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An Analysis of Phonological Errors of Children with Intellectual Disabilities in Special Schools and its Correlation with Islamic Education

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Abstract

Phonological error analysis in this study is related to the pronunciation of sounds of language in communication. Given the importance of communication between speakers and listeners, it is imperative to conduct a study of the analysis of children with intellectual disability's phonological errors. This study aims to analyze phonological errors consisting of phonetics and phonemics in the vocabulary of children with intellectual disability in SLB (Special School) Insan Mandiri, Tanah Pak Lambiak Village, Padangpanjang City. The method employed was the descriptive qualitative method. The data collection method was the listening and speaking method called the Simak Libat Cakap (SLC) technique. The instruments were the researchers, 200 basic Morris Swadesh vocabularies, stationery, and recording devices (cellphones). Data analysis techniques employed were (1) classify, (2) describe, (3) analyze, (4) discuss or implement, and (5) conclude. Based on the findings, phonological errors generally occurred in the phonetic domain, especially in pronouncing vibration sounds due to an illness that inhibits the speaking process of children with intellectual disabilities. Several errors were found in the pronunciation of consonants and clusters in the phonemic domain. Therefore, constant attention, guidance, and practice are needed so children with intellectual disabilities can communicate well. In Islam, education is considered one of the important aspects of life. Thus, the principles of inclusion and attention to individuals with intellectual limitations should be applied to children with intellectual disabilities. The ultimate goal is to ensure that all individuals have equal access to religious education and moral values that are important in the Islamic religion.

***Keywords**: Phonological Errors, Phonemic Phonetics, Children with Intellectual disability.*

Abstrak

Analisis kesalahan fonologi dalam penelitian ini merupakan suatu yang berhubungan dengan pelafalan bunyi bahasa dalam komunikasi. Mengingat pentingnya komunikasi antara penutur dengan pendengar, tentunya kajian mengenai analisis kesalahan fonologi anak intellectual disability ini sangat penting dilakukan. Tujuan penelitian ini adalah menganalisis kesalahan fonologi yang terdiri dari fonetik dan fonemik dalam kosakata anak intellectual disability di SLB Insan Mandiri Kelurahan Tanah Pak Lambiak Kota Padangpanjang. Metode yang digunakan adalah metode kualitatif yang bersifat deskriptif. Metode pengumpulan data yaitu metode simak dan metode cakap dengan menggunakan teknik Simak Libat Cakap (SLC). Instrumen adalah peneliti, 200 kosakata dasar Morris Swadesh, alat tulis, dan alat rekam (handphone). Teknik analisis data (1) mengelompokkan, (2) mendeskripsikan, (3) menganalisis, (4) membahas atau mengimplementasikan, dan (5) membuat simpulan. Berdasarkan hasil penelitian dapat disimpulkan bahwa secara umum

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kesalahan fonologi terjadi pada bidang fonetik, terutama dalam mengucapkan bunyi getaran karena adanya penyakit yang menghambat proses berbicara anak intellectual disability. Pada bidang fonemik kesalahan yang banyak ditemukan dalam pelafalan konsonan dan kluster. Untuk itu perlu perhatian, bimbingan, dan latihan terus-menerus, agar anak intellectual disability dapat berkomunikasi dengan baik. Dalam Islam, pendidikan dianggap sebagai salah satu aspek penting dalam hidup, dan prinsip-prinsip inklusi dan perhatian terhadap individu dengan keterbatasan intelektual harus diterapkan untuk anak-anak Intellectual disability. Tujuan utamanya adalah untuk memastikan bahwa semua individu memiliki akses yang setara ke pendidikan agama dan nilai-nilai moral yang penting dalam agama Islam.

Kata Kunci: Kesalahan Fonologi, Fonetik Fonemik, Anak Intellectual disability

P. ISSN: 20869118
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INTRODUCTION

Communication is essential to quality of life, and speech is the primary means of human communication (Coppens-Hofman et al., 2017). Pronunciation is an integral component of language and an important element in effective communication (Naeimi et al., 2018). Language is humans' ability and differentiates humans from other creatures of Allah the Almighty. Language is a means of communication between members of society utilizing sound symbols produced by the human speech devices. The definition of language includes meaning, which is the content contained in the sound stream that causes a reaction to what is heard.

Language is made up of two processes: the productive and the receptive processes. The speaker carries out the productive process and generates meaningful and valuable language codes. The receptive process occurs in the listeners when the listeners' organs receive the linguistic codes the speaker provides through articulation. Language errors will arise if the language process for children with intellectual disabilities is impeded when producing language.

Children with special needs include those who are deaf (have an impaired sense of hearing), blind (have an impaired sense of vision), disabled (have movement disorders caused by bone structure abnormalities or body defects), intellectually disabled (have below-average intelligence accompanied by an inability to adapt), and emotional disability (have difficulties controlling emotions and social interactions), multiple disabilities (multiple disabilities, including physical and mental problems). However, despite education being a privilege guaranteed to all residents under the 1945 Constitution, not all facilities are provided for these children.

Language features of children with intellectual disabilities can be demonstrated in their capacity to grasp language systems such as phonology, morphology, syntax, and semantic systems. However, only phonological aspects were examined in this study since, in general, the most common language problems in intellectually disabled children are faults in language sounds or phonological errors. Phonologists have long been interested in speech and disability errors and

P. ISSN: 20869118
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the restoration of language sounds (Plug & Carter, 2014). There is a discrepancy between the pronunciation of the written word and the spoken target word in phonological errors (van Rijthoven et al., 2021). Phonological ability is the most important aspect of communication, especially for children with intellectual disabilities.

Special Schools (SLB) Insan Mandiri, Tanah Pak Lambiak Village, Padangpanjang City, is among the schools catering to children with intellectual disabilities. This school has children with special needs from several categories (autism, blindness, deafness, and intellectual disability). Moreover, the number of children with an intellectual disability is higher than in other special schools in Padangpanjang.

Language errors in phonology are more common in special schools than in regular schools. This school's levels and class divisions are nearly identical to other schools. The distinction is the smaller number of students and the different approach in general. It is seen in the learning approach at Special School Insan Mandiri, which prioritizes practice and honing skills, one of which is speaking skills.

This study's data is based on the Morris Swadesh vocabulary list containing words frequently used in everyday communication. Respondents were asked to read the prepared vocabulary groupings to collect data and identify phonological pronunciation errors in children with intellectual disabilities. According to Pawlicka (2012), phonemes are generally straightforward to discern and play a significant role in reading. Given this context, it was critical to carry out this study to examine phonological (phonetic and phonemic) errors in the vocabulary of children with intellectual disabilities. It is believed that this study would expand readers' knowledge and understanding to be used as a comparison resource for performing research on a related topic.

Intellectual disability refers to children with mental disabilities or major delays in their intellectual development. These mental restrictions can affect their aptitude in many areas of life, including education. The relationship between intellectual disability and Islamic education is 1) inclusion in Islamic education. In

P. ISSN: 20869118
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Islamic education, the inclusion principle emphasizes the need to involve all individuals, especially those with intellectual disabilities, in the educational system. In other words, children with intellectual disabilities have the right to a specialized Islamic education. The relationship between intellectual disability and Islamic education is 1) inclusion in Islamic education. In Islamic education, the inclusion principle emphasizes the need to involve all individuals, especially those with intellectual disabilities, in the educational system. In other words, children with intellectual disabilities have the right to a specialized Islamic education. 2) Curriculum modification: In Islamic education, curriculum modifications are required to accommodate the needs of children with intellectual disabilities. It could include developing simpler teaching methods, using more visual teaching materials, and adopting customized learning approaches. 3) Religious education: Religious studies remain an essential element of the curriculum for children with intellectual disabilities who attend Islamic schools. They will be educated about Islamic religious beliefs, moral values, ethics, and worship processes based on their capacities. 4) family and community: Families and communities play a significant part in the Islamic education of children with intellectual disabilities. They can provide moral, social, and educational support to these children to grow and develop following Islamic teachings; and 5) understanding and patience: When working with children with intellectual disabilities, teachers and educators in Islamic education must have special understanding and patience. They must be able to detect these children's particular requirements and provide the required support.

METHODS

The qualitative descriptive research method was employed. The data was obtained from the speech of children with intellectual disabilities at Special School Insan Mandiri, Tanah Pak Lambiak Village, Padangpanjang City, with four out of twenty-six registered at the school. The reason for selecting four children as respondents in this study was that only four had intellectual disabilities, whereas the remaining 22 were blind, deaf, or speech-challenged. This study was carried out

P. ISSN: 20869118
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twice a week for six months. Beginning on February 27, 2022, and ending on August 27, 2022. The research period run from 08:30 to 11:30 WIB (Western Indonesian Time).

The instruments employed were the researchers themselves, 200 basic vocabularies of Morris Swadesh, stationaries, and recording devices (cell phones). The data collection stage combined several methods: 1) Baited-interview method (*metode cakap pancingan*). It was done because the expected conversation and the language symptoms of the informants can only occur through stimuli (Mahsun, 2013). Furthermore, the researchers employed the face-to-face interview (2). The data was collected through the Simak Libat Cakap (SLC) and note-taking techniques, where the researchers were directly involved in the conversation, teaching, and learning activities. The data was analyzed by reporting phonological errors in children with intellectual disabilities. The analysis steps are (1) classifying the phonological Errors in children with intellectual disabilities; (2) explaining the findings of observations, notes, and recordings; (3) examining the phonological Errors in children with intellectual disabilities; (4) discussing or implementing the errors made by children with intellectual disabilities; (5) drawing conclusions based on data analysis results.

FINDINGS AND DISCUSSION

Children with intellectual disabilities face several barriers to effective communication, including mental disorders, speech impairments, and a reserved disposition. Special education, particularly in language skills, is necessary for individuals who require assistance in communicating effectively. This includes the development of speaking skills, as these individuals may only be able to interact with a limited number of individuals close to them.

The study primarily focused on phonetic analysis, encompassing three main components: articulatory, acoustic, and auditory. Phonemic analysis examines various elements within a language's sound system, including vowels, consonants, diphthongs, and consonant clusters. Due to the challenges associated with

communicating with children with intellectual disabilities and their tendency to become easily bored, the phonemic section was organized into four categories based on the 200 Morris Swadesh vocabularies. These categories included 153 vowel vocabularies, 152 consonant vocabularies, 11 diphthong vocabularies, and 37 cluster vocabularies. Categorizing vocabulary assisted in data collection and prevented the duplication of terms.

Phonological errors in the domain of phonetics can be generally explained as follows: In the context of articulatory phonetic errors, it is generally observed that there are no significant issues, except for children who may face challenges in their speech production due to specific medical conditions. Some children may have difficulty producing vibrating sounds like the consonant /r/, but not all children face this challenge. The utilization of acoustic and auditory phonetics can be considered highly effective. This phenomenon is supported by the observation that some children with intellectual disabilities initially mispronounced vocabulary but demonstrated improvement when prompted to repeat the pronunciation. This fact demonstrated the effectiveness of acoustic and auditory phonetics.

Table 1 displays the errors observed in the phonemic domain:

Table 1
Phonological Errors in Phonemic Domain

No.	Name of Respondents	Phonological Errors in Phonemic Domain			
		Vowel	Consonant	Diphthong	Cluster
1	Nuqie Alfaritzi	11	22	0	3
2	Rexy Asyraf Putra	0	49	0	5
3	Ronal Rozzaq Hezul	0	66	0	11
4	Affan Syauki Hamli	0	8	0	0

According to the data presented in Table 1, Nuqie Alfaritzi exhibited 11 phoneme errors in vowels, 22 consonant errors, no diphthong errors, and 3 cluster errors. Rexy Asyraf Putra exhibited phoneme errors in the following categories: vowel (0 errors), consonant (49 errors), diphthong (0 errors), and cluster (5 errors). Ronal Rozzaq Hezul's phoneme errors encompassed 66 consonants, 11 clusters, and no errors in vowels or diphthongs. Affan Syauki Hamli exhibited phoneme errors in vowel sounds (0 errors), consonant sounds (8 errors), diphthongs (0 errors), and clusters (0 errors).

P. ISSN: 20869118
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Articulatory Phonetic Errors

Articulatory phonetics is a field of study within linguistics that investigates the mechanisms involved in the production of speech sounds by humans. According to this viewpoint, children with intellectual disabilities do not encounter difficulties in their speech abilities. Children with intellectual disabilities often experience speech impairments, which can be attributed to various underlying conditions. For instance, individuals like Ronal may struggle to pronounce specific consonants like the /r/ sound. Phonetic errors can occur due to imprecise articulatory movements or conflicting motor commands with the articulators (Ramoo et al., 2021).

Children with intellectual disabilities often struggle to pronounce sounds produced through articulatory vibrations. In addition to difficulties regulating the vocal cords, some children may also have tongue defects. This was the case for one study participant, Ronal, who had difficulty pronouncing the consonant /r/ due to the presence of frenulum linguae and dysarthria.

Acoustic Phonetic Error

The study of sound primarily focuses on analyzing speech waves and their propagation through the air. According to this viewpoint, it was discovered that there was a greater delay in the respondents' auditory perception of vocabulary pronunciation. Children with intellectual disabilities may have difficulty fully expressing their vocabulary through spoken language due to factors such as motor control and acoustic stability during phoneme production (Lenoci et al., 2021). The study revealed delayed transmission of sound waves to the participants' ears. The need for time to respond to the vocabulary they hear can be observed.

Auditory Phonetic Errors

No errors were detected in this case, as indicated by the positive response of each child when asked to rephrase the previously mispronounced vocabulary. One can correct phonological errors by focusing on tempo time (Plug & Carter, 2014).

Based on these activities, it can be concluded that children with intellectual disabilities exhibited a notable level of auditory acuity.

Overall, no errors were detected in the auditory abilities of children with intellectual disabilities. This phenomenon can be observed when a mispronunciation of vocabulary occurs, and the speaker is subsequently asked to rephrase their statement. In such cases, it is common for the speaker to respond appropriately. Based on the findings, it can be concluded that the participants' auditory phonetics, on the whole, did not exhibit significant issues.

Vowel Errors in Children with Intellectual Disabilities

There are six vowels in Indonesian: /i/, /e/, /ə/, /a/, /u/, and /o/. The errors found can be observed in Table 2 below:

Table 2
Vowel Errors in Children with Intellectual Disabilities

No	Vowel Words	Vowel Errors			
		Nuqie Alfaritzi	Rexy Asyraf Putra	Ronal Rozzaq Hezul	Affan Syauki Hamli
31	*buruk*	*beruk*	-	-	-
42	*di situ*	*di setu*	-	-	-
48	*empat*	*nipat*	-	-	-
53	*gigi*	*gegi*	-	-	-
76	*kami,kita*	*keta*	-	-	-
83	*kepala*	*kapala*	-	-	-
85	*kotor*	*kator*	-	-	-
106	*mereka*	*meraka*	-	-	-
114	*pendek*	*pendak*	-	-	-
122	*putih*	*putuk*	-	-	-
153	*usus*	*sus*	-	-	-

Table 2 demonstrates that children with intellectual disabilities typically exhibited accurate vowel pronunciation. The three children, namely Rexy Asyraf Putra, Ronal Rozzaq Hezul, and Affan Syauki Hamli, demonstrated accurate pronunciation of the vowels /i/, /e/, /ə/, /a/, /u/, and /o/. The head of the Special School Insan Mandiri, who directly interacted with the respondents, confirmed that 75% of the respondents could pronounce vowels accurately without any errors.

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Volume 14. No. 1 2023
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Consonant Errors in Children with Intellectual Disabilities

Consonant errors arise when airflow passes through the unobstructed vocal cords, and there exist incorrect articulation barriers within the oral or nasal cavities, leading to pronunciation inaccuracies.

Table 3
Consonant Errors in Children with Intellectual Disabilities

No	Consonant Words	Consonant Errors			
		Nuqie Alfaritzi	Rexy Asyraf Putra	Ronal Rozzaq Hezul	Affan Syauki Hamli
2	akar	bakar	aka	aka	-
3	alir (me)	-	aigh	ali	air
8	awan	ayan	awa	-	-
10	bagaimana	-	-	badaimana	-
12	bakar	-	baka	baka	-
14	baru	-	bau	balu	balu
17	beberapa	-	bebelapa	bebeapa	-
19	benar	bedar	bena	bena	-
20	benih	bedih	benik	-	-
21	berat	-	belat	belat	-
22	beri	-	beli	beli	-
23	berjalan	-	bejalan	bejalan	-
24	besar	-	besa	besa	-
27	bulan	-	bulat	bulang	-
30	buru (me)	-	bulu	bulu	-
31	buruk	-	buluk	buluk	-
35	dan	-	-	dang	-
36	darah	-	daghah	dalah	dalah
37	debu	dedu	-	-	-
39	di dalam	-	di dalap	-	-
44	diri (ber)	-	dili	dili	-
46	duduk	dutuk	-	-	-
47	ekor	-	eko	eko	-
48	empat	nipat	epat	-	-
50	garam	-	gagham	dalam	-
51	garuk	garung	gaghuk	gauk	jaruk
52	gemuk,lemak	-	-	lemah	-
56	hantam	-	hatam	hatam	taham

61	hitam	-	-	hitap	-
62	hujan	-	-	hujang	-
63	hutan	-	-	hutang	-
65	ikan	-	-	ikang	-
68	isteri	-	isteli	iteri	-
70	jahit	-	-	jahil	-
71	jalan (ber)	jala	-	jala	-
73	kabut	kabuh	-	kabu	-
77	kanan	-	-	kanang	-
78	karena	-	kaghena	kana	-
81	kelahi (ber)	-	-	kelahil	-
83	kiri	-	kighi	-	-
84	kotor	-	koto	koto	-
85	kuku	-	-	kutu	-
88	lebar	-	leba	leba	-
89	leher	-	lehe	lehe	-
90	lelaki	lenaki	-	-	-
91	lempar	-	lempa	lempa	tempa
93	lidah	-	-	lindah	-
95	lima	hima	-	-	-
97	lurus	-	lulus	lughuh	-
99	makan	-	maka	makang	-
102	matahari	-	matahaghi	matahai	-
104	merah	-	-	meah	-
105	mereka	-	meleka	megheka	-
108	muntah	mutah	mutah	mutah	-
110	napas	-	-	nampak	-
112	pasir	-	pasigh	pasi	-
114	peras	-	pelas	pera	-
115	perempuan	perepuan	pelepuan	pempuan	perepuan
116	perut	-	pelut	pelut	-
117	pikir	-	pikigh	pikigh	-
118	pohon	-	-	pohong	-
120	pusar	-	pusagh	pusagh	-
121	putih	putuk	-	-	-
122	rambut	-	ghambut	ghambut	-
123	rumput	-	ghumput	ghumpuk	-
126	sayap	-	-	ayap	-
128	sempit	sepit	-	sepit	sepit
133	tahun	taun	-	tahung	-
134	tajam	tanjam	taja	-	-
138	tarik	-	talik	taik	-
140	telur	teru	telu	telu	-
141	tertawa	-	tetawa	tetawa	-
144	tidur	-	tidu	tidu	-
145	tiga	tiba	-	tija	-
146	tikam (ber)	-	-	tika	-
150	tumpul	tupul	-	tupul	-
151	ular	urar	ula	ula	-

Diphthong Errors in Children with Intellectual Disabilities

In the Indonesian language, three diphthongs exist, specifically /ay/, /aw/, and /oy/, represented by the written forms of ai, au, and oi, respectively. Only the ai and au diphthongs are present in the Morris Swadesh vocabulary. The research

findings indicate no errors observed in the pronunciation of diphthongs by the four respondents: Nuqie, Rexy, Ronal, and Affan.

Cluster Errors in Children with Intellectual Disabilities

A consonant cluster, also known as a double consonant, is a linguistic unit. It is referred to as a consonant cluster when a sequence of consonants occurs within a single syllable or when the syllables are not separated. Some examples of clusters include /kl/, /pr/, /pl/, /ŋ/, /ñ/, /ps/, /bl/, /sw/, /sy/, /kh/, and various others. However, the sole pattern observed in the Morris Swadesh vocabulary is the presence of /ŋ/ and /ñ/ clusters in pronunciation. The pronunciation error that occurs most frequently among the two clusters is related to the /ŋ/ cluster.

Table 4
Cluster Errors in Children with Intellectual Disabilities

No	Cluster Words	Cluster Errors			
		Nuqie Alfaritzi	Rexy Asyraf Putra	Ronal Rozzaq Hezul	Affan Syauki Hamli
3	apung	apun	-	apu	-
6	bengkak	-	-	bekas	-
9	bintang	-	bintan	-	-
10	bunga	-	-	buna	-
11	burung	-	buluk	-	-
12	cacing	-	cacik	-	-
13	daging	-	dagi	-	-
14	datang	-	-	data	-
15	dengan	-	-	dena	-
16	dengar	-	-	dena	-
17	dingin	-	-	dinin	-
20	hidung	hidup	-	-	-
22	jantung	jantuh	-	-	-
24	kuning	-	-	kuni	-
31	punggung	-	-	pundung	-
34	telinga	-	-	telina	-
36	tongkat	-	-	tokak	-

CONCLUSION

Based on the description, analysis, and discussion, it is possible to infer that in the domain of phonetics, most children with intellectual disabilities did not have problems with the speech organs. However, difficulties in pronouncing specific

sounds were frequently caused by disorders that impair the speaking process, as experienced by Ronal. The next issue was that receiving linguistic sound waves can sometimes be slow. However, their hearing ability was fairly good.

In the phonemic domain, the pronunciation of vowels and diphthongs of children with intellectual disabilities was flawless and nearly identical to that of normal children. However, they frequently made errors in modifying, removing, and adding consonants and clusters.

Nuqie frequently swapped or switched vowels and consonants, altering the meaning of a word. The same thing happened to Rexy, Ronal, and Affan in the other subjects. Rexy is a child with intellectual disabilities who frequently mispronounces the consonant /r/ due to his inability to manage the activity of his vocal cords. Because of his frenulum linguae, tongue defect, and dysarthria, Ronal could not enunciate the consonant /r/. Ronal also frequently changed, added, and subtracted consonants and clusters. Affan was the subject who made the fewest errors. Affan's speech level is improving, demonstrating that children with intellectual disabilities may be properly schooled, educated, and taught.

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