

## “Oh Ai Yad....”: Dysarthria Speech Disorder of Luis in The Accessible Van Life Channel

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### ABSTRACT

*Several speech disorders can interfere with the listener's understanding in people with dysarthria. Previous studies on dysarthria only cover the type and characteristics of speech. Therefore, an in-depth analysis is also needed of the phonological processes. This study aimed to find out the types of dysarthria and analyze the language disorders experienced by Luis on the YouTube channel The Accessible Van Life. This study focused on Luis as he was suffering from dysarthria caused by severe traumatic brain injury. The data of the study were in the form of utterances spoken by Luis on The Accessible Van Life YouTube channel. Duffy's theory (2013) was used to analyze the types of dysarthria. meanwhile, the analysis of language disorder was based on Lanier's theory (2010), and the phonological processes was based on Waengler's theory (2012). The results of this study indicatde that there were four types of dysarthria experienced by Luis, namely hypokinetic, hyperkinetic, flaccid, and spastic. The main problem that caused Luis's dysarthria was hypokinetic. In addition, Luis experienced language disorders in articulation, fluency, and voice, with the most crucial effect was on articulation damage. Furthermore, the most prominent phonological disorder in Luis's speech was the final consonant syllable phonological disorder. Finally, the findings of the study can be used as a reference for further studies to understand the speech disorder of dysathria sufferers.*

**Keywords:** speech disorder, dysarthria, traumatic brain injury

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### INTRODUCTION

A speech disorder is caused by damage to the human speech organ, which can interfere with communication. Speech disorders require more serious attention because they involve an essential aspect of human life, namely communication. Communication will be clear if both parties can understand the information conveyed. In general, speech disorders include articulation, fluency, and voice disorders (Waengler, 2012).

Individuals with speech disorders have difficulty producing inappropriate sounds due to what they want to say. Several speech disorders can occur due to disturbances in the left hemisphere of humans. For example, when someone has an accident or a hard impact on the left side of the head, it will cause language disorders that directly affect their speech ability (Field, 2004). Several factors can affect a person's speech inability due to a language disorder, namely not having complete elements in the sensory system, central nervous system, emotional stability, and mental ability (Indah, 2017). One example of a speech disorder is dysarthria.

Dysarthria is a speech production system disorder due to damage to the muscle control of the speech mechanism (Donald, 2020). Dysarthria is one of the symptoms of speech disorder where sufferers experience abnormalities in strength, speed, range, stability, tone, or accuracy of movements required for breathing, phonation, resonance, articulatory, and prosodic speech production (Duffy, 2013). The characteristics of dysarthria are having slurred speech or mumbling that is difficult to understand, speaking too fast or too slowly, a voice resembling a robot or sounding hoarse and panting, and being unable to move the tongue, jaw, and lips properly. Therefore, it is difficult to pronounce phrases accurately, for instance by saying "Oh ai yad" for the intension of saying oh my God. In addition, dysarthria can be suffered by people who experienced damage to the brain such as stroke, cerebral palsy, muscular dystrophy, multiple sclerosis, brain injury, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis (ALS), and tumors (Edwards, 2012). This speech disorder is a motor speech disorder divided into mild or severe disorders. The cause of dysarthria disorder is due to brain damage from birth, or it can be due to cerebral vascular accidents, head injury, or progressive neurological disease (Enderby, 2013)

This research took the YouTube channel "The Accessible Van Life" by Luis and Lexie from Tijuana, Mexico. Luis is a sufferer of severe traumatic brain injury due to a motorcycle accident that happened to him nine years ago. A hard blow to his head resulted in paralysis and impaired speech (dysarthria). Lexie captures a moment of their togetherness in this YouTube and occasionally makes Q&A videos and storytelling to Luis to improve his speaking skills. The videos uploaded on their youtube channel invite the attention and sympathy of netizens. They have quite many subscribers and viewers. Even three years ago, a community did a fundraiser to give this family a van. The utterances produced by the dysathria sufferer in this channel represent the features of speech disorder as the focus of this study.

Many studies concern the speech disorder of dysarthria in children and adult. The dysathria in children with cerebral palsy are characterized by a change in duration of speech or temporal speech manipulation to relieve stress (Kuschmann & Lowit, 2019). These children have articulation disorders such as omission, substitution, and insertion (Mwangi, 2020). In addition, their speech is characterized by slowness, devoicing, and lengthening of vowels . It also shows their withdrawal, irritability, selfishness, boredom and tend to avoid others (Lieberman & Mattingly, 1985). Dysarthria in children and adults with ataxia-telangiectasia indicate the presence of uncontrolled and involuntary movements, producing monotonous, slow, unstable, chanted speech and hypernasal

sounds (Veenhuis et al., 2021). Dysarthria in patients with Goldenhar syndrome affects the speech accuracy in phonetics, phonemes, and phonology (Rizky et al., 2020).

In the studies on adult dysarthria, patients with multiple sclerosis perform the features of dysarthria such as the presence of lethargy, increased pauses, lack of loudness control, mono-pitch, imprecise consonants, strained voices, and decreased breathing (Noffs et al., 2018). In addition, the articulation errors in dysarthria occur in voiced stop consonants and the vocal cord vibrations are absent in voiceless stops (Goswami et al., 2020). When dysarthric utterances are compared to normal speech, the greatest difference occurs in phonetic context on the duration of /ɹ/ (Gurugubelli et al., 2020). Another acoustic features of dysarthria sufferers also apparent in suprasegmental and prosodic control (Alhinti et al., 2021). Therefore, they need to practice articulating consonant syllables, words, and isolation and using the beatalk method for a better relation among respiration, prosody, and articulation (Icht, 2021). In most cases, dysarthria speech shows hyperkinetic disorder, speech sound disorders and fluency disorders (Irwansyah et al., 2021).

Based on the findings of previous studies, there is still no research on dysarthria disorders in patients with severe traumatic brain injury. In addition, this study examined it in detail based on phonological processes. "The Accessible Van Life" channel has many documentation videos, showing the accurate features dysarthria disorders. This research needs to be done because it provides a more comprehensive understanding of dysarthria language disorders resulting from traumatic brain injury viewed from the perspective of psycholinguistics.

## RESEARCH METHOD

This study uses qualitative descriptive method. According to Flick (2018), qualitative research describes social phenomena that are analyzed with biographical histories, records of communication and interactions, and documents. In this study, the social phenomenon in question is the presence of speech disorders which were analyzed with recorded communication on the YouTube channel The Accessible Van Life. In other hand, Rose et al., (2020) said that qualitative research is research by providing complex descriptions in the form of words by reporting detailed views of informants. In this case, the description in question is the detailed utterances of an informant named Luis who is the owner of the YouTube channel The Accessible Van Life. Therefore, this study uses a qualitative descriptive method to provide a more detailed understanding.

The research data is taken from the utterances produced by Luis, a person with a severe traumatic brain injury caused by a motorcycle accident that he experienced. Based on that, it is resulting in a speech impediment to Luis. The source data is taken from the YouTube channel entitled The Accessible Van Life. The selected video is a video that contains two-way interaction and storytelling. The videos used as data are entitled: "Traumatic brain injury and fine motor skill activities"; "9 years married" and "When are we planning to have another child? Having kids after severe traumatic brain injury."

Data is collected through several processes. First step is downloading and watching the video. Second is selecting the part of the video that contains articulation errors in speech. Then, the last step is giving the data code and sorting it to data display. After

collecting the data, the study is conducted by analyzing each part based on the difficulty of producing the sound produced by Luis. The researcher analyzed the characteristics and types of dysarthria disorder experienced by Luis based on the theory of Duffy (2013) and Lanier (2010). Then, she classified the data. Explaining how the dysarthria disorder affects the phonological processes in Luis based on the theory of Waengler (2012) is the next stage. In the last stage, the researcher drew conclusion according to the results of the study.

## FINDINGS & DISCUSSION

In displaying the result of the study, the researcher divided into two parts based on the objectives of the study. The first is about the type of dysarthria speech disorder and the second is how dysarthria disorder affects the language. The results are displayed in details below.

### ***The Types of Dysarthria Speech Disorder Found in Luis's Utterances in "The Accessible Van Life" Channel***

According to Duffy's theory (2013), there are seven types of dysarthria disorders. However, this study only found four dysarthria types: hypokinetic, hyperkinetic, flaccid, and spastic. In this study, all data were obtained from Luis' utterances which indicated the type of dysarthria. Researchers have found 40 errors produced by Luis and classified them into types of dysarthria characteristics. Luis experienced twelve types of hypokinetic, one hyperkinetic, one flaccid, and one spastic based on the findings.

#### *Hypokinetic*

According to Duffy (2013), hypokinetic dysarthria is an individual with impaired vocal loudness, vocal quality, loud or gasping voice and abnormal speech speed. The most visible characteristics of this type are in the voice, articulation, and prosody. This disorder can result in stiffness, range of motion and reduced strength, repetitive and slow movements, and sometimes rapid speech.

Based on the research findings, the researchers found a type of hypokinetic dysarthria in Luis's speech on the YouTube channel The Accessible Van Life. The researcher found that this type of hypokinetic dysarthria was the most dominant in Luis's speech based on the data analysis. This is shown in the data 1.1, 1.2, 1.4, 2.1, 2.2, 2.3, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4. These data indicate phonation, respiration, resonance, articulation, and prosody errors. The example of the analysis is datum 2.2 as follows.

- Lexie : "What made you fall in love with me, let's try looking at the camera. So a lot of you guys sometimes comment that were always looking at each other. I need to look at Luis. I need to read his lips and sometimes I like oh you speak I'am like trying to just decipher what you're saying"
- Luis : "**Oh ai yad**" (Oh my God)

Datum 2.2 is taken from Luis's words in a video entitled 9 years married. In the dialogue in the video, Lexie says that she has to pay attention to the movements of Luis' lips to know what Luis is saying. In the video, Luis speaks using gestures to emphasize the

meaning of his words. In the dialogue, Luis is often seen exhaling from his throat. When he said the word "Izztru tuwe", he started by taking a deep breath, and the resulting sound was not clear. The sound production sounds like a choking and shrieking sound when you say, "Oh ai yad". In addition, while having a little difficulty making Luis' voice use a gesture by showing his index finger to the camera. These characteristics can be classified into the type of hypokinetic dysarthria. The utterances produced by Luis in the dialogue affect his speech disorder. Speech disorders that are seen are articulation disorders. Luis has a substitution articulation disorder in the word "God" to "yad" by changing the sound of the velar [g] phoneme into a nonvelar sound [y].

Respiration disorders are shown in data 2.2, 2.3, and 3.4. Shallow breathing and not well-controlled affect Luis' speech system, which becomes stiff, and his voice sounds like choking. Faster exhalation and inhalation are the factors for many speech errors. In datum 2.2, Luis mispronounced the phrase "Oh ai yad". The same thing is heard in datum 2.3, in the utterance "e'slow ey oh". Then, on datum 3.4, is namely the word "taeyuewiwae i'ie". The disturbance in respiration occurs when Luis feels happy and excited and when speaking seriously and phrases too long.

Phonation errors produce a loud, shaky, or hoarse voice quality that often occurs in hypokinetic dysarthria individuals (Duffy, 2013, p. 366). This can be seen in data 2.6 and 3.2. In datum 2.6 is from the utterances "I wonne inee, eirgh'e eyye", "ennono eiwe erghne enere", "nonenemmaywaynaionef" while it is datum 3.2, is from the speech "Aeng weaeng tonle loley". In that utterance, Luis spoke in a hoarse and low-pitched voice. Luis' tongue dominates the articulation movement by minimizing the mouth movement.

Resonance disturbances can occur by performing hypernasality in incomplete pharyngeal closure causing nasal air emission and hypernasality. Most individuals with hypokinetic dysarthria do not have a significant resonance deficit (Duffy, 2013). The findings of this study found mild hypernasality in data 1.2 and 2.1. In datum 1.2 is from the utterance "Thank you ngeu thank you ngeu" and in datum 2.1 is from the phrase "Wery good Lengie, wen du young we wei' oane (Johanes) Spanish language". Luis made a deviation in the spoken word so that it did not match the target he wanted to convey.

There are many articulation disorders in hypokinetic dysarthria. The most common mistakes are consonant inaccuracies. Reduced articulatory movements lead to distorted phoneme production (Duffy, 2013). This is shown in data 1.4, 2.3, 3.3, and 3.4. In datum 1.4 is from the statement "Elo lo lo lo you eis neir eirgh'a whereas in datum 2.3 is from "yea yea". In datum 3.3 is from the utterance "oneney anothey". Besides, datum 3.4 shown "Nonononono". However, Disfluency of speech also occurs with repeated words, and the level is increasing and fast.

Prosody disorders are a limited movement of the laryngeal muscles and reduced force of contraction of the oral muscles. Prosodic errors were evident on verbal tasks that included variations in pitch and loudness. Improved speech in individuals with hypokinetic dysarthria leads to phonemes' inappropriate and blurred articulation. Talking in a hurry is more common in hypokinetic dysarthria (Duffy, 2013). Prosody disturbances are shown in data 1.1, 3.1 in datum 1.1, from the utterance "Pery good your English my lo". In datum 3.1 is from the phrase "for orporing thi widio. ei ewi one ello walap". In datum 2.7 is from the utterance "Yeah I vwe. "There is a pattern of intonation and excessive stress



when Luis repeats a sentence. In addition, the intonation of the voice is sounded flat and without pause when Luis spoke too enthusiastically or hesitated in speaking.

### *Hyperkinetic*

The most commonly seen hyperkinetic dysarthria is a disorder of prosody and speed. Hyperkinetic dysarthria can be seen with vocal loudness, prosodic articulation abnormalities, and variable imprecision. It is often associated with basal ganglia disorders (Duffy, 2013).

Based on the analysis of the research findings, the researchers found a type of hyperkinetic dysarthria in Luis's speech on the YouTube channel The Accessible Van Life. The hyperkinetic type of dysarthria is defined in datum 1.3. The datum shows errors in prosody, phonation, resonance, and articulation as follows.

- Lexie : "Hi, how are you"  
 Luis : "**ai ow a you**" (Hi, how are you)  
 Lexie : "Long time no see"  
 Luis : "**a long tae I on e youh**" (a long time I don't see you)  
 Lexie : "I know, it's been a few weeks since we've done our video"  
 Luis : "**Uploa lo widio**" (upload the video)  
 Lexie : "so, Luis tonight do little activities that help him with his memory and basically I think they're really simple activities. . ."  
 Luis : "**iztru izzu izzu, e ow e**" (it's true, she knows that)

Datum 1.3 is taken from Luis's words in a video entitled Traumatic Brain Injury and Fine Motor Skill. In the video, Lexie leads Luis to speak to the audience. Luis looks difficult to follow Lexie's words. Therefore, Luis uses gestures to emphasize the meaning of his speech by using gestures. In his speech, Luis made a too fast sound (tachlalia). What Luis said was very difficult to understand. In his speech, parts of the jaw and tongue are challenging to move. This can lead to address that is difficult to control. The sound sounds abnormal by distorting the vowels. This problem can be seen in the sentence "iztru izzu izzu, e ow e" which is an example of hyperkinetic dysarthria.

In this dialogue, Luis suffers from fluency disorder due to the repetition of his words. Luis experienced the recurrence of "it's true" to "iztru izzu izu". He also has articulation disorders. Distortion in words "she knows that" to "e ow e" removes the consonants in each word. The utterance "iztru izzu izzu, e ow e" shows a disturbance in prosody and rate characterized by reduced stress, short phrases and monopitch, monoloudness—rapid and irregular voice phonation (Duffy, 2013). In the speech "a long tae I one youh", Luis has poor resonance with shortness of breath and a stiff, choking voice. On the utterance "ai ow a you", an Improper articulation system in variable voice, distortion and irregular breakdowns, especially in consonants (Duffy, 2013)

### *Flaccid*

Patients with flaccid dysarthria have a delay in articulation, hoarse phonation, and marked hyper nasal resonance. In contrast to other types of dysarthria, flaccid dysarthria describes the involvement of one muscle group, for example, the tongue or other subsystems such as phonation and articulation. The main characteristics of flaccid

dysarthria are muscle weakness that causes inaccuracy of consonants, hypernasality, phonation of breath, shortness of breath, and abnormal prosody (Duffy, 2013).

Based on the research findings, the researchers found a type of flaccid dysarthria in Luis's speech on the YouTube channel The Accessible Van Life. Two data reflect the kind of flaccid dysarthria, namely in data 1.4., and 2.5. The data also shows phonation, respiration, resonance, articulation, and prosody errors such as presented below.

The phonation error in flaccid dysarthria is characterized by indistinct voice quality, such as a whisper in severe cases. Inhaled stridor sounds like a rough/hoarse, high/low, and snoring sound (Duffy, 2013). Phonation disorders appear in datum 2.5 as follow.

- Lexie : *"So this picture actually is just from a little dinner we had afterwards like some days after our"*
- Luis : ***"Of god my lo"*** (of course my love)
- Lexie : *"And this one is sitting on his lap"*
- Luis : ***"thisi thisi"*** (let me see)

Datum 2.5 is taken from Luis' words in a video entitled 9 years married. In the video, Lexie shows that she has made ninth-anniversary cookies. Above the cookies are drawn according to the journey of their love story. Luis spoke fluently without using gestures. In words Luis produced above, he often takes a lot of breaths through his throat when speaking. Inhaled stridor is heard, causing a snoring sound. In the pronunciation, irregular breakdowns occur as in the word "let me see" to "thisi thisi". These characteristics are included in the flaccid dysarthria.

Luis experienced a phonological error in the type of reduplication partial syllable based on his speech. Luis changed all the words in his speech "course" to "god". The final consonant syllable disorder also occurs when the word "love" becomes "lo". In the utterances "Of god my lo", "thisi thisi". There was confusion in Luis' speech due to his shortness of breath. The voice produced by Luis sounded flat, monotonous, a bit hoarse and slightly suppressed. Luis took a deep breath through his throat by starting the conversation with a snoring sound. This happened when Luis spoke in long sentences. Resonance disturbances in flaccid dysarthria may occur due to nasal emission. Incomplete velopharyngeal closure, weak consonant pressure, and short phrases caused by air being expelled through the nasal cavity during speech (Duffy, 2013).

Respiration disorders also occur in flaccid dysarthria, characterized by a decrease in voice loudness and shortened phrase length. The sound quality becomes strained, affecting the prosody (Duffy, 2013). In datum 2.5 shown in the words "Of god my lo" and "thisi thisi". In his speech, Luis experienced mono pitch. This is due to too much air pressure and shortness of breath.

Articulation disorders occur in flaccid dysarthria with described control disorders in the dental and lingua palate such as /j/ and /l/ (Duffy, 2013). The production of linguavelar phonemes will also be disrupted, as in datum 2.5 in the utterance "Of god my lo". Luis changes the sound of the phoneme /k/ to /g/. Luis also uses too much tongue movement in his "thisi thisi" utterance. The stress on the consonants weakens, and the

phrases shorten. There is a slow sound production interruption, and the final stress is silent. Therefore, the phonemes in the sentences are not produced properly.

Prosody dysarthria flaccid disorder in which has the strength of intonation weakens almost entirely (Duffy, 2013). In datum 2.5, Luis's utterances do not have the proper intonation sound. The intonation of the sound produced is flat and irregular.

### *Spastic*

According to Duffy (2013), spastic dysarthria occurs due to bilateral upper motor damage. A person with spastic dysarthria has slow, effortful speech and a loud voice. The salient features of flaccid dysarthria are inaccuracy of articulation, monotonous and too loud tones, poor prosody, stiff and sluggish muscle movements, and prolonged speech.

Based on the research findings, the researchers found a type of flaccid dysarthria in Luis's speech on the YouTube channel The Accessible Van Life. The researcher found 1 data that is characterized as dysarthria flaccid. Data is found in datum 2.4 as follow.

Luis : *"you we lei laik feehe, my lo foeve"* (you are Lexie light feather, my love forever)  
Lexie : *"I was not expecting that, I love it. He just said you are Lexie light feather my loveforever. Oh you are the sweetest that totally just you know beat that my wife my life my love"*

Datum 2.4 is taken from Luis's words in a video entitled 9 years married. In the conversation in the dialogue, they tell, about the beginning of their meeting and how they fell in love with each other. Luis spoke stiffly without using any gestures with a focused gaze on Lexie.

Based on what Luis said in the dialogue, he made a fluctuating sound. The voice sometimes sounded like it was suffocating, but suddenly it became more prominent. When starting to speak, Luis took a breath from your throat first. These characteristics can be classified in the type of spastic dysarthria.

In the speech produced by Luis, he has a voice disorder. The resulting sound is not heard clearly. Many spoken words undergo sound changes that affect the syllable structure. Impaired articulation of omission is also heard in the terms "Lei" for "Lexie", where the alveolar sound is complex. Luis has a phonological disorder in the final consonant syllable type. These characteristics can be seen in "you we lei laik feehe, my lo foeve". In this sentence, syllables are omitted without any stress.

Following the previous explanation, spastic dysarthria has a loud phonation disorder (Duffy, 2013). In datum 2.4, the voice was strained and choking in the utterance "you we lei laik feehe, my lo foeve". The speed of the sound produced is slow. This happens because the sentence is too long.

Respiration disorders in spastic dysarthria do not play a role in spastic dysarthria. However, some abnormal movements may cause inhalation or exhalation and an uncoordinated breathing pattern (Duffy, 2013). In datum 2.4, Luis produces sound with a great effort but seems to have difficulty exhaling when speaking.

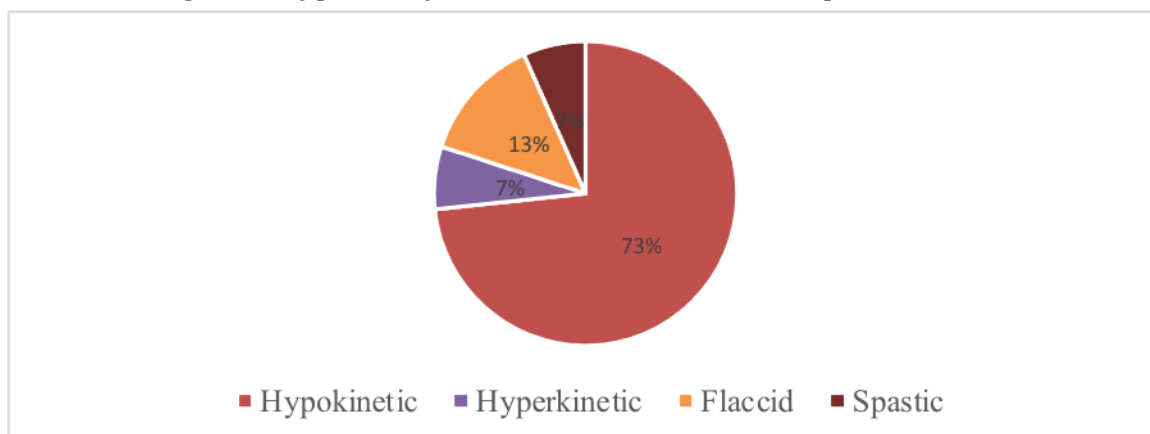
Improper articulation of consonants is very common in spastic dysarthria. However, imprecise consonants cannot help diagnose patients with spastic dysarthria because this error is standard in all types of dysarthria. (Duffy, 2013). In datum 2.4 of the utterance "you we lei laik feehe, my lo foeve", there are a lot of distorted consonants.



Prosody disturbances in spastic dysarthria also appear in the findings in datum 2.4. There are some of the most common errors in spastic dysarthria such as monopitch speech. Monopitch can occur because it is caused by tension in the muscles of the larynx. In spastic dysarthria, the pitch variation is limited, resulting in a monopitch, decreased ability to vary voice and short speech (Duffy, 2013). In that datum, Luis had difficulty with long phrases, so the speed of his voice was slow, and the intonation was not proper.

Discussion of the research problem from the findings regarding dysarthria found that four types matched speech. Meanwhile, no other categories were discovered, namely, ataxic caused by incoordination and possibly low muscle tone, which results in slowness and inaccuracy in the force, range, timing, and direction of speech movements (Duffy, 2013). Unilateral Upper Motor Neuron (UUMN) has the characteristic that imprecise consonant production is the most common speech problem, but slow diadochokinesis and voice disorder is also common (Duffy, 2013). Then that is, mixed. The dysarthria type is frequently mixed, reflecting a combination of two or more of the previously discussed types (Duffy, 2013). The summary of the result of the analysis can be seen in figure 1.

Figure 1. Types of Dysarthria occurred in Luis's Speech



#### *How Dysarthria Disorder Affects the Language Used by Luis' Utterances on "The Accessible Van Life" YouTube Channel*

This section discusses how the speech disorder dysarthria affects Luis's language skills. This study uses the theory proposed by Lanier (2010) and Waengler (2012) to answer the questions in this study. According to Lanier (2010), speech disorders can be divided into three types: fluency disorders, which refer to speech disorders such as repeating words, prolonging syllables, sounds, phrases or words, and pronunciation with hesitation. Then, articulation disorders refer to difficulties in pronouncing sounds or making mistakes in word order. Then, namely, voice disorders, namely voice disorders that involve tone, resonance, and loudness.

According to Waengler (2012), phonological processes are divided into three groups: syllable structure processes, which are sound changes that can affect syllable structure. This group can be divided into four types, namely cluster reduction, total and

partial reduplication, weak syllable deletion, and final consonants. Then substitution processes, namely sound changes that can occur due to changing voice classes, this group is divided into six types, namely consonant cluster, fronting, labialization, alveolarization, devoicing and voicing. Then, assimilatory processes, namely sound that resembles the next sound. This group is divided into labial, velar, nasal, and liquid.

The researcher discovered various issues with the slurred or intelligible speech in this dysarthria, particularly with the articulation, which causes speech impairment. As a result, it is difficult to determine where dysarthria-related speech difficulties are more prominent. In dysarthria, the researcher discovered that speech deficits influence articulation problems.

Broken teeth, for example, are influenced by speech motoric uncontrol, resulting in slurred speech. Because his speech was unable to control speech movements, his tongue could not touch behind the upper teeth. Luis had difficulty moving his upper teeth and lower lip, and his voice changed. It can be seen in the data 1.1, 2.1, 2.2, and 3.1. In datum 1.1 the word "very" becomes "pery" labiodental[v] is changed to bilabial [p]. In addition, Luis also has difficulty with the liquid phoneme [r] and changes it to a non-liquid consonant as in datum 2.1; namely, the word "married" becomes "mayid". Disturbances in changing velar [g] to nonvelar [y] are also seen in datum 2.2 "God" becomes "yad". Luis also has difficulty with labiodental [v] and changes it to bilabial [w] to make his speech easier, as shown in Fig. datum 3.1 "widio" for the word "video". These characteristics are called substitution articulation disorders, where there is a change in phonemic sounds (Lanier, 2010).

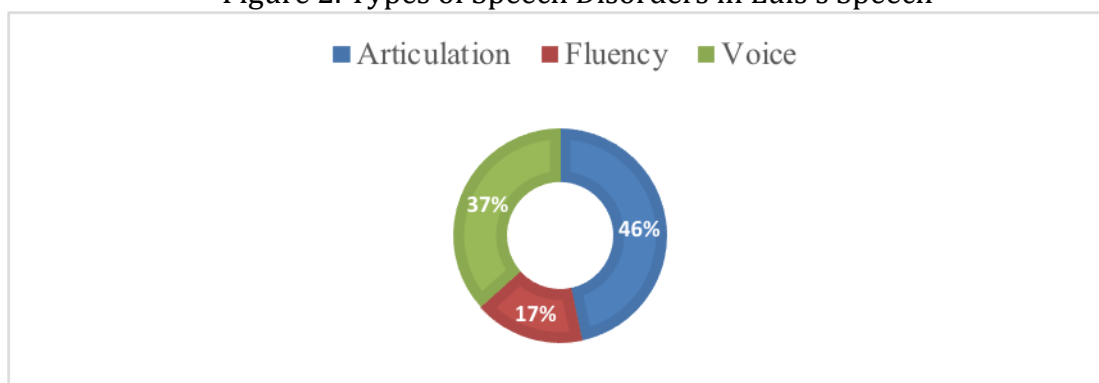
When speaking, Luis sometimes produces sounds that are too short. Luis lowered his voice at the end of every word in the sentence. The weakness influenced it in certain words that caused slurred speech. He was saying in hushed tones. This problem can be seen in the data 1.1, 1.4, 2.2, 2.4, 2.7, and 3.1. In this datum, there is the omission of consonants labial [v], alveolar [t], velar [g], bilabial [m], liquid [l], glottal [h] and the omission of other consonants such as [x]. The deficit in speech sound disorder altered the data above, which were classified as Omission. It happens because they experience improper voice or breathing problems, which it causes problems in suppressing intonation (Lanier, 2010).

Luis's speech was a jumble of slurred words and slurred speech, making his speech incomprehensible. These situations occur when Luis gets too excited or his voice weakens. Due to the weakness in the jaw muscles, it is difficult for Luis to lift and move them when speaking. It can be seen in the data 1.3, 2.5, 2.6, and 3.3. On datum 1.3 words "she know that" becomes "e ow e", Luis omitted every consonant in each word and abbreviated it. Then, the occurrence of irregular damage to datum 2.5 and 3.3. At datum 2.5, the speech "let me se" becomes "thisi thisi". In datum 3.3, "another day" becomes "anothey" and then pronounces the sound "Whennoney" for the sentence "When are you going to have more children". Then the very severe damage due to the weakened voice is shown in datum 2.6 in the sentence "nonenemmaywaynaionef", and it occurs when Luis is challenged to control the movement of his mouth and voice so that the resulting sound is very deviant from the target speech. Luis' problems include articulation distortion disorder, in which the voice shortens due to difficulty in syllable pronunciation (Lanier, 2010).

Another characteristic in Luis's utterances as a person with dysarthria is a fluency speech disorder. When he tried to communicate smoothly with struggling behaviour, he timed against the obstructed. A person who has a speech disorder will repeat words, prolong sounds, phrases, syllables, or terms and pronounce them hesitantly (Lanier, 2010). Luis had trouble speaking, so he repeated the words to ensure Lexie listened carefully. It is shown in datums 1.2, 1.3, 1.4, and 2.2. In datum 1.2, Luis repeats the first word in a phrase, namely in the utterance "Thank you ngeu thank you ngeu". The same error also occurs in datum 1.3 in speech "iztru izzu izzu, e ow e", he repeated with such enthusiasm that he repeated his words. In datum 1.4, Luis repeats the word at the end of the syllable in speech, "Elo lo lo lo" he tried to repeat his words when he felt his words did not match what he wanted to say, so he repeated the syllable. At datum 2.2, "I know, know", Luis looks tired at the end of the word due to a reflex in his mouth nerves. It can be determined that Luis is unable to control his speech motor movements, implying a disruption in the flow of speech, with occasional bursts of speech accompanied by excessive tension.

Therefore, the dysarthria disorder that affects Luis' language is a voice disorder. Voice disorder occurs because of phonation and resonance disorders (Lanier, 2010; Akbulut et al., 2020). From some data, Luis uttered sentences with varied voices. This problem can be seen in data 3. Datum 3.1 in speech "ei ewi one ello walap" indicates the production of a tone of voice that is too fast and monotonous with inappropriate intonation. Datum 3.2, there is a snoring sound and a flat voice. The words produced are sometimes shortened or shortened phrases because of the tension in the throat, this can be seen in datum 3.3 and 3.4. The summary of the result of the analysis can be seen in figure 2.

Figure 2. Types of Speech Disorders in Luis's Speech



In addition, several characteristics of phonological error disorders based on Waengler's (2012) theory occur in Luis's speech. The phonological error that Luis often experiences is the phonological process of the syllable. The types of syllable disorders experienced by Luis are final consonant, weak syllable deletion, partial reduplication, and cluster reduction. Luis performs omission of consonants at the end of words, or it is called a syllable-final consonant disorder. It is done because of muscle weakness in the mouth and decreased respiratory system.

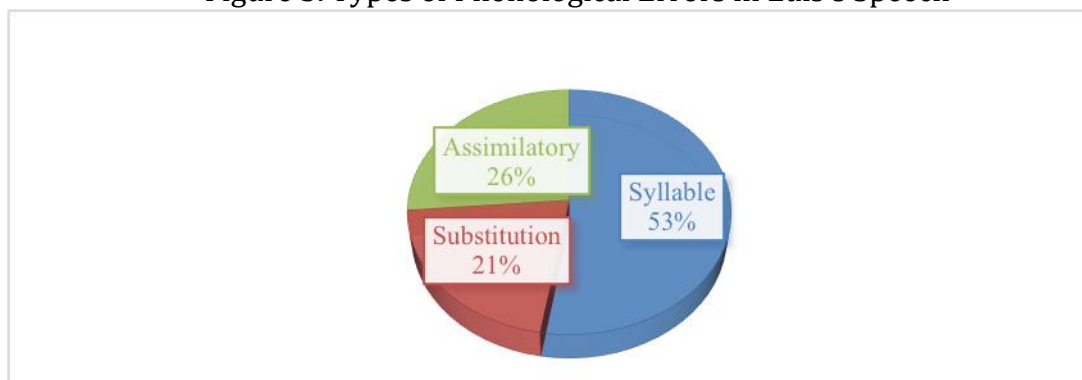
An example is in datum 2.4, "You we lei leik feehe, my lo foeve". Luis removes the consonants at the end of the word "love" to "lo" and "were" to "we". He often has difficulty with labiodental [v] and alveolar [r] final consonants, which are also seen in datums 1.4, 2.1, 2.3, 2.5.

Furthermore, at datum 3.4, "E' ett'e", there is a phonological weak syllable deletion disorder where a lack of pressure causes syllable deletion (Waengler, 2016). Then at datum 2.5, 2.6, 3.3, Luis experienced a partial phonological disorder by varying words or creating his terms (Waengler, 2016). Examples are "course" becomes "god" datum 2.5, and others cannot understand the very messy sentence by changing all the words in the sentence as in datum 2.6 "nonenemmaywaynaionef". The same thing is also seen in datum 3.3, where he shortens long sentences such as the word "Whennoney" for the sentence "When are you going to have more children". Then cluster reduction also appears in Luis' speech which simplifies articulation into one consonant. Cluster reduction looks at datum 2.3 "slow" to "low".

Substitution disturbances in the consonant cluster are shown in datum 3.1. Luis replaces syllables so that he changes the entire word structure (Waengler, 2016). Like his words on the word "ewi" for the word "every" and the word "walap" for the word "what's up". He has impaired bilabial control and palatal[tʃ]. A similar incident also occurs in datum 2.1, in which the word "it's true" becomes "iztrut". In datum 2.7, Luis has broken liquid [l] and adds another syllable at the beginning of the syllable, such as the word "will" to "vwe". In datum 3.2, Luis has consonant damage in alveolar [t] and [d], bilabial [m], palatal [j]. In the speech "Rey tonne on tu'ey", Luis made substitutions on some of his syllables for the sentence "Try Tommy John today".

The assimilatory process can also be seen in Luis' speech, where he has nasal assimilatory and liquid assimilatory disorders. Nasal disturbances occur when he changes the nasal sounds to non-nasal ones (Waengler, 2016, p. 76). It can be seen in datum 1.2 in the utterance "Thank thank ngeu thank thank ngeu" which velar [k] is replaced by a nasal sound [ŋ]. Then on datum 2.1 the word "year" becomes "yeang", and the word "Lexie" becomes "Lengie". Luis has difficulty pronouncing the sound of the phoneme [r] and phoneme [x]. Luis also experienced nasalisation of the phoneme sound [m] in the word "I'm" to "Aeng", as seen in datum 3.2. In addition, nasal disorders also occur in phonemes [d] and [b], as in datum 3.3. Namely, the word "One day" becomes "Onenney", and "bunny" becomes "mani". Luis borrowed the previous nasal sound. He also seemed to have borrowed the word "In the life" into "ille life", where there was a liquid assimilatory disorder where he changed the non-liquid letter to liquid by borrowing the liquid letter after it (Waengler, 2016). He suffered dental damage, which resulted in uncontrolled speech motor. The summary of the analysis can be seen in figure 3.

Figure 3. Types of Phonological Errors in Luis's Speech



The results of this study are different from previous studies. The researcher found phonological processes that affect the language used by people with dysarthria. Therefore, dysarthria occurs due to the influence of disturbances in the phonological process, causing sufferers to have difficulty in producing speech.

### CONCLUSION & SUGGESTION

The researcher concludes based on the formulation of the research problem, the results of data analysis, and the findings and discussions obtained in this study. Based on Duffy's (2013) theory, researchers found four of the seven types of dysarthria. They were twelve types hypokinetic, one hyperkinetic, one flaccid, and one spastic. Hypokinetic is the problem most associated with dysarthria. Luis's significant problems experienced by Luis are low pitch and hoarse voice that interferes with his phonation system. Shallow and uncontrolled breathing, hypernasality, inaccurate consonant articulation, and too fast speech damage the speech system that Luis often experiences.

Based on Luis' speech, the researcher found several characteristics of speech disorder and phonological processes that affect Luis's language. Using the Lanier (2010) theory, the most dominant speech disorder in Luis's language is articulation disorder. The following characteristics are substitution, omission, and distortion. An omission is an articulation disorder that often occurs in Luis's speech. Luis often omitted consonants at the beginning and the end of the word in his speech. The most common articulation errors experienced by Luis are labiodental, alveolar, and glottal consonants.

The subsequent finding is about the phonological errors experienced by Luis in his speech. Based on Wangler's (2012) theory, phonological errors are divided into three groups, namely, syllable, substitution, and assimilatory processes. This study found that Luis often suffers from syllable phonological disorders. The most dominant type of syllable disorder is the final consonant.

In this study, researchers found that dysarthria occurred in Luis' speech. From the study results, Luis produced four of the seven types of dysarthria. The most common type is hypokinetic. The most prominent feature of this type is the production of a hoarse voice and too fast, resulting in inappropriate intonation and articulation. Therefore, dysarthria sufferers need more attention. Further research, further research can be carried out on how dysarthria sufferers can deal with disturbances in their speaker system.



This study found that dysarthria sufferers experience language disorders and phonological errors that cause listeners to have difficulty understanding spoken sentences. Therefore, this research can be used to enrich references for researchers who are interested in psycholinguistic studies, especially dysarthria. In addition, the researcher suggests that further research can also examine dysarthria with a syntax study to determine the grammatical error structure of people with dysarthria. The conclusion is intended to answer the research questions. It helps the readers understand why the research should matter to them after they have finished reading the paper. It is not just a summary of the main topics covered or a re-statement of the research question, but a synthesis of key points and, if applicable, where the recommendation of new areas for future research is given.

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