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Psycholinguistic Studies: Acquisition of Indonesian Phonology in Down Syndrome Children

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ABSTRAK

Pemerolehan bahasa merupakan suatu proses yang terjadi dalam otak anak pada saat ia memperoleh bahasa pertamanya atau bahasa ibu yang artinya pemerolehan bahasa dalam kaitannya dengan bahasa pertamanya. Penelitian ini bertujuan untuk mengetahui pemerolehan fonologi bahasa Indonesia pada anak down syndrome di SLB E Negeri Pembina Medan. Penelitian ini dilakukan pada 5 Down Syndrome, rentang usia 6-9 tahun. Penelitian ini juga bertujuan untuk mendeskripsikan perkembangan kognitif mereka. Teori perubahan ujaran Blumstein digunakan untuk mengetahui perubahan bunyi ujaran. Teori Jacobson digunakan untuk mengetahui pemerolehan fonologi bahasa Indonesia dan teori Jean Piaget digunakan untuk menjelaskan perkembangan bahasa mereka. Metode yang digunakan adalah mahir dan mencatat. Diketahui kelima responden dalam melafalkan beberapa kata terdapat perubahan bunyi ujaran yaitu bunyi Penghapusan (Omision), bunyi penambahan (Addition), dan penggantian bunyi (Substitusi). Mereka juga telah menguasai beberapa bunyi vokal bahasa Indonesia [i], [u], [e], [o] dan [a]. Mereka dapat menghasilkan beberapa bunyi vokal baik di awal, tengah, atau akhir kata. Ada beberapa konsonan yang sudah diperoleh bahasa Indonesianya dan ada juga konsonan yang belum diperoleh, [w], [f]. [z], dan [h]. Perkembangan fonologi merupakan tahap holoprastik. Usia kronologis mereka adalah 6 hingga 9 tahun, namun usia pemerolehan bahasa setara dengan usia dua tahun.

ABSTRACT

Language acquisition is a process that takes place in a child's brain when he acquires his first language or mother tongue which means language acquisition in relation to his first language. This study aims to analyze the acquisition of Indonesian phonology in Down syndrome children. This study was conducted on 5 Down syndrome, age range of 6-9 years. This study use Blumstein's theory of speech changes is used to determine the change of speech sounds and Jacobson's theory is used to determine the acquisition of phonology Indonesian and Jean Piaget's theory is used to describe the language development of them. The method used is proficient and record. It was found that the five respondents in pronouncing several words there was a change in the sound of speech, namely sound Deletion (Omision), sound addition (Addition), and sound replacement (Substitution). They have also acquired some of the Indonesian vowel sounds [i], [u], [e], [o] and [a]. They can produce several vowels sounds either at the beginning, middle or end words. There are some consonants that have been acquired Indonesian and there are some consonant sounds that have not been obtained, [w], [f]. [z], and [h]. The phonological development is the stage of holoprastic. Their chronological age is 6 to 9 years, but the age of language acquisition is equivalent to the age of two years.

1. INTRODUCTION

Language acquisition is a process that takes place in a child's brain when he acquires his first language or mother tongue which means language acquisition in relation to his first language. This is a creative process in which language rules are learned by children based on the *input* they receive from the simplest to the most complex forms. Children will master language faster if they acquire language in the golden period *or the ideal period (critical* age) which is the age of 6-15 years (Chubko et al., 2020; Hashim & Yunus, 2018; Knauer et al., 2020). In another theory, it is assumed that the critical age ranges from 0 - 6 years, but in essence the ideal period limit in question is prepuberty. At the age of children, language

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acquisition includes speech produced by the sounds of word choice, formations, and sentences made by imitating adults (Budianingsih, 2017; Pandudinata & Kundharu, 2018). Language acquisition can be syntactic, semantic, or phonological. Phonology is the most basic study. This is because phonology involves the sounds of language as the result of a series of segmentation stages. Phonology examines language sounds as the smallest unit of speech along with the combination of sounds that form syllables or syllables as well as with suprasegmental elements such as stress, tone, stop and duration (Adnyani et al., 2018; Novianti et al., 2019). In this study focused on phonological acquisition. Phonological acquisition is related to the acquisition of language sounds received by children both from the surrounding environment and those closest to them.

Language is a formal system for pairing signals with meaning. This pair can go well when people produce a sentence, they use language to encode the meaning they want to convey into the sequence of speech sounds (Buragohain et al., 2018; Teppa et al., 2022). When people understand spoken sentences, language allows them to reverse the process and decode the speaker's speech to recover its intended meaning. Indonesian is one of the languages used to communicate for its speakers. Apart from being a means of communication, this language also has several functions including (a) a symbol of national pride; (b) emblematic national identity; (c) tools for unifying various peoples with different socio-cultural and linguistic backgrounds, (d) tools for intercultural and inter-regional relations. (e) the official language of the state; (f) the official language of instruction in educational institutions; (g) official language in relations at the national level for the purposes of development planning and implementation and governance; and (h) official language in cultural development and the use of modern science and technology (Fachriyah, 2017; Tjendani et al., 2019).

Indonesian should be known to the child before he enters school. This is because in schools it is used Indonesian in the teaching and learning process. In addition, Indonesian will also be found widely used during communication between one another. Down *syndrome* children also need language to communicate with others (Hardi et al., 2022; Lanfranchi et al., 2021). But because of the disruption in brain function, it makes it difficult for them to acquire language and communicate with others. Down *syndrome children* have genetic developmental disorders associated with intellectual disabilities (Happé & Frith, 2014; Martínez & Carvajal, 2021). Down *syndrome* children have difficulty in communicating with people around them. Because of their stunted development, down *syndrome* children when communicating with children their age also experience difficulties (Cubukcu et al., 2020; Levia et al., 2019). This difficulty can also be a barrier for children to develop language skills.

The physical, mental, and cognitive development of *Down syndrome* children is different from normal children in general. In many ways they experience delays compared to other normal children. Almost all cognitive abilities of *Down syndrome children* experience disorders such as slow learning, difficult to overcome problems, less able to establish causal relationships, so that the appearance is very different from other children (Schuetze et al., 2019; Tay et al., 2019). Down *syndrome* children are also characterized by weak motor control, lack of ability to coordinate. According to previous study state down syndrome children and normal children basically have the same goal in developmental tasks, namely achieving independence (Martínez & Carvajal, 2021). However, the development of *Down syndrome* children is slower than in normal children. These physical and cognitive barriers make spoken language difficult to use in communicating.

Down syndrome *children* generally study in special schools such as at SLB Negeri Pembina at the North Sumatra Provincial Level, Medan. This school is one of the SLB schools in Medan. The school is located on Jalan Karya Ujung – East Helvetia, Medan, North Sumatra. This school is intended for children with special needs, including one of them Down *syndrome*. This school is one of the oldest SLB schools in Medan. Complete facilities and educators who already have expertise in dealing with children with special needs. Down *syndrome* children in this school are both at the elementary school (SD) to high school (SMA) levels. In this study, the author focused on grade 1 down syndrome children in elementary school at the school. Research on *Down* syndrome children has been done as well as research on the language skills of *Down syndrome children*. Research on the acquisition of phonology of various languages in Down *syndrome* children has been carried out by several researchers (Ayyad et al., 2021; Diez-Itza et al., 2021; Katsarou & Andreou, 2022). Research conducted on *Down syndrome* children with different age ranges but equally specialized in phonological acquisition studies on consonants and vowels. From the results of their research, it was found that there was a change in the sound of speech. The resulting speech sound is melting. Speech sound errors both vowel and consonant sounds from the results of the studies above found the same errors, namely: 1) Sound dissipation errors (omission), 2) Sound exchange (substitution), 3) addition of sounds (addition) and 4) language regularity (metathesis) (Law et al., 2018; Sharma, 2021). Children's language acquisition is influenced by children's cognitive development. Down syndrome children also experience delays in cognitive development. Every child has a stage of development both

physically and linguistically. Jean Piaget in previous study state one of the figures of language development in humans (Mifroh, 2020). It focuses more on cognitive development. He divided the child's normal language acquisition stages as follows: a) Sensory (sensory-motor) stage, this stage of cognitive development occurs between the ages of 0 and 2 years. b) *Preoperational stage (preoperational*). c) This stage of development of cognitive abilities occurs in the age range of 2-7 years. D) Concrete operation stage. This stage begins when the child is 7-11 years old. E) Full Operational Stage (Arya Wiradnyana et al., 2020; Fitriyani et al., 2019). The formal stage of operation exists in the age range of 11 years to adulthood. In this study, the authors want to continue research that has been held previously but in a different age range from the previous age. This study will still look at how phonological acquisition in Down *syndrome* children but will also be associated with children's cognitive language development that has not been done in previous studies. The aims of this study is to analyze vowels and consonants can Indonesian produced and obtained by Down *syndrome children* and how is the cognitive development of Down *syndrome* children related to the acquisition of phonology Indonesian *Down syndrome children* in SLB E Negeri Pembina Tingkat Provinsi Sumatera Utara, Medan.

2. METHOD

This study used Blumstein and Kohn's theory of speech sound change and Roman Jacobson's theory (Al-Bantany, 2013). There were five participants with 5 Down syndrome children as research subjects. The data in this study were Indonesian vowel and consonant sounds produced by all five Down syndrome children. The source of data in this study was 5 Down syndrome sufferers with an age range of 6-9 years with the initials MK, MY, MT, MN and RF. The method of data collection is listened. The basic technique is the tapping technique, and the advanced technique is record. The data analysis method is equivalent. The technique used is to sort out the main elements. This method analyses vowel and consonant speech sounds obtained by participants at words' beginning, middle, and end.

3. RESULT AND DISCUSSION

Result

MT is one of the respondents who 9 years old. MT in his daily life interacts little with the people around him. When asking MT to produce words through pictures or when asked to repeat spoken words, MT did not respond immediately. It needs to be held repeatedly to get the required data. From the results of research on MT, the data were obtained is show in Table 1.

Table 1. Data obtained from MT

Responden	Sound	Beginning Word	Middle Word	Last Word
MT	[i]	[nil] → [il]	[kucin] → [tin]	[ini] → [ni]
	[u]	[rusa] → [usa]	[tujuh] → [juh]	[jeruk] → [lu]
	[e]	[sebelas] → [elas]	[jerapah] → [jera]	[hore] → [le]
	[o]	[wortel] → [ote]	[balon] → [lon]	[sawo] → [wo]
	[a]	[kelapa] → [apa]	[sudah] → [uda]	[pisang] → [sa]
	[b]	[lebar] → [ba]	[obat] → [oba]	[jawab] → [wab]
	[p]	[tOpi] → [pi]	[sapu] → [apu]	[sulap] → [lap]
	[m]	[mama] → [ma]	[lima] → [ima]	[bayam] → [ayam]
	[d]	[baju] → [daju]	[duduk] → [udu]	[ikut] → [itud]
	[t]	[kasih] → [te]	[ikan] → [itan]	[coklat] → [tat]

Responden	Sound	Beginning Word	Middle Word	Last Word
	[s]	[pisaŋ] [sa]	[rusa] [usa]	[sebelas] [las]
	[n]	[dimana] [na]	[ini] [ni]	[bukan] [kan]
	[w]	[sawo] [wo]	-	-
	[l]	[elaŋ] [laŋ]	[lalu] [alu]	[sel] [el]
	[j]	[pajak] [ja]	[belanja] [aja]	
	[c]	[baca] [ca]	[benci] [eci]	-
	[k]	[dekat] [kat]	[bakso] [akso]	[cirsak] [cak]
	[y]	[jeruk] [yuk]	[bayam] [ayam]	-
	[g]	[anggur] [gun]	[jagun] [agun]	-
	[ŋ]	-	-	[elaŋ] [laŋ]

To answer the first problem, Bluemstein's theory of speech sound change and Roman Jacobson's phonological acquisition theory were used. By using the theory of speech sound changes, several sound changes were found, there are:

Sound Deletion (Omission)

Some omissions occur both at the beginning of the sound and at the end of the sound. The following are the results of the analysis sound change, for example, MT when pronouncing *ini* occurs omission of the front high vowel sound [i] at the beginning of the sound. MT is only capable of producing [ni].MT when pronouncing *wide words* occurs omission of voiced lateral alveolar sounds [l], front medium vowels [e], and vibrating alveolar consonant sounds [r]. MT is only capable of producing [ba].

Substitution

Some of the sound replacements that occur are, MT when pronouncing the word *the fish,* there is a replacement of speech sounds (substitution) of the consonant sound [t] in the middle of the word, dorsovelar sounds are voiceless so that the production of MT sound acquisition becomes [itan]. MT when pronouncing the word *baju* there is a substitution of the consonant sound [d] at the beginning of the word, the bilabial sound sounds [b] so that the production of MT acquisition becomes [daju]. The next respondent was MK. MK is one of the respondents who pronounces words quite well just like normal children of his age. After conducting research on MK, data related to vowel and consonant sounds that have been obtained by MK are show in Table 2.

Table 2. Data obtained from MK

Responden	Sound	Beginning Word	Middle Word	Last Word
MK	[i]	[ayam] [iyam]	[kuciŋ] [uciŋ]	[kelinci] [ici]
	[u]	[lumba] [uba]	[paus] [aus]	[labu] [labu]
	[e]	[teŋok] [enok]	[melon] [menol]	[bebek] [bebe]
	[o]	[wortel] [ote]	[meoŋ] [eoŋ]	[kodok] [odo]
	[a]	[kelapa] [apa]	[salak] [sala]	[aŋsa] [asa]

Responden	Sound	Beginning Word	Middle Word	Last Word
	[b]	[ibu] [bu]	[tupai] [tubai]	[sebab] [ebab]
	[p]	[papa] [papa]	[kelapa] [apa]	[siyap] [iyap]
	[m]	[melon] [menol]	[kuma] [kuma]	[minum] [num]
	[d]	[dari] [dali]	[landak] [andak]	[abad] [adad]
	[t]	[tupai] [tubai]	[batu] [atu]	
	[s]	[sawo] [sao]	[angsa] [asa]	[paus] [aus]
	[n]	[minum] [num]	[landak] [andak]	[rambutan] [abutan]
	[l]	[labu] [labu]	[salak] [sala]	[hamster] [amsel]
	[j]	[jari] [jali]	[tujuh] [uju]	-
	[c]	[ceri] [cesi]	[anjiŋ] [aci]	
	[k]	[kurma] [kuma]	[ikan] [ikan]	[keŋok] [enok]
	[y]	[ayam] [yam]	[kalah] [kaya]	-
	[g]	[guru] [gulu]	[gigi] [igi]	-
	[ŋ]	[siŋa] [ŋa]		[buruŋ] [uyuŋ]
	[h]	-	-	[tujuh] [ujuh]

Base on Table 2 show data of MK respondents experienced changes in speech sounds, including:

Deletion (Omission)

MK when pronouncing some words occurs sound emission at the beginning and end of the sound. Sound emission at the beginning and end of words is contained in some of the data above, for example In the word *kucing* , there is a removal of voiceless velar inhibitory consonant sounds[k] and voiced velar nasal consonant sounds[ŋ]. MK is only capable of producing [uciŋ]. In the word *lumb*a there is a loss of voiced alveolar lateral consonants [l] and bilabial nasal consonants [m]. MK is only able to produce [uba].

Substitution

From the data above, there is a change in the sound of the substitution. Some of the substitutions that occur are: In the word *ayam* there is a substitution of a low vowel sound at the beginning of the word into a sound [i] so that MK produces the sound [iyam]. In the word tupai, there is an exchange of inhibitory bilabial sounds [p] into voiced bilabial consonants [b] so that MK produces [tubai]. From the change in the sound of MK's speech, it can be said that MK has obtained several vowel and consonant sounds. The vowel sounds that have been obtained are the sounds [a],[i],[u],[e] and [o]. MK has been able to produce the sound [a] at the beginning of a word, i.e. in the word *kelapa* → [apa],middle word i.e. word *salak* → [sala] and at the end of the word i.e. in the word *angsa* → [asa]. MK has also acquired the sound [i] at the beginning of the word *ayam* → [iyam], tengah kata *kucing* → [ucin], and the end of the word *kelinci* → [ici]. The next respondent is MY. MY a female respondent who also rarely communicates with people around her, In producing some sounds, the author uses the images as a medium to be able to obtain the necessary data. Based on the results of research with MY, it was found that the data on consonant sounds and vowels Indonesian that he had obtained both at the beginning of the word, middle and end of the word as a give. The result is show in Table 3.

Table 3. Data obtained from MY

Responden	Sound	Beginning Word	Middle word	Last Word
MY	[i]	[kelinci] [ici]	[niur] [niu]	[kucing] [uci]
	[u]	[lumba] [uba]	[guru] [gulu]	[lagu] [du]
	[e]	[ceri] [eli]	[nenas]] [nenas]	[bebek] [be]
	[o]	[sawo] [o]	[kodok] [todok]	[wortel] [to]
	[a]	[apa] [apa]	[papa] [papa]	[dua] [dua]
	[b]	[ibu] [bu]	[lumba] [uba]	[sembab] [ebab]
	[p]	[paku] [patu]	[kelapa] [apa]	[apah] [pap]
	[m]	[mama] [mama]	[kusma] [uma]	[minum] [num]
	[w]	[sawo] [wo]	[jawab] [awa]	-
	[d]	[lagu] [du]	-	-
	[t]	[wortel] [to]	[ikan] [itan]	[alpukat] [kat]
	[s]	[geser] [sel]	[ansa] [asa]	[paus] [us]
	[n]	[niur] [niu]	[handak] [andak]	[ikan] [itan]
	[l]	[salak] [la]	[ceri] [celi]	[pintar] [tal]
	[j]	[anjiŋ] [ji]	[laju] [aju]	-
	[c]	[baca] [ca]	[kelinci] [ici]	-
	[k]	[alpukat] [kat]	[pakar] [aka]	[kodok] [todok]
	[y]	[layar] [ya]	[koran] [iyan]	-
	[g]	[maŋga] [ga]	-	-
	[ŋ]	-	[aŋsa] [aŋsa]	[udaŋ] [daŋ]

Base on Table 3 show MY experienced the omission of speech sounds at the sound and end. From the data above, some of the omission sounds that occur are, when MY pronounces the word *kelinci* to [ici]. MY occurs omission of voiceless inhibitory velar consonant sounds [k], front medium vowel sounds [e], voiced lateral alveolar consonants [l] and voiced nasal alveolar consonants[n]. MY when pronouncing the word *kucing* becomes [uci]. Here there is an omission of the sound of the inhibited dorsovelar consonant sound [k]. In addition to changes in the sound of Omisi's speech, *Down syndrome children* in producing a sound were also found to have other speech sounds, namely Substitution. From the data obtained, there are several substitutions that occur including: In the teacher's words, there is a substitution of voiced vibrating alveolar sounds [r] in the middle of the word into voiced lateral alveolar consonant sounds [l] so that MY produces sounds [iyam]. In the word *kodok,* there is an exchange of voiceless inhibitory velar consonant sounds [k] into voiceless inhibitory alveolar consonants [t] so that MY produces sounds into [todok]. From the results of the data obtained based on changes in speech sounds produced, MY has obtained several vowel sounds and consonants Indonesian. The vowel sounds that have been obtained are : [i], [u], [e], [o] dan [a]. Bunyi vocal sound [i] at the beginning word k*elinci* → [ici], at the middle *niur*

→ [niu] and in the last word *ini* → [ni]. MY has obtained sound [u] on the beginning word *lumba* → [uba], in the middle word *guru* → [gulu], and at the last word *lagu* → [du]. Sound [e] have obtained at the beginning word *ceri* → [eli], middle word *nenas* → [nenas] and at the last sound *bebek* → [be]. MY has obtained sound [o] at the beginning word *sawo* → [oh], middle word *kodok* → [kodok], and last word *wortel* → [to]. Sound [a] has obtained y MY on the beginning word *apa* [apa] , middle word *papa* → [papa]. The next respondent was MN. MN is a female respondent who is also one of the respondents who is able to pronounce words with sounds that are almost similar to other normal children. Here is the data on vowel sounds and consonants Indonesian that MN has obtained as show in Table 4.

Table 4. Data obtained from MN

Responden	Sound	Beginning word	Middle Word	Last word
MN	[i]	→[durian] [iyan]	→[pisaŋ] [pisa]	→[ini] [ni]
	[u]	→[daun] [un]	→[jeruk] [jeluk]	[duku] [ku]
	[e]	→[melon] [elon]	[cepat] [cepat]	[bebek] [bebe]
	[o]	[wortel] [oten]	[melon] [elon]	[sawo] [wo]
	[a]	[dapat] →[apat]	[cepat] [cepat]	[semangka] [aka]
	[b]	→[bukan] [butan]	[jambu] [abu]	[sebab] [bab]
	[p]	→[lupa] [papa]	→[dapat] [apat]	→[siap] [ap]
	[m]	[delima] [ma]	→[mama] [ama]	[minum] [num]
	[w]	→[sawo] [wo]	→[awas] [awas]	-
	[d]	→[dari] [dali]	[landak] [andak]	→[adat] [adad]
	[t]	[rambutan] [tan]	→[satu] [atu]	→[tomat] [mat]
	[s]	→[sirsak] [sak]	→[unsa] [asa]	[manggis] [gis]
	[n]	→[ini] [ni]	[landak] [andak]	→[ikan] [itan]
	[l]	→[lama] [lama]	[melon] [elon]	[hamster] [asel]
	[j]	→[jeruk] [jeyuk]	[tajuh] [uju]	-
	[c]	→[leci] [ci]	[masak] [acak]	-
	[k]	[alpukat] [kat]	[paŋka] [aka]	→[jeruk] [jeyuk]
	[y]	[srikaya] [ya]	[durian] [iyan]	-
	[g]	[mangga] [ga]	[jagung] [agu]	-

Based on Table 4, MN respondents experienced several changes in speech sounds in accordance with Bluemstein and Khon's theory, namely omition. Some changes in the sound of Omisition that occur such as:MN when pronouncing the word *banana* also occurs the emission of voiced velar nasal consonant sounds [ŋ] at the end of words, so that the production of MN sound acquisition becomes [pisa]. MN when pronouncing *the word leaf* also occurs the emission of voiced inhibited alveolar consonant sounds [d] at the beginning of the word and middle low vowel sounds [a] so that the production of MN sound acquisition becomes [un]. From the phonological acquisition theory proposed by Roman Jacobson, MN has

obtained several vowel sounds and consonants Indonesian. MN can already obtain the first sounds that appear when the child has started to speak such as vowel sounds [a],[i] and [u] and oral and nasal consonant sounds such as [p],[b], [m], [n] and [t]. In accordance with Jacobson's phonological theory of acquisition, MN has acquired the sequence of sound acquisition in children, but there are some vowel and consonant sounds that have not been obtained. Consonant sounds that have not yet been acquired are lucuide sounds [r], palatal sounds and some velar sounds. The next respondent is RF. Here's the RF sound data. The result is show in Table 5.

Table 5. Data obtained from RF

Responden	Sound	Beginning word	Middle Word	Last Word
RF	[i]	[iya] [ia]	[pisan] [pica]	[topi] [pi]
	[u]	[lumba] [uba]	[hapus] [pus]	[satu] [tu]
	[e]	[melon] [elo]	[geser] [sen]	[bebek] [bebe]
	[o]	[belok] [oya]	[odol] [don]	[bakso] [aso]
	[a]	[ranting] [ati]	[salak] [alak]	[aula] [la]
	[b]	[ibu] [bu]	[apa] [aba]	[sebab] [abab]
	[p]	[hapus] [pus]	[apa] [apa]	[siap] [iyap]
	[m]	[rumah] [ma]	[kuma] [uma]	[malam] [lam]
	[w]	[jawab] [wa]		
	[d]	[lagi] [di]	[lagu] [adu]	-
	[t]	[satu] [tu]	[ikan] [ita]	[kasut] [ut]
	[s]	[sisir] [sil]	[bakso] [aso]	[haus] [us]
	[n]	[penas] [nas]	[kina] [ina]	[rambutan] [utan]
	[l]	[orang] [la]	[balak] [ala]	[pedal] [al]
	[j]	-	[baju] [aju]	-
	[c]	[ceri] [cesi]	[anjing] [aci]	-
	[y]		[baru] [ayu]	-
	[k]	-		[salak] [lak]

Based on Table 5, the change in speech sound that occurs in RF respondents is only a dissipation (Omisi). RF when pronouncing the word *topi* occurs the emission of voiceless inhibitory alveolar consonant sounds [t] at the beginning of the word and vowels [i] so that the production of sound acquisition becomes [pi]. RF when pronouncing *lumba* occurs omission of voiced lateral alveolar consonant sounds [l] at the beginning of the word and voiced nasal bilabial [m] so that the sound acquisition production becomes [uba]. RF when pronouncing *the word delete occurs the emission of the* glotal consonant sound [h] at the beginning of the word and the vowel [a] so that the production of sound acquisition becomes [pus].

Discussion

Based on the theory of language development proposed by Piaget, phonological development is at the stage of holoprastic linguistics with the stage of one word, but not yet perfect acquisition of one word (Agustyaningrum & Pradanti, 2022; Hanafi & Sumitro, 2020). The five respondents have been able to produce speech sounds that have a certain meaning. For example, when given certain images, they can already understand the object, but the five respondents have not been able to produce sounds correctly. When related to the chronological age of those aged 6-9 years, but the age of language acquisition is only equivalent to the age of two to 4 years (Kartini, 2021; Mangion & Riebel, 2023). This can be seen when producing the sounds of words in Indonesian there are many sounds that are not produced correctly. This is like what research did on a normal AMS child and a 4-year-old boy where both children had acquired vowel sounds and language consonants. According to Piaget's theory of development, the stage of language development of the five respondents is only in the preoperational stage. This can be seen when respondents see certain images, he can already mention the picture even though the pronunciation of the words is not perfect (Al-Shidhani & Arora, 2012; Juwantara, 2019). Their cognitive development is visible, but rudimentary. Respondents are also not included in the stage of systematic and logical thinking. Respondents when asked to describe objects in the image in words alone cannot be done.

Based on the theory of cognitive development proposed by Piaget, the phonological development of the five *Down syndrome* children is at the stage of holoprastic linguistics with the stage of one word, but not yet perfect acquisition of one word. When related to the chronological age of respondents aged 6-9 years, but the age of language acquisition is only equivalent to the age of two years (Trianingsih, 2016; Ulfa & Na'imah, 2020). This can be seen when producing the sounds of words in Indonesian there are many sounds that are not produced correctly. According to Piaget's theory of development, the fifth stage of language development of *Down syndrome* children is only in the preoperational stage. This can be seen when they see certain pictures, they can already mention the picture even though the pronunciation of the words is not perfect (Diez-Itza et al., 2021; Martínez & Carvajal, 2021). Their cognitive development is visible, but rudimentary. They are also not included in the stage of systematic and logical thinking. When asked to describe objects in pictures in words, they themselves cannot be done. From the results of interviews with class teachers, the five respondents experienced delays in language development not only because there was interference with speech tools, but also because outside of school people around them did not intensely invite communication. The research results can provide a basis for early intervention in phonological development in children with Down syndrome in Indonesia. Specific intervention strategies suggested by the findings of this study may help the language development of children with the condition. In addition, this research can contribute to the development of special learning methods for children with Down syndrome. This method can include a more focused psycholinguistic approach to improving understanding and use of Indonesian phonology. However, this research may have limitations in the generalizability of the findings, especially if the study sample is limited to a specific geographic location or population characteristics. The results may not be directly applicable to the general population of children with Down syndrome.

4. CONCLUSION

The five Down syndrome children in SLB E Pembina Negeri Pemprovsi Sumatera Utara, Medan have acquired several vowel sounds Indonesian [i], [u], [e], [o] and [a] both at the beginning, middle and end of words. They have also mastered some Indonesian consonant sounds such as [b],[p]. [m],[d],[t],[s],[n],[l],[j],[c],[k],[y],[g],[ŋ] and [h]From Roman Jacobson's phonological acquisition theory, the five respondents of Down syndrome children had acquired several vowel and consonant sounds Indonesian. They can already obtain the first sounds that appear when the child has started to speak such as vowel sounds [a],[i] and [u] and oral and nasal consonant sounds such as [p],[b], [m], [n] and [t]. In accordance with Jacobson's phonological theory of acquisition, they have acquired the sequence of sound acquisition in children, but there are some vowel and consonant sounds that have not been able to be obtained. Consonant sounds that have not yet been acquired are lucuide sounds [r], palatal sounds and some velar sounds.

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