Open door Papá please	Rouge
	Shusha [escucha]	He no wannit [He does not want it]	Chat
	Gato	I see you	Piquant
	Chuchara [cuchara]	Baby do it	Chien
	Pelo	Daddy turn	Bleu paille
		Car coming	
		Now you do it	



		I love Blue Lelo [yellow] Black Geen [green]	
2;3	Antonio fue Luz Cuchara Fue la luz Eshusha [escucha] Deci no	Sorry dinosaur Dinosaur is sleepin Papá, where you go? Where Antonio car go? Go trampoline Help me! Baby no wannit [Baby doesn't want it] Antonio boke [broke] it Where shoes go?	Mechant ribbit [mechant grenouille] Ça, ça, et ça. Bleu ciseaux Oiseau pas là Saute pas Ai-moi! [Aide-moi!] S'il te plaît!

Not all utterances fit into a single column following a single linguistic code. David codemixed (Hoffmann & Stavans, 2007) several utterances, blending linguistic elements from different languages within a sentence. He mixed English and French (Le bébé fryin [le bébé crying], Where est ça, Papá?, Glasses à moi, Chaud milk, Where is hibou go? [Where did the owl go?], and Where aller?), English and Spanish (Está rainin [está raining] and Glasses ah mia [glasses son mias]), and Spanish and French (Où est agua?). In all, there were more instances of codemixing English and French than any other combination.

Throughout the study, David continued to demonstrate comprehension by pointing to objects and following more complex commands. He also began to demonstrate language development and comprehension by asking and answering questions in all three languages. David started the study with an apparent preference for French and ended up showing a preference for English. Despite his apparent preference for English, by the end of the study he was able to change his language depending on the interlocutor and the context of the interaction.

4. Discussion

This study examined the language exposure patterns and parental language strategies encountered by David, a nascent trilingual two-year-old child, and his subsequent trilingual language development. In the beginning of the case study, David had an apparent preference for French. A list of words used in spontaneous speech (see Table 3) reveals that he had acquired more French than English or Spanish by age 2;0. He was even recorded using French with non-French-family members (e.g., his mother, his grandparents, his older sibling).

This noticeable prevalence of French may have been since his father, the French-speaking parent, was home on paternity leave for three months starting when David was age 1;11 (Cantone, 2019). For three months, his father was constantly interacting and playing the entire day with him in French. This increased input, exposure, and interaction could be the cause of accelerated French development (Arnaus Gil, Müller, Sette, & Hüppop, 2021;

Chevalier, 2012). This development may also be in part due to his father's role as an instructor in interactive communication (Chevalier, 2015) and the amount of child-centered discourse and play language used (Döpke, 1992). Not only does his father play more than his mother, but he interacts with David in a variety of contexts (e.g., waking up, eating, taking a bath). In addition, his father adheres to the OPOL approach which could reinforce future active language ability (Chevalier, 2015).

David seemed to develop a preference around the age of 2;2 for English, at least in initiating his interactions. His English also seemed to contain an abundance of multi-word utterances, verbs, and questions suggesting that his English was becoming the most developed of his languages. Notwithstanding, he also did produce complex language (i.e., multi-word utterance, questions, verbs) in Spanish and French. This apparent growth of English may be, at least in part, due to the exposure and input to English from multiple sources and interlocutors (Wang, 2008) and the fact that it was the community language (Döpke, 1992). Whereas his father was the sole source of French and David's mother and maternal grandparents (and sometimes his older brother) were the only sources of Spanish, David received input in English from a myriad of sources (e.g., paternal grandparents, his older brother, community, radio, TV, movies).

Even though he had more input and interlocutors with whom to speak, he consistently produced less Spanish or mixed Spanish with one of the other two languages. This may be a result of the fact that his mother frequently mixed Spanish and English with him. In addition, she almost always accepted instances of language mixing instead of offering an interlingual synonym or forcing Spanish by pretending not to understand English which could result in passive language ability (Volterra & Taeschner, 2007). Nonetheless, David readily repeated words in Spanish. For example, when his mother told him, "Dile a papi que te abra." (Tell your dad to open it for you), he ran to his father and said, "Abi" [Abri] (open).

Examining the evidence, David is clearly developing language abilities in all three of his NLs. He may prefer one or two languages (i.e., English, French), but he progressed from a one-word stage to a multi-word stage in all languages over the course of the case study. In addition, his demonstration of comprehension in Spanish, English, and French also developed, moving from pointing and following simple commands to asking and answering questions and following complex commands.

Therefore, even though David produced more English than French and more French than Spanish in spontaneous speech, the data suggest that, while David is becoming more dominant in English, he is developing active trilingualism. The extent to which his language abilities and knowledge will continue to develop into active trilingualism or result in passive trilingualism remains to be seen.

There are many questions that could be of interest to further study of David's trilingual language acquisition. How will his trilingualism develop in the future? Will future language exposure and parental language strategies be sufficient to continue developing active language abilities in the minority languages? Will his mother's acceptance of codemixing without forcing him to produce Spanish hinder his Spanish acquisition? Will lack of interlocutors



and varied input in French negatively affect future development? How will the start of school affect his trilingual language development?

There were limiting factors to this case study. One such limitation was the brief nature of this study. Though it was a start, to fully appreciate the complexity and nuances of David's language acquisition and development, more time would need to be devoted to observation and recording of data. Extending the study would most certainly reveal more information about David's language acquisition and development.

Also, because of his age and lack of metalinguistic awareness and expressive ability, the motives of his individual language choices were an enigma. It could not be known, for example, if his lack of linguistic production was based on a lack of awareness of linguistic equivalents, because of strong contextual cues overriding his previous knowledge, or simply because of personal choice. As his linguistic and metalinguistic knowledge increases, David will be more capable of explaining his motives and reasons for his language choices.

5. Conclusion

The data showed a rich exposure to language input in all three languages and an adherence to the use of the minority language either by language strategies (OPOL by David's father) or a linguistic necessity (monolingualism of David's mother). The findings indicate that David is on his way to successfully acquiring three languages. Although he demonstrated an apparent preference for English and ended up using English more than French and Spanish in spontaneous speech, he was able to understand and use English, Spanish, and French. This would seem to suggest that plentiful exposure coupled with consistent input in addition to parental language practices do indeed play an important role in trilingual language development.

References

- Albin, A., & Gershkoff-Stove, L. (2016). Rapid word learning in trilingual children: One spurt or three? In D. Stringer, J. Garrett, B. Halloran, & S. Mossman (Eds.), *Proceedings of the 13th Generative Approaches to Second Language Acquisition Conference* (pp. 14-30). Somerville, MA: Cascadilla Proceedings Project.
- Arnaus Gil, L., Müller, N., Sette, N., & Hüppop, M. (2021). Active bi- and trilingualism and its influencing factors. *International Multilingual Research Journal*, 15(1), 1-22. doi:10.1080/19313152.2020.1753964
- Barnes, J. D. (2006). *Early trilingualism: A focus on questions*. Tonawanda, NY: Multilingual Matters.
- Braun, A. (2012). Language maintenance in trilingual families - a focus on grandparents. *International Journal of Multilingualism*, 9(4), 423-436. doi:10.1080/14790718.2012.714384
- Braun, A., & Cline, T. (2010). Trilingual families in mainly monolingual societies: Working towards a typology. *International Journal of Multilingualism*, 7(2), 110-127. doi:10.1080/14790710903414323
- Braun, A., & Cline, T. (2014). Language strategies for trilingual families: Parents' perspectives. Tonawanda, NY: Multilingual Matters.

- Brito, N. H., Sebastián-Gallés, N., & Barr, R. (2015). Differences in language exposure and its effects on memory flexibility in monolingual, bilingual, and trilingual infants. *Bilingualism: Language and cognition*, 18(4), 670-682. doi:10.1017/S1366728914000789
- Cantone, K. F. (2019). Language exposure in early bilingual and trilingual acquisition. *International Journal of Multilingualism*, 1-16. doi:10.1080/14790718.2019.1703995
- Chevalier, S. (2012). Active trilingualism in early childhood: The motivating role of caregivers in interaction. *International Journal of Multilingualism*, 9(4), 437-454. doi:10.1080/14790718.2012.714385
- Chevalier, S. (2015). *Trilingual language acquisition: Contextual factors influencing active trilingualism in early childhood*. Philadelphia, PA: John Benjamins Publishing Company.
- Döpke, S. (1992). *One parent - one language: An interactional approach*. Philadelphia, PA: John Benjamins Publishing Company.
- Hoffmann, C., & Stavans, A. (2007). The evolution of trilingual codeswitching from infancy to school age: The shaping of trilingual competence through dynamic language dominance. *International Journal of Bilingualism*, 11(1), 55-72.
- Mieszkowska, K., Luniewska, M., Kolak, J., Kacprzak, A., Wodniecka, Z., & Haman, E. (2017). Home language will not take care of itself: Vocabulary knowledge in trilingual children in the United Kingdom. *Frontiers in Psychology*, 8, 44-54. doi:10.3389/fpsyg.2017.01358
- Quay, S. (2012). Discourse practices of trilingual mothers: Effects on minority home language development in Japan. *International Journal of Bilingual Education and Bilingualism*, 15(4), 435-453. doi:10.1080/13670050.2012.665828
- Ronderos, J., Castilla-Earls, A., & Ramos, G. M. (2021). Parental beliefs, language practices and outcomes in Spanish-English bilingual children. *International Journal of Bilingual Education and Bilingualism*, 1-22. <https://doi.org/10.1080/13670050.2021.1935439>
- Volterra, V., & Taeschner, C. (2007). The acquisition and development of language by bilingual children. In L. Wei (Ed.), *The bilingual reader* (pp. 301-320). New York, NY: Routledge. (Reprinted from "The acquisition and development of language by bilingual children," 1978, *Journal of Child Language*, 5[2], 311-326.
- Wang, X. (2008). *Growing up with three languages: Birth to Eleven*. Buffalo, NY: Multilingual Matters.
- Zhan, Y. (2021). The role of agency in the language choices of a trilingual two-year-old in conversation with monolingual grandparents. *First Language*, 41(1), 21-40. doi:10.1177/0142723720923488



Phonology Acquisition in Nepal: A Preliminary Study

Prabha Dawadee¹
Institute of Medicine, TU
Pratima Dawadi²
Chitwan Fertility Center

Received : 22.05.2021
Accepted : 16.10.2021
Published : 18.11.2021

Abstract

The process of speech and language development in children is an effortless and basic human skill. As the child acquires language, they acquire a sign system that bears an important relationship to both cognitive and social aspects of their life. Every language has its own phonological system so it is necessary to develop language-specific articulatory skill acquisition norms. The aim of the study was to delineate the phonology acquisition in typically developing Nepali-speaking children between the ages 3 and 7.

Forty children in 5 discrete groups as: 3.0-3.12 (mean= 3.4), 4.0-4.12 (mean= 4.4), 5.0-5.12 (mean= 5.5), 6.0-6.12 (mean= 6.4) years, each group consisting of 10 children was considered for the study. All the forty children were administered a picture articulation test in Nepali (PAT-N). The test consists of 79 colorful pictures, and analyses 6 vowels, 3 diphthongs, and 28 consonants in different positions: initial, medial, and final position. After the completion of recording, the recorded samples were transcribed in IPA after a few hours of recording on the same day and were analyzed.

All the vowels and diphthongs included in the study were acquired before the age of 3 years old. Around 60% of consonants including in all the positions are developed by age 3.12. The result demonstrated that children acquire more speech and become more accurate as they get older. Speech-language pathologists/ therapists can use this study to assess the speech sound errors, link with intelligibility, and know about the actual breakdown in speech sound development.

Keywords: speech sounds, phonology, articulation, misarticulation, acquisition, phoneme

1. Introduction

Language refers to using sound (signs and symbols) systematically and conventionally for communication and expression (Crystal, 1955). There are five basic components of language (phonology, morphology, syntax, semantics and pragmatics) which are found across all the languages. All these component work together to create meaning for communication.

The process of learning a language in children is usually through interaction with others which slowly they refine and improve the communication (Brancalioni et al., 2018). It is an effortless and basic human skill. As the child acquires language, they acquire a sign system that bears important relationship to both cognitive and social aspects of their

¹ Ms. Prabha Dawadee, Lecturer, Masters in Audiology and Speech Language Pathology (MASLP), Maharajgunj Medical Campus Institute of Medicine, TU +9779865171778

Corresponding author: prabhadawadee@gmail.com

² Ms. Pratima Dawadi, Nursing Supervisor, Masters in Nursing, Chitwan Fertility Center

life (Fletcher & Garman, 1986). This process follows certain pattern and rate in every language which is very complex to explain without any research. Some of the most commonly quoted milestone for language development is the child must acquire the first word by 12 months, two-word phrase/ word combination by 24 months and sentences by 36 months which are used by parents and professional to monitor the normal pattern of language acquisition and to rule out whether the child is showing any delay or need intervention (Lyons, 2013).

One of the basic components of language is phonology which refers to the sound system of the language (Edwards, 1997). Acquisition of an individual sound/phoneme can be described as speech sound development and the organization of these speech sounds into patterns. The development of children's speech sound can be analyzed in two ways: phonetic vs. phonemic acquisition. The term 'Phonetic' refers to motoric skill of speech sound production. The term phonemic refers to the use of speech sounds and their organization. The child acquires speech when he/she masters in perception and production of consonants, vowels, clusters, and prosodic features of the language they speak. Children learn an entire range of phoneme of their language gradually from simple to complex sound. For e.g. clusters are developed later in childhood. The acquisition of various speech sounds is closely related to a child's overall language development (Bauman-Waengler, 2004)

Since the 1930s, there are many studies/researches that have been documented in the acquisition of speech sounds in different languages. Till now it has been documented in more than 27 languages. In most of the languages of the world, the consonant is almost acquired by the age of 5 years, by this age almost 93% of consonants are produced correctly. Sounds from the group of plosives, nasals, and non-pulmonic consonants are acquired earlier than trills, flap, fricatives, and affricates (McLeod & Crowe, 2018).

Nepali language is a member of the Indo-Aryan branch of the Indo-European language which is spoken by 12,300,300 in Nepal (2011 census), 2,870,000 in India (2001 census) and 156,000 in Bhutan. It is the national language of Nepal. According to the 2011 national census, 44.6% of the population of Nepal speaks Nepali as the first language and 32.8 % speak as a second language. There are altogether 12 vowels, 33 consonants, and 3 clusters in the Nepali language(assets, n.d.)

Every year more than 142 children with speech and language delay visit tertiary care hospital in Nepal (Shrestha & Adhikary, 2020). Due to less documentation on the acquisition of speech and language in typically developing children in Nepal as a result many speech-language pathologists in the country are not able to set proper goals for the delayed speech and language. Studying a whole set of language at a stretch is a very complex task and need lots of dedication. There has been a minimal study done in the acquisition of speech and language in typically developing Nepali speaking. The first case study on language development was documented by Pathak where he mentioned that the different component of language is developed at the different stage however there is no clear-cut phase for anything. In the same study he had discovered that around 7 vowels, 3



diphthongs and 11 consonants are acquired at 6 months of age (Pathak 2015). However there no document on phonology acquisition in typically developing Nepali speaking children according to age so this study can be a preliminary study to document the acquisition of one of the components of language. The aim of the study was to delineate the phonology acquisition in typically developing Nepali-speaking children between the ages 3 and 7.

2. Methodology

2.1. Participants and data collection

A cross-sectional study for which forty children from middle-class families that speak Nepali at home and had English as the medium of instruction at school were considered for the study. They were further divided into 5 discrete groups: 3.0-3.12 (mean= 3.4), 4.0-4.12 (mean= 4.4), 5.0-5.12 (mean= 5.5), 6.0-6.12 (mean= 6.4) years, each group comprising of 10 children. The children with normal speech-language and motor histories were included in the study. However, children with hearing loss and slow learners were excluded from the study.

Table 1
Age group and mean age

Group	Mean Age
3-3.12	3.4
4-4.12	4.4
5-5.12	5.5
6-6.12	6.4

All the forty children were administered Picture Articulation Test in Nepali (PAT-N) (Dawadee et al., 2016). The test consists of 79 colorful pictures and analyses 6 vowels, 3 diphthongs, and 28 consonants in different positions, initial, medial and final positions. Out of 28 consonants, 27 consonants were able to assess in the initial position, 24 consonants were able to assess in the final position however only 19 consonants were able to assess in the middle position.

Table 2
Total number of vowels and consonants in different position

	Initial	Medial	Final
Vowels	a , a: , i , o , u , e		
Diphthongs	ai , au , ang		
Consonants	k , k ^h , g , g ^h , ʃ , ʃ ^h , dʒ , dʒ ^h , t , t ^h , d , d ^h , ʈ , ʈ ^h , ɖ , ɖ ^h , n , p , p ^h , b , b ^h , m , j , r , l , s , h	k , k ^h , g , ʃ , ʃ ^h , dʒ , t , d , t ^h , d , ʈ , n , p , p ^h , b , b ^h , m , j , r , l , s , h	k , k ^h , g , g ^h , ʃ , ʃ ^h , dʒ , t , d , t ^h , ɖ , n , p , p ^h , b , b ^h , m , j , r , l , s , h , w
	6 vowels, 3 diphthongs 27 consonants	19 consonants	24 consonants
Total =79			

During response elicitation, the children were asked to sit on chairs comfortably and the pictures were presented. The responses were recorded and saved in Hewlett-Packard model HP envy 4 notebooks. In the case of a child not able to name the picture, an initial phoneme was provided as cues. If a phonemic cue was not enough syllabic cue followed by a question and the modeling of the word was done. Appropriate reinforcements were provided.

2.2. Data processing and analysis

After the completion of recording, the recorded samples were transcribed in IPA after few hours of recording on the same day and were analyzed. In case of articulation errors, the words were analyzed for phoneme substitution, omission, distortion, or addition. The criterion of 80% for the entire phoneme in all positions was considered for them to be acquired?

3. Findings

3.1. Vowels and Diphthongs

All the vowels and diphthongs that were included in this study were achieved by the age 3-3.11 years of age. Diphthongs |au| had the least percentage of acquisition i.e. 80% and the rest had 100% acquisition. All the vowels and diphthongs were assessed in only the initial position and were independent vowels.

Table 3

Vowel and Diphthongs Development percentage

Vowels	3-3.12 yrs	4-4.12 yrs	5-5.12 yrs	6-6.12 yrs
a	100%	100%	100%	100%
a:	100%	100%	100%	100%
i	100%	100%	100%	100%
o	100%	100%	100%	100%
u	100%	100%	100%	100%
e	100%	100%	100%	100%
ang	100%	100%	100%	100%
au	80%	90%	100%	100%
ai	100%	100%	100%	100%

3.2. Consonants

3.2.1. 3-3.12 years old group

The velar plosive unaspirated voiceless sound like |k|, alveolar plosive unaspirated voiceless sound like |t|, bilabial plosive unaspirated voiceless sound like |p|, bilabial plosive unaspirated voiced sound like |b|, bilabial nasal unaspirated voiced sound like |m|, alveolar nasal unaspirated voiced sound like |n| and alveolar affricates unaspirated voiceless sound like |tʃ| are acquired in all the positions, initial, medial, and final positions with 80% acquisition criterion.

Whereas, other sounds, velar plosive aspirated voiced to sound like |kʰ|, dental plosive unaspirated voiceless sound like |t̪|, palatal approximant unaspirated voiced sound like |j| and bilabial plosive aspirated voiced to

sound like |p^h| are acquired only in the initial and final position with an 80% acquisition criterion.

Alveolar lateral approximants unaspirated voiced sound like |l| is acquired at middle and final positions and alveolar plosive unaspirated voiced |g| is developed in initial and middle positions only with an 80% pass criterion.

Table 4
Consonant Development in Percentage

Consonant	Position	3-3.11	4-4.11	5-5.11	6-6.11	Consonants	Position	3-3.11	4-4.11	5-5.11	6-6.11
k	I*	100%	100%	100%	100%	d	I	60%	100%	100%	100%
	M	90%	90%	100%	100%		M	100%	100%	100%	100%
	F	100%	100%	100%	100%	d ^h	I	100%	100%	100%	100%
k ^h	I	80%	100%	100%	100%		F	40%	60%	60%	70%
	M	60%	80%	100%	100%	n	I	100%	100%	100%	100%
	F	90%	90%	100%	100%		M	100%	100%	100%	100%
g	I	100%	100%	100%	100%		F	80%	90%	100%	100%
	M	100%	100%	100%	100%	p	I	100%	100%	100%	100%
	F	40%	40%	60%	80%		M	100%	100%	100%	100%
g ^h	I	80%	90%	100%	100%		F	100%	100%	100%	100%
ŋ	I	100%	100%	100%	100%	p ^h	I	100%	100%	100%	100%
	M	80%	90%	100%	100%		M	70%	80%	90%	100%
	F	80%	100%	100%	100%		F	80%	90%	90%	100%
ŋ ^h	I	50%	60%	70%	70%	b	I	100%	100%	100%	100%
	M	60%	60%	60%	70%		M	100%	100%	100%	100%
	F	30%	50%	70%	80%		F	100%	100%	100%	100%
dʒ	I	70%	90%	90%	100%	b ^h	I	100%	100%	100%	100%
	M	60%	90%	90%	100%	m	I	100%	100%	100%	100%
	F	70%	80%	80%	100%		M	100%	100%	100%	100%
dʒ ^h	I	100%	100%	100%	100%		F	70%	90%	100%	100%
t	I	80%	90%	100%	100%	j	I	100%	100%	100%	100%
	M	70%	80%	90%	90%		F	100%	100%	100%	100%
	F	100%	100%	100%	100%	r	I	40%	60%	80%	90%
t ^h	I	100%	100%	100%	100%		M	60%	80%	90%	100%
	F	30%	90%	100%	100%		F	50%	80%	90%	100%

d	I	70%	100%	100%	100%	w	F	70%	80%	90%	100%
	M	60%	80%	100%	100%	s	I	70%	80%	90%	100%
	F	50%	50%	80%	100%		M	70%	90%	90%	100%
t̪	I	100%	100%	100%	100%		F	60%	90%	90%	100%
	M	100%	100%	100%	100%	h	I	100%	100%	100%	100%
	F	70%	100%	100%	100%		M	60%	70%	80%	80%
l	I	60%	90%	90%	100%		F	70%	100%	100%	100%
	M	80%	90%	90%	100%	dʰ	I	100%	100%	100%	100%
	F	100%	100%	100%	100%						

*[I=Initial, M=Medial, F=Final]

Similarly, velar plosive aspirated voiced to sound like |gʰ|, palatal affricates aspirated voiced to sound like |dʒʰ|, alveolar plosive aspirated voiceless sound like |tʰ|, alveolar plosive aspirated voiced sound like |dʰ|, dental plosive aspirated voiceless sound like |t̪ʰ|, dental plosive aspirated voiced sound like |d̪ʰ|, bilabial plosive aspirated voiced to sound like |bʰ| and glottal fricative aspirated voiced to sound like |h| are acquired only in initial the position whereas dental plosive unaspirated voiced sound like |d̪| is acquired in middle position only. All are considered to be acquired with an 80% acquisition criterion.

3.2.2. 4-4.12 years old group

The new sounds which are developed in this group are alveolar affricate unaspirated voiced sound like |dʒ| and alveolar fricatives aspirated voiceless sound like |s| which are acquired in all initial, middle and final positions. Sound like alveolar plosive unaspirated voiced sound like |d| is acquired in initial and middle position.

Other sounds like dental plosive unaspirated voiced sound like |d̪| and alveolar lateral approximants unaspirated voiced sounds like |l| are acquired in initial position only, velar plosive aspirated voiceless sound like |kʰ|, alveolar plosive unaspirated voiceless sound like |t| and bilabial plosive aspirated voiceless sound like |pʰ| are acquired in middle position only, and alveolar plosive aspirated voiceless sound like |tʰ|, dental plosive aspirated voiceless sound like |t̪ʰ|, bilabial nasal unaspirated voiced sound like |m|, glottal fricative aspirated voiced sound like |h| and bilabial approximant unaspirated voice sound |w| are acquired in final position only.

3.2.3. 5-5.12 years old group

Alveolar tap unaspirated voiced sound like |r| is acquired in initial position only, glottal fricative aspirated voiced sound like |h| is acquired in the middle position only and alveolar plosive unaspirated voiced sound |d| is acquired in the final position only.



3.3. 6-6.12 years old group

Velar plosive unaspirated voiced sound like |g| and alveolar affricatives aspirated voiced sound like |ʃ^h| are developed in final position only.

3.4. 6.12 years old group

Alveolar affricates aspirated voiceless sound like |tʃ^h| is developed in initial and middle position only and Velar plosive aspirated voiced sound like |g^h| is developed in final position only.

4. Discussion and conclusions

The responses elicited from 40 typically developing Nepali speaking children were analyzed to obtain normative data. It was considered that the children master acquisition as the age increases which is supported by this study indicating some sounds are acquired earlier in life than other sounds.

It was noted from the result that children's speech becomes more accurate as they get older. Almost all the vowels are acquired by the age of 3.12. Around 60% of consonants including in all the positions are developed by the age 3.12 which increases to 89%, 93%, and 96% by the age 5, 6 and 7 respectively and rest are acquired after 7. This finding correlates with Dodd et.al 2003 and K. Ramandeep et.al 2015 which states the majority of error pattern resolve within 4 years. The most difficult sound to acquire are palatal affricatives |tʃ|, |tʃ^h| and tap |r| according to the percentage table. As the speech sound continue to develop even after 6.5 this study also indicates few sounds are not acquired even after 6.12 which is supported by the studies Banik (1998), Maya (1990), Rao (2015), P. Ravali (2016).

Table 5

Summary of development of consonants in different position with age and their percentage of acquisition

Age	Initial	Medial	Final	Total acquisition
3-3.12	k , k ^h , g , g ^h , ʃ , ʃ ^h , t , t ^h , d ^h , tʃ , tʃ ^h , n , p , p ^h , b , b ^h , m , j , h	k , g , ʃ , tʃ , d , n , p , b , m , l	k , k ^h , ʃ , t , tʃ , n , p , b , m , j , l , p ^h	60%
4-4.12	dʒ , d , dʃ , s , l	k ^h , dʒ , t , d , p ^h , r , s	dʒ , t ^h , tʃ ^h , m , r , s , h , w	89%
5-5.12	r	h	d	93%
6-6.12			g , ʃ ^h	96%
>6.12	ʃ ^h	ʃ ^h	g ^h	100%

The result which is obtained from the study has a great clinical implication. As the results were obtained using most of the phoneme in

different positions this data can be used to differentiate between phonological disorders and normal children in a clearer way. Speech-language pathologists/therapists can use this study to assess the speech sound errors, link with intelligibility, and know about the actual breakdown in speech sound development. This is one of the preliminary studies so this might be a small yet important milestone in knowing the phonological aspect of language development. The study was carried out with a limited sample size and there the lack of inter-rater reliability.

References

- Banik, A. (2003). *Development of articulation among normal and hearing impaired Oriya children*. (Unpublished Ph.D. thesis). University of Bhubaneswar.
- Bauman-Waengler, J. (2004). *Articulatory and Phonological Impairments: A Clinical Focus*. (4th ed.), Allyn & Bacon Communication Sciences and Disorders.
- Brancaleoni, A. R., Bogoni, A. P., Silva, D. P., & da Giacchini, V. (2018). A comparative study on phonological acquisition and performance in phonological awareness by children exposed to a bilingual or monolingual family environment. *Revista CEFAC*, 20(6), 703–714. <https://doi.org/10.1590/1982-021620182061018>
- Crystal, D. (1995). *The Cambridge encyclopedia of the English language* (2nd ed.). Cambridge, UK: Cambridge University Press.
- Dawadee, P., Prabhu, S., & Bhattarai, B. (2016). Wordlist in Nepali language to Assess Articulatory. *Nepalese Journal of ENT, Head & Neck Surgery Errors*, 7(2), 11-16.
- Dodd, B., Holm, A., Zhu, H., & Crosbie, S. (2003). Phonological development: a normative study of British English speaking children. *Clinical linguistics and phonetics*, 17(8), 617-643
- Edwards, M. L. (1997). Historical overview of clinical phonology. In Barbara Williams Hodson, & Mary Louise Edwards (Eds.) *Perspectives in applied phonology*. Aspen Publishers.
- Maya (1990). An articulation test battery in Malayalam. (Unpublished master's thesis). University of Mysore.
- Pathak, L. (2015). *Child Language Acquisition: A Case Study*, Paper presented at 24th Annual Conference, Linguistic Society of Nepal, Nov. 26-27, 2003, T.U., Kirtipur, Kathmandu.
- Ravali P. M., & Banik, A. (2016). Development of phonological processes in typically developing 3 ½ to 6 ½ years Hindi speaking children. *International Journal of Multidisciplinary Research and Development*, 3(4), 101-105.
- Shetty, P., & Prabhu, S. (2015). Acquisition of Speech Sound in Tulu language. *Journal of Child Language Acquisition and Development*. 3(2), 98-109.
- Shrestha, S., Adhikary, A., & Dangol, K. (2020). Prevalence of Speech and Language Disorders in Tertiary Care Hospital: A Retrospective Study. *Nepalese Journal of ENT, Head & Neck Surgery*, 11(1), 21-24.