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Identifying Phonological Interference of Indonesian Multilingual Learners at Reading Test with Genre-Based Approach Perspective and AI Tool

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Abstract

The present study is succinct summary which aims to identify factors of phonological cross linguistic influence faced by students of secondary bilingual boarding school, an educational institution that utilizes English and Arabic as medium of instruction. The subjects of this research are cross-ethnic students with diverse linguistic backgrounds, including Indonesian, Javanese, Madurese, Sundanese, Arabic, and English as their first language (henceforth, L1) to fifth languages (henceforth, L5). This research adopted qualitative descriptive research design and employed a purposive sampling method. 23 Students were selected as informants for this research, representing 25% of the total social situation in eleventh grade. Content analysis, reading test, and interview were used as data collection techniques. The test analysis result conducted using AI tools (ELSA Speak application) to measure pronunciation errors, intonation, and fluency in English. The data analysis technique followed the steps proposed by Miles et al., (2014), which include the data collection, data reduction, data display, and conclusion. The findings of this research revealed that Phonological Cross Linguistic Influence is attributed to two primary factors, technical factors and fundamental factors. Technical factors consist of: (1) Differences in the sound system of the languages, (2) Similarity of sounds between two languages. On the other hand, fundamental factors comprise: (1) Student's linguistic background, (2) Student's motivation, (3) Language habits/ attitudes (lack of practice and intensity of native language usage), (4) Learning environment (teacher's lack of creativity and learning's lack of program evaluation). Furthermore, the result reading test of 23 participants (SLA: Indigenous, Indonesia, Arabic, and English) using ELSA Speak show 9 different phonological interference of 28 vowels /ɪə/; /aʊ/; /æ/; /ɛə/; /ɒ/; /aɪ/; /ɔː/; /əː/; /ɔɪ/ which 65% for L3, and 75% for L4. While 5 consonant /ʒ/; /θ/; /ð/; /ʃ/; /ʧ/ which 78% for L3, and 92% for L4. This difficulty was faced due to grammatical limitation, structure in building conversation, and accuracy detection. Implication of this study for EFL Materials, English curriculum policy makers and educators to be aware and emphasizing vocabularies which need to be emphasized Indonesians' learners.

Keywords: *Explanation Text, Genre-Based Approach, Multilingual Learners, Phonological Interference, Reading Skill*

1. INTRODUCTION

English sounds have undergone a lot of changes with emerging concept of English as an international language in which the concept of the so-called Standard English is challenged and more varieties of English are recognized [1]. Teaching learners to learn received pronunciation (henceforth, RP) is necessary to lay the British English pronunciation foundation and in order to ensure the ease with which learners check the phonetic transcription. Even, actually, in the past, identified 44 sounds, then Cambridge Advanced Learner's Dictionary (henceforth, CALD) present 47 sounds [2]. These 47 sounds are classified into vowel and consonants. In fact, the position of countries category is different on English usage will give significant influence on pronouncing the correct English word, especially Indonesia as expanding circle countries that used English as a foreign language.

Refers to the Language Agency of the Ministry of Education and Culture of the Republic of Indonesia in 2023, Indonesia is recorded to have 718 actively used languages by its entire population. This makes Indonesia the second country with the most languages in the world, and not exaggeration if scholars agree that Indonesia is one of the countries with the second-highest linguistic diversity in the world [3]. Indirectly, Indonesian people as one of the largest naturally multilingual societies globally. It was noted that Indonesian people are naturally born as multilinguals, they are using at least two languages in their daily conversations [3]. Moreover, it is known that each Indonesian community typically masters at least three languages throughout their lives: their local language or heritage language, national language or *Bahasa Indonesia*, and one foreign language, either passively or actively [4]. However, more than one foreign language, due to Indonesia is also recognized as the country with the largest Muslim population in the world based on the Royal Islamic Strategic Studies Centre (RISSC) report in *The Muslim 500: The World's 500 Most Influential Muslims 2024* till reached 240.62 million people in 2023, equivalent to 86.7% of the total Indonesian population of 277.53 million, made the Indonesian people acquiring

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Arabic language both implemented on daily activities or educational institution such as school or boarding school. Even, Nowadays, many modern educational institutions in Indonesia have adopted both these systems – multilingual education and *Pesantren*-based education [5] . Thus, Islamic bilingual or multilingual boarding schools have emerged in almost every city and region in Indonesia. The educational system in Islamic bilingual boarding school teaches foreign languages not only as a medium of instruction but also as languages which are spoken in the daily activities of students [6]. It aimed at producing students' proficiency in foreign languages, not only in academic subjects but also in everyday language use.

It is a reason some scholar analyzes the current development of formal education in Indonesia have strong interest in multilingual-based education approach. This approach integrates language diversity into the learning process as the medium of instruction, aligned with existing curricula and educational programs in schools. This is reflected in the increasing trend of Indonesian people not only adopt the complete curriculum of the Indonesian Ministry of Education, but also incorporate curricula focused on enhancing foreign language skills [7] [8]. Multilingual-based education aims to achieve second language proficiency by using foreign languages as the primary medium of instruction. This shift responds to the growing challenges of the globalized world, where individuals need foreign language proficiency to participate in international socialization [9].

In an educational environment where the residents use foreign languages, especially in the bilingual boarding school, there will be a phenomenon known as Cross Linguistic Influence (henceforth CLI). This condition refers to the knowledge of one language influencing the learning and use of another language [8]. When an individual is exposed to and learns multiple languages, there can be interactions between these languages that influence the way the individual acquires, processes, and uses linguistic elements. CLI occurs due to several factors, for example: similarities between two languages, including shared vocabulary, grammatical structures or phonetic patterns, cultural and pragmatic factors, proficiency level, and many more [10]. Cross Linguistic Influence can occur both positively and negatively. While they can facilitate language learning and transfer of skills, they can also lead to errors and interferences [11].

According to some scholars, there are 9 main types and levels of CLI. The first and the lowest level is Phonological Cross Linguistic Influence, while the highest level is Sociolinguistic Cross Linguistic Influence which refers to Cross Linguistic phenomena that occur at the level of social communication [12]. It also stated in his study, that Phonological Cross Linguistic Influence, is the most frequent type of all types of Cross Linguistic Influence, especially at the level of intermediate students [14]. As overview about Cross Linguistic Influence in EFL learning, the researcher chose some related researches, they are [14], [15], [16], [17], [18], [19]. All of those researches explored the specific type of Cross Linguistic Influence in Phonological level, while the present research focuses on the factors affecting the occurrence of Phonological Cross Linguistic Influence that faced by adult learners of bilingual boarding school, which have multiple languages background.

2. RESEARCH METHOD

This research uses descriptive qualitative research design and selecting 23 of 90 adult learners at a secondary bilingual boarding school in East Java though non-probability purpose sampling as participants, representing 25% of 90 total social situation. The participants are cross-ethnic students with diverse linguistic backgrounds, including Indonesian, Javanese, Madurese, Sundanese, Arabic, and English as their L1 to L5. 23 participants were selected are students who fluent and active language learners, at least multiple languages-English, Arabic, and Indonesian. Then, they are categorized into 3 participants types based on language background: 1) Type 1A and 1B (L3: English); 2) Type 2A and 2B (L4: English); and 3) Type 3 (L5: English).

Table 1. The Informant Types

	L1	**L2**	**L3**	**L4**	**L5**
1A	Indonesian	Javanese	English	Arabic	
1B	Javanese	Indonesia	English	Arabic	
2A	Indonesian	Javanese	Madurese/Sundanese	English	Arabic
2B	Madurese	Javanese		English	Arabic
3	Indonesian	Javanese	Madurese	Arabic	English

Moreover, based on reviewing and mapping the language acquisition of participants, it can be summarized that 65% adult learners use Indonesian as L1, as many as 35% participants has a Javanese as L2. Then, 82% participants have an English language as L3, while 83% participants use Arabic language as L4, and the rest use Sundanese and Madurese as their L5.

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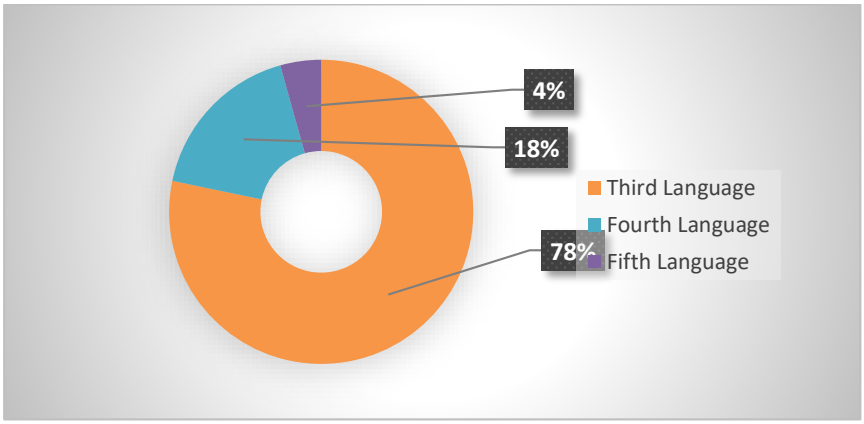

Figure 1. The Language Acquisition of Participants at Secondary Bilingual School

Meanwhile based on the foreign language acquisition, 78% adult learners use English as L5, while 83% use Arabic language as L4.

The research instrument such as content analysis, vocabulary pronunciation test, reading test or genre test, and semi-structured interviews are techniques were applied to collect the data.

1) Content analysis is used to provide references and data pertaining potential factors of the phonological cross linguistics which influence phenomenon was faced by the participants who have background dialect or accent their L1 or L2 is Javanese or Indonesian language.
2) Reading test was used to identify pronunciation error at reading activities using factual genre-descriptive text. Then, their pronunciation and wrote the summary of the percentage of words that exhibited phonological errors had been recorded, based on the results of ELSA Speak application as the pronunciation checker.
3) Semi-structured interview of 6 participants were selected based on the 2 highest score, 2 average score and 2 the lower score, was conducted to figure out is the phonological errors and linguistic factors in some vocabularies at reading test. In addition, it was used to gain a confirmation and comprehension of the possible factors on phonological cross linguistic influence. Recording the pronunciation results and summary the percentage of correctness worth was done to know the progress of language pronunciation.

The data analysis technique followed 4 syntax of interactive model proposed by Miles, Huberman, and Saldana [20], which include: a) the data collection, b) data reduction, c) data display, and d) conclusion (drawing and verifying). Trustworthiness also applied by researcher use triangulation technique in order to authorize the data, investigate the validity, another recheck and synchronize the data for the validity.

3. RESEARCH FINDING AND DISCUSSION

3.1. The Analysis Result of Research Instruments Validity

The first step, the researcher conducting instrument validity. All of the instruments have been validated by expert judgments and practitioners in speaking and pronunciation field. As a result: 1) the reading text or genre test obtained 3.7 of 4 points (systematic: 3.7; text quality: 3,5; content: 3.7), as well as, 2) the interview guideline obtained 3.7 of 4 points (systemic: 3.7, language: 3.4, contents: 3.5). It means that all of the score on highest score category, on the other hand, this instrument very valid and ready to use for conducting this research.

3.2. The Analysis Result of Content Analysis

The second step is developing the blue print of reading test, explanation text, and reading activities integrated with phonological language interference. It can be seen in the following table.

Table 2. The Content Analysis Result Based on Reading Text Test

Description	Indicator
Percentage of Phonological Interference	
As formulated by Crystal (2003, cited in Mahendra & Marantika 2020), Phonological Interference is divided into three types: Sound Addition, Sound Omission, and Sound	From the total number of words in the Reading Text, the researcher recorded words that exhibited Phonological Errors, whether they were Sound Additions, Omissions, or Substitutions. The researcher then wrote a brief summary of

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Substitution / Replacement. In this type of phonological interference table, the researcher tested participant' reading and pronunciation skills using the ELSA Speak application as a pronunciation checker. The researcher then recorded and analyzed words and spellings that exhibited Phonological Errors.	the percentage of words that were pronounced correctly, the percentage of words that exhibited Sound Additions, the percentage of words that exhibited Sound Omissions, and the percentage of words that exhibited Sound Substitutions, based on the results of the pronunciation checker from the ELSA Speak application.
Transcription Words That Often Appear Phonological Interference	
This second table records, original words, words that have spelling and pronunciation errors, to be compared between the correct phonetic transcription and the pronunciation spoken by the students.	After conducting a Pronunciation Checker using ELSA Speak application, the researcher recorded and wrote down the words that had Phonological Errors in this table, to then compare and analyze them between the correct spelling based on The International Phonetic Alphabet (IPA) and the pronunciation performed by the students.
List of Javanese Language Interference Possibility	
This third table, kind of erroneous, is adapted from Javanese Language Interference in The Pronunciation of English Phonemes; Phonological Interference in Javanese Language; and based on researcher's auto-ethnography as a native speaker of Javanese.	This table provides and records the possible pronunciation errors of speakers with a Basic Language of Javanese, based on previous researches and the researcher's experience. This table is used to identify the possible types of Phonological Errors that are specifically caused by certain factors in the Javanese accent system.
List of Arabic Language Interference Possibility	
This fourth table, kind of errors and utterance, is adapted from Arabic Interference in Learning English, and based on researcher's auto-ethnography as someone who has studied Arabic comprehensively.	This table summarizes and provides the possible pronunciation errors of speakers with proficiency in Arabic or with a history of learning Arabic as a Foreign Language, based on previous researches and the researcher's experience. The table is used to identify the possible types of Phonological Errors that may be caused by certain factors in the Arabic accent system.
List of Other Language Interference Possibility	
This fifth table, kind of errors and utterance, is left blank to provide space for other types of errors within Phonological Interference.	This table provides other possible Phonological Errors that may occur in students' pronunciation, which are caused by languages other than Indonesian, Javanese, or Arabic.

Those aspect was used for underpinning in designing reading activities at reading test that consist of 5 tables. According to the blue print of content analysis result, this explanation text under the title "Water Cycle" consist of 13 consonants /ʒ, v, θ, ð, z, ʃ, f, g, k, d, ʧ, ŋ, j/ and 17 vowel sounds /æ, ɛə, iː, eɪ, aʊ, əː, ɔː, uː, ɒ, ɪə, əʊ, ʊ, ɑː, ɪ, ʊə, ɔɪ, aɪ/ mentioned in previous researches as pronunciation and sounds that are often mispronounced and misspelled by adult learners with Javanese and Indonesian as their L1.

3.3. The Result of Reading Test Design

While the reading text test was assessed is factual genre-descriptive text under the title *The Water Cycle*. It was chosen because it is a phenomenon that is easily found and understood by adult learners. However, the topic is also of sufficient weight and scientific content to be challenging.Descriptive text was chosen due to some considering reason based on content analysis result was conducted by researcher. There are: 1) This text is one fundamentals of structural essential social genre at systemic functional linguistic: (a) narrate, (b) explain, (c) describe, (d) instruct, and (e) argue. 2) Explanation is a pair of genres describe and report that mostly used in academic writing and school genre priority. 3) it has complexity on schematic structure than the other 17 text types. 4) This text learned and implemented at learning to freedom curriculum in Indonesia or familiarly called MBKM. 5) Explanation is text that mostly assessed in PISA reading assessment, TOEFL, and IELTS. 6) This text having rich technical language and language features. 7) Explanation text was adopted from [22], is frequently encountered in everyday life of participants. In addition, explaining and analyzing phenomena was proposed at this social function of this text is common topics of daily discussion.

Each of reading passage consist of 6 to 7 paragraphs, and 26 selected consonants sounds that often most pronounced by participants who their L1 is Indonesian language and their foreign language is English based on document analysis was researcher done. After reading passages, the activities are 1) identifying phonological interferences, 2) Tran scripting original words that often appear phonological interference based on Indonesian

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language interference toward students' English pronunciation, and 3) Identifying the specific interference (Javanese and Arabic language interference in the pronunciation in English phonemes) including the utterance. The type of phonological interference was assessed after reading activities involving the frequency of (a) sound addition, (b) sound omission, and (c) sound replacement/substitution.

Table 3. The Reading Passage of Explanation Text

The Water Cycle

Water is an essential part of life. The earth has a limited amount of water; however, water is continually recycled in a process called the water cycle. It is made up of four main parts: precipitation, infiltration, evaporation, and condensation.

To begin with, precipitation occurs when so much water has formed that the air cannot hold it any longer. The clouds become heavier and as a result, water falls back to the earth in the form of rain, hail, sleet, or snow.

When water falls back to the earth as precipitation, it may fall back into the oceans, lakes, or rivers or it may end up on land. When it ends up on land, it soaks into the earth and is stored as groundwater. This process is called infiltration.

Evaporation is when the sun heats up water in rivers, lakes, or oceans and turns it into vapor or steam. The water vapor or steam leaves the river, lake, or ocean and goes into the air. This stage is called evaporation.

The water vapor cools and this leads to clouds forming. However, the clouds are unable to hold the water vapor for a long. As a result, rain droplets form and it starts to rain. This process is called condensation.

Eventually, the water cycle begins again.

After designing the reading test, validity assessment has been done by 2 expert judgments. the text-reading test was also divided into three aspects: 1) systematic aspect, 2) quality aspect, and 3) content aspect. In the systematically, the total average point is 3.7 of 4.0, is categorised on very high level on validity and worth to conduct the research. The aspect assessed the test contains clear objectives, simple instructions, the participant's identity in line with the research code of ethics, and a confidentiality statement of research data. In the quality, the total average points are 3.5 of 4.0, the items consist of variation of phonetic transcription, item of ambiguity, and item of competency level appropriateness. Then, in the content aspect, the total average point is 3.7 of 4.0, very high predicate. It contains explanation text that are not only aligned with the curriculum content, but also contain vocabularies that can be used to test the participants' pronunciation skill and detect possible pronunciation errors.

To assess the participant's reading, the researcher used ELSA Speak application in order to: 1) detecting the extent of pronunciation errors made by the participants, 2) evaluating and examining the participant's pronunciation quality and intonation when producing English sentence sequence with ELSA Speech Analyzer, 3) evaluating the fluency of pronunciation of participants, and 4) enabling the assessment of participants' fluency in vocabulary pronunciation, encompassing pace, and pausing during word-by-word articulation on reading passage. The result can be seen in the following table.

Table 4. The List Number of Participant Pronunciation Errors at Reading Test

Name	**Number of Participants' Pronunciation Errors**		
	Vowel	**Consonant**	**Total**
Participant 1	14	7	21
Participant 2	11	8	19
Participant 3	12	**3**	15
Participant 4	**9**	**3**	**12**
Participant 5	13	8	21
Participant 6	**19**	8	**27**
Participant 7	12	9	21
Participant 8	11	**12**	23
Participant 9	8	6	14
Participant 10	12	9	21
Participant 11	10	9	19
Participant 12	11	6	17
Participant 13	10	5	15
Participant 14	11	4	15
Participant 15	13	11	24
Participant 16	16	8	24

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Participant 17	13	7	20
Participant 18	17	7	24
Participant 19	13	8	21
Participant 20	13	5	18
Participant 21	9	7	16
Participant 22	10	4	14
Participant 23	14	7	21

According to the table above, the total average participants' pronunciation errors at reading test is 19, with 7 rates for consonant errors, and vowel error on 12 rates. Interestingly, the participant 6 who had the most pronunciation errors of both vowel and consonant words. He made a total of 27 pronunciation errors on 42 different words. In the other side, there was participant 4, who had the least pronunciation errors of both vowel and consonant words. He made only 12 pronunciation errors on 42 different words. The researcher took those two participants, to take the second test. Another recording and analyse their pronunciation, researcher used ELSA Speak application to detect the extent of pronunciation errors made by the participants.

As a result, at the first paragraph of explanation text, participant 6 scored 45% of all words in the paragraph that were pronounced correctly. He made pronunciation errors in almost every word in the paragraph. While in the second paragraph, informant 6 got 42% of correct pronunciation. He made his first pronunciation error in the word "water". He made a sound substitution pronunciation error on the letter 'a'. When it should have been read with the sound /ɔ:/, instead he read it with the sound /ʌ/. The second pronunciation error was in the word "an", which he also made a sound substitution pronunciation error on the letter 'a'. When it should have been read with the sound /ə/, instead he read it with the sound /ɛ/. His third pronunciation error was in the word "essential", where the mispronunciation occurs on the consonant sound /ʃ/ at the end of the word. However, instead he pronounced it with the correct pronunciation, he slipped on the pronunciation of the /s/ sound.

In line with that, in the second paragraph, he got all three types of pronunciation errors at once. He experienced sound addition pronunciation error in the word "longer". Instead of pronouncing the /ɑ/ sound, he added the sound /ʊ/ after it, then he pronounced it with /ɑʊ/ sound. He also made sound omission pronunciation error in the word "clouds". In instances where the pronunciation of the vowel /aʊ/ is expected, the speaker erroneously substitutes the vowel /ʊ/. As for sound substitution pronunciation error, he made it several times. The first sound substitution pronunciation error he made was in the word "begin". The word should have begun with the vowel sound /ɪ/, rather than the sound /æ/. A similar phenomenon is observed in the pronunciation of the vowel sound /eɪ/ in the word "rain." He exhibits a slight inclination towards the vowel sound /aɪ/, resulting in a minor pronunciation error. While this deviation constitutes an error, it is noteworthy that the substituted sound bears a close resemblance to the intended one.

As mentioned as earlier, through reading test, the participants will face experiencing on cross linguistic influence on the phonological interference, due to linguistic background, language acquisition, and language learning history, each adult learners play a pivotal role in determining the extent of phonological errors they exhibit and the specific sounds that are most susceptible to such errors. Moreover, identifying their linguistic background and language usage habits in the daily communication is crucial for determining which cross linguistic influences can be beneficial in their EFL, as well as those that may hinder their progress. According to the analysis result of linguistic backgrounds and language learning histories revealed that all adult learners at secondary bilingual schools are acquiring English as a L3 at the minimum, following their native language, Indonesia; and heritage language or regional language. A subset of adult learners is learning English as their L4, having previously been exposed to Arabic, while a small number of them acquiring English as their L5.

Based on the findings of the first research instrument, which were subsequently corroborated by the second research instrument, it was determined that adult learners who learned English as a L3 exhibit an average pronunciation accuracy rate of 80% or higher when reading English texts containing both academic and daily vocabularies. The most frequent pronunciation errors among these adult learners occur with the /ɪə/ vowel sound and the /ʒ/ consonant sound.

In contrast, the findings for adult learners who learned English as L4 revealed an average pronunciation accuracy rate of approximately 70% when reading English texts containing both academic and daily vocabularies. Additionally, the most frequent pronunciation errors among these adult learners occur with the /ɪə/, /æ/, /aɪ/, and /ɔɪ/ vowel sounds, exhibiting greater variability compared to the first group of students. Errors also occur with the /ʒ/ consonant sound. Concurrently, adult learners who learned English as their L5 exhibit an average pronunciation accuracy rate of less than 60% when reading English texts. The frequency of pronunciation errors among these adult learners is also significantly higher, encompassing the /ɪə/, /æ/, /aɪ/, and /aʊ/ vowel sounds, with error rates reaching up to 100% of the tested vocabulary. Furthermore, the errors in the consonant sound occur with the /ʒ/ consonant sound.

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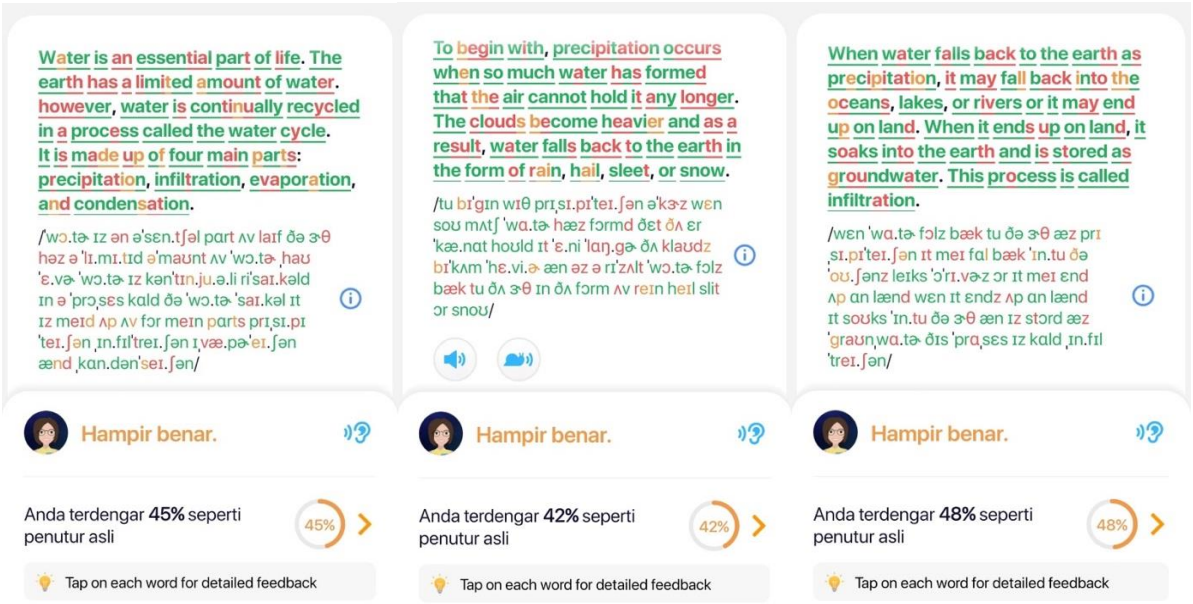

Figure 2. The highest error pronunciation participant at paragraph 1 to 3 explanation text

Another, in the third and fourth paragraph, his reading pronunciation results have improved slightly. He obtained 48% of all words that were pronounced correctly. While in the fourth paragraph, the score was 56%. He made a pronunciation error of consonant sound /θ/ in the word "earth". As this word should be pronounced with the /θ/ sound, informant 6 pronounced it with the /ð/ sound instead. He also made sound omission pronunciation error in the word "goes". Where he should have pronounced with the /oʊ/ sound, but he pronounced it only with /ə/ sound. in the fifth paragraph, informant 6 got 51% of correct pronunciation. While in the last sentence, in the sixth paragraph, his score was 47% of all words that were pronounced correctly. He made the sound omission pronunciation error in the word "However", in where he changed the /aʊ/ sound into /ʊ/ sound. Furthermore, in the sixth paragraph, he made a rather serious pronunciation error. In the word "cycle", he made two sound substitution pronunciation errors. In case of the sound /aɪ/, he confused it with /i:/ sound. In short, the participant 6, his L1 was Indonesian language, L2 Javanese, L3 Madurese, L4 Arabic, and L5 English. He is the only person out of all participants who learned English as L5 English. As it turned out, this became one of the factors that caused him to get the most pronunciation errors in both tests.

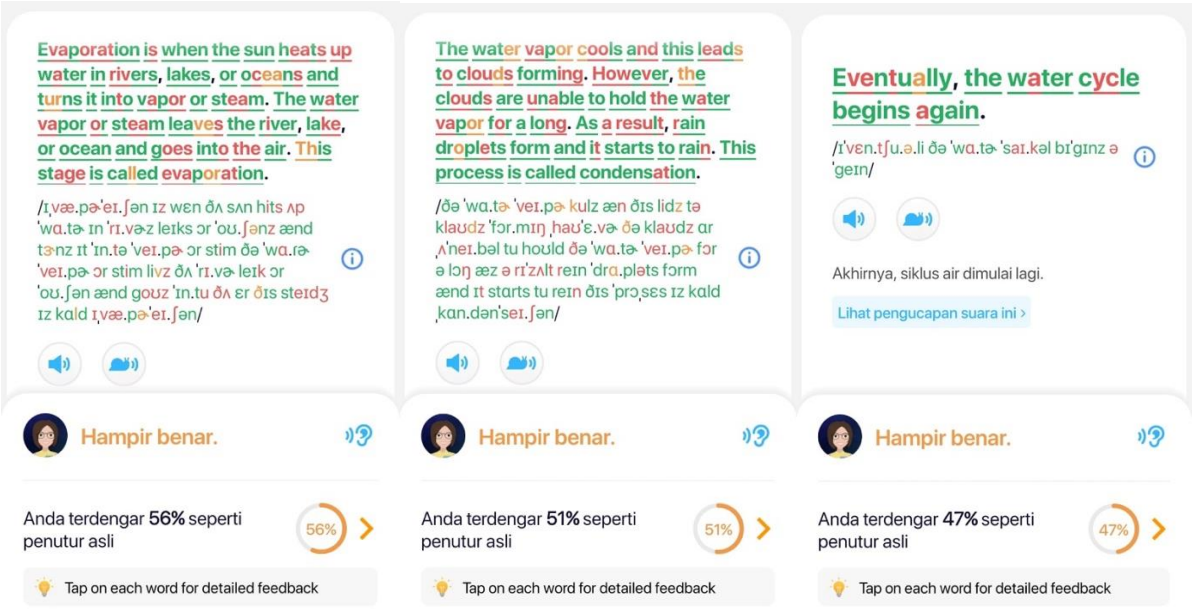

Figure 3. The highest error pronunciation participant at paragraph 4 to 6 explanation text

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In the other hand, different results were obtained by participant 4 who obtain 12 pronunciation errors in total with scored 74% of all words that were pronounced correctly in the first paragraph of explanation text. While in the second paragraph, he obtained 73% of correct pronunciation. The first pronunciation error made by him was in the word “essential.” This word contains /ə/ sound at the end of its vowel.

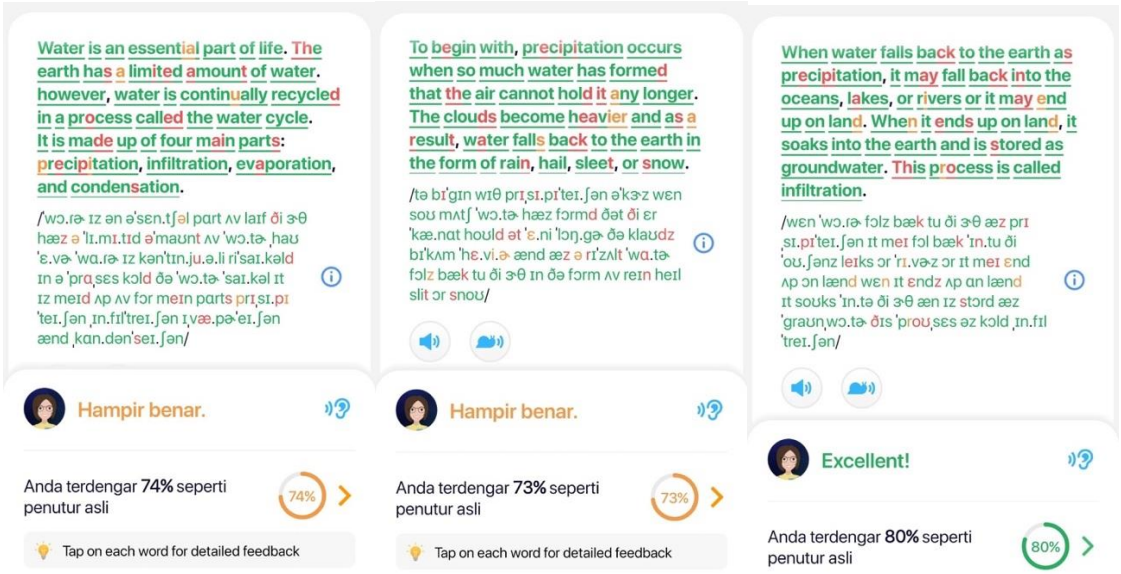

Figure 4. The lowest error pronunciation participant at paragraph 1 to 3 explanation text

However, he made the sound addition and pronounced it in /ɪə/ sound. In line with that, he also made several sound substitutions in the /ð/ sound. In both the first and second paragraphs, he had the same pronunciation error on the word "the". Inadvertently, he pronounced the /ð/ sound in the word "the" with a deep /d/ sound. This could be due to the Javanese background of him as his L1. One of the characteristics of Javanese pronunciation is the deep pronunciation of some syllables containing the letter "d". This also affects the way he pronounced some words that have an *-ed* ending. As in the words "recycled" and "called" in the first paragraph, and the word "formed" in the second paragraph. In some of these words, he pronounced the ending sound /d/ imperfectly, due to the influence of his language confusion. Then, he shows that the progress scores increased rapidly, compared to the scores in the previous paragraphs.

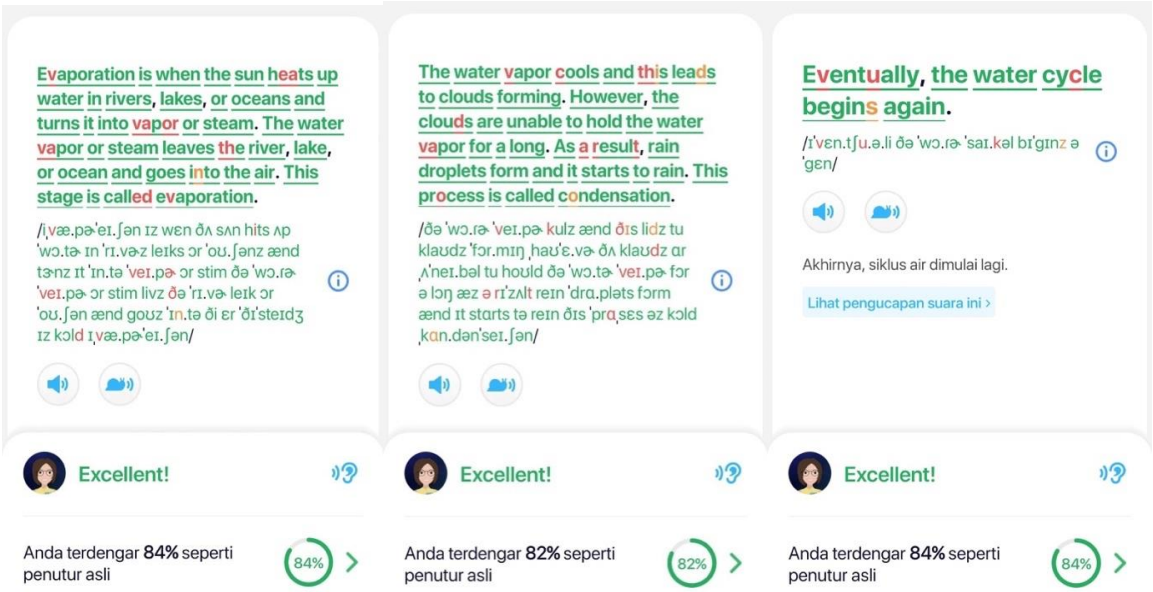

Figure 5. The lowest error pronunciation participant at paragraph 4 to 6 explanation text

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In third and fourth paragraph, he obtained scored 80% and above of all words that were pronounced correctly. Similarly, the same results were also obtained in the fifth and sixth paragraphs. The score obtained reached above 80%, indicating a minimal number of pronunciation errors. The pronunciation errors that occur are the repetitions of the errors in the previous paragraphs. Pronunciation errors on the /ð/ sound as in the word "this", pronunciation errors on the /d/ sound as in the ending sound in the word "clouds", and several others. These results indicate significant differences related to the background of language learning history and the complexity of language acquisition owned by the informants.

3.4. Analysis Result of Fluency and Intonation at Reading Test

Concurrently, ELSA Speech Analyzer used by the researcher to conduct a more in-depth due to facilitated a deeper examination of the informants' pronunciation quality and intonation when producing English sentence sequences. Additionally, it enabled the assessment of the informants' fluency in vocabulary pronunciation, encompassing pace and pausing during word-by-word articulation within the text. As previously noted in the preceding analysis, participant 4 exhibited the fewest pronunciation errors, with a total of 12 errors on the vocabulary pronunciation test. Conversely, participant 6 exhibited the most pronunciation errors, with a total of 27 errors. Below, the researcher presents the results of an in-depth analysis of their performance on the text-reading test.

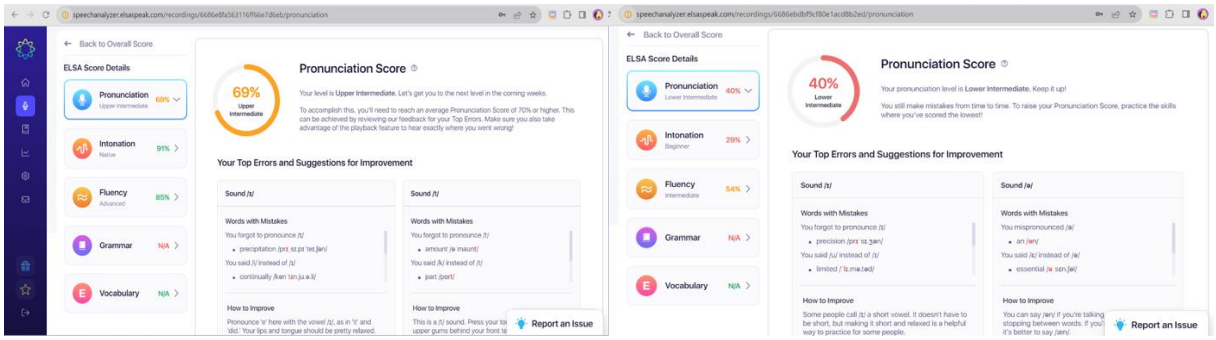

Figure 6. The result of pronunciation participant 4&6 by ELSA speech analyser

The figure above reveals that participant 4 obtained an overall pronunciation score of 69% on the text-reading test, earning him the upper intermediate proficiency level. In stark contrast to participant 4 remarkable performance, the ELSA Speech Analyzer results for participant 6, reveal a significantly lower proficiency level. Furthermore, participant 6 obtained an overall pronunciation score of 40% on the text-reading test, earning him the Lower Intermediate proficiency level. This observation highlights the remarkable contrast in performance between the participant with the highest number of pronunciation errors and the informant with the fewest pronunciation errors.

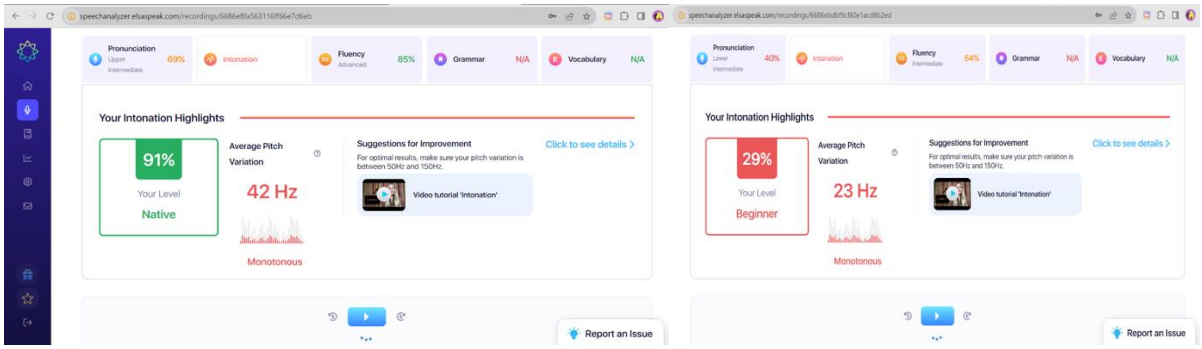

Figure 7. The result of intonation participant 4&6 by ELSA speech analyser

While his intonation during the text-reading test obtained score of 91%, earning the 'Native' proficiency level. Furthermore, he exhibited an average pitch variation of 42 Hz. This finding highlights that pronunciation performance does not always correlate directly with an individual's intonation quality when reading English text. While participant 4's pronunciation score was 69%, his intonation score was significantly higher. Furthermore, the intonation scores for Informant 6 stand in stark contrast to those of Informant 4. While participant 4's

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intonation and fluency scores were inversely proportional to his pronunciation score, the opposite holds true for Informant 6. The abundance of pronunciation errors committed by Informant 6 directly correlates with their low intonation and fluency scores. Informant 6 attained a score of 29%, which corresponds to a Beginner proficiency level. Additionally, his average pitch variation was 23Hz. This finding reinforces the notion that linguistic background is one of the most potent factors contributing to Phonological Cross-Linguistic Influence.

Moreover, when considering the fluency assessment results, participant 6 achieved a score of only 54%, earning him an Intermediate proficiency level. In line with this, Informant 6 obtained a score of 50% in the pausing sub-category, indicating that he needs for improvement.

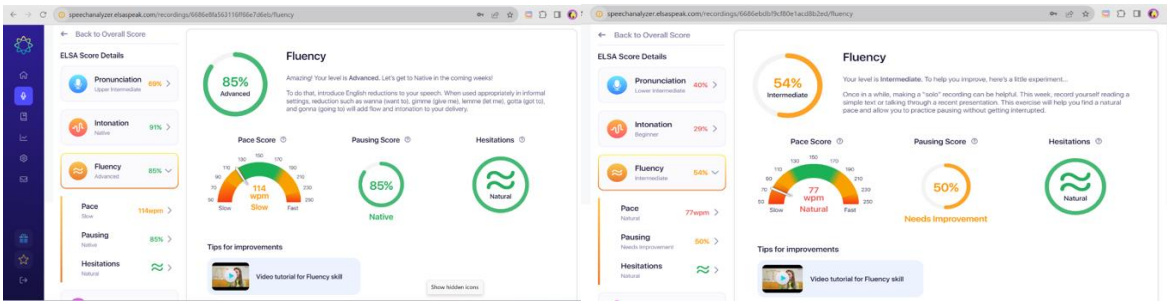

Figure 8. The result of fluency participant 4&6 by ELSA speech analyser

Participant 4, overall fluency score was 85%, corresponding to the advanced proficiency level. This observation further highlights the dissociation between fluency performance and pronunciation quality. In terms of fluency, he achieved a pacing score of 114 wpm, which falls under the 'slow' category. Additionally, he obtained a pausing score of 85%. In the Hesitation sub-category, participant 4 was categorized as 'Natural'. In comparison to international standardized test scores, participant 6's performance corresponds to a score of 3 on the IELTS test, a score of 6 on the TOEFL iBT test, and a proficiency level of A2 or Basic on the CEFR scale.

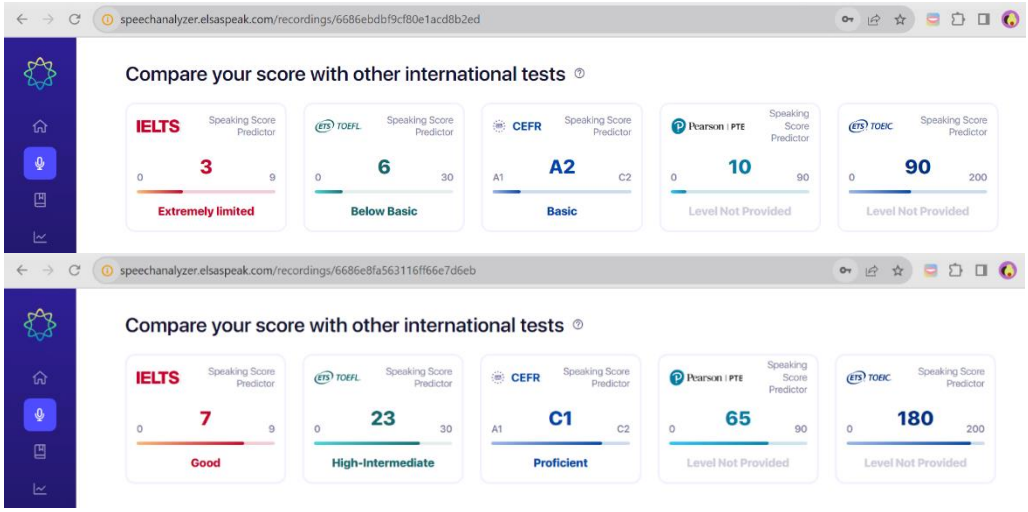

Figure 9. The result participant 4 & 6 on international test comparison

In conclusion, upon a comprehensive evaluation of participant 4 pronunciation, intonation, and fluency, in comparison with international standardized test scores, Informant 4 is projected to align with a score of 7 on the IELTS test, a score of 23 on the TOEFL iBT test, and a C1 proficiency level on the CEFR. This performance is considered exceptional, as a score of 7 on the IELTS test is indicative of near-native proficiency. In contrast, the average CEFR level for Indonesian high school students typically falls within the B2 bands. Participant 6's performance on the IELTS score corresponds to the 'extremely limited' proficiency band, while his performance on the TOEFL iBT score corresponds to the 'below basic' proficiency band. This analysis emphasizes the role of native language interaction in shaping informants' English-speaking proficiency, reflected in their pronunciation errors, intonation patterns, and varying fluency levels.

Presented below is a table summarizing the average scores obtained by each informant type based on the analysis of ELSA Speech Analyzer.

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Table 5. Average Score Summary of All Participants

No.	Assessment Type	Type of participant				
		Type 1A	**Type 1B**	**Type 2A**	**Type 2B**	**Type 3**
1	Pronunciation	52%	50%	45%	53%	40%
2	Intonation	71,5%	54%	70%	51%	29%
3	Fluency	81,5%	70%	64%	54%	54%
4	IELTS	5,3	4,6	4,3	4	3
5	TOEFL iBT	16	13	11	11	6
6	CEFR	B2	B1	B1	B1	A2

The mean scores presented in table above has been indicated a downward trend from left to right, demonstrating that the order of English language learning acquisition, it was significantly impacts on speaking proficiency. As well as, it serves also as a primary factor contributing to phonological cross linguistic influence. Participants who acquiring English as L3 (informant type 1) achieved an average IELTS score on 5.3, while an average TOEFL iBT score on 16, and it is on B2 proficiency level at the CEFR assessment. Notably, some informants within this group attained scores above the average. Similarly, in the areas of intonation and fluency, the participants that use English as L3 achieved the highest average scores compared to participants that acquire English as L4 and L5 respectively. The only section that did not show a consistent downward trend was pronunciation. The table reveals that informant type 2B achieved higher average scores compared to informant type 2A. Informant type 2B had both their first and second languages as indigenous languages, with Indonesian as their third language. It suggests that indigenous languages, at a certain stage, exert a positive phonological cross Linguistic Influence on their pronunciation skills.

3.5. The Interview Result of Phonological Cross Linguistic and The Factors

Semi-structured interview of 6 participants were selected based on the 2 highest score, 2 average score and 2 the lower score, were conducted: 1) to figure out is the phonological errors and linguistic factors in some vocabularies at reading passage tests; 2) to gain a confirmation and comprehension of the possible factors of phonological cross linguistic influence; and 3) to summary and to record the percentage of correctness worth was done to know the progress of language pronunciation; 4) to identify the factors of this Cross Linguistic Influence phenomenon.

In the previous researches with identical topics, there have been revealed several factors that may be the cause of the cross linguistic influence of phonological Error. It was stated that factors affecting the occurrence of phonological cross linguistic influence can be divided into two categories: 1) internal factor (the difference in the sound system of the two languages); 2) external factor (learners' habit, teacher's lack of creativity in learning English, and the language attitude) [14]. In line with scholar, the occurrence of phonological cross linguistic influence is also attributed to factors inherent to the learners themselves, namely, limitations in vocabulary, disloyalty to the target language, and learners' emotional state while acquiring the target language [18]. In contrast to the findings of scholar, the most prominent factor contributing to the occurrence of phonological cross linguistic influence is identified as the inherent linguistic systems governing the interaction between the native language and the target language [19]. These systems encompass close language typology and similarity of sounds between two Languages.

Based on those statements, the researcher tried to find out whether the same thing also applies to adult learners at secondary bilingual school at East Java. An initial analysis of the participants' language acquisition and their varying English pronunciation abilities, leads to the conclusion that age and length of study duration constitute one of the factors contributing to the occurrence of phonological crosslinguistic influence in their English language acquisition. This finding aligns with the research results of scholars, who identified age as one of the factors contributing to the emergence of cross Linguistic Influence [15].

Secondly, factors stemming from the attitudes and habits of the adult learners. This notion is supported by the statement of participant 4, who remarked, *"...I think, maybe because I haven't studied enough. Secondly, because I'm nervous*." This statement corroborates the findings of scholars [18], who emphasize the role of students' emotional state during language production as a contributing factor to cross linguistic influence, while acknowledging that the lack of practice remains the most dominant factors.

A third category of factors contributing to phonological crosslinguistic influence relates to the students' environment and self-motivation. This is exemplified by the statement of participant 8, who remarked, "*It is because... the frequent changes in programs. That makes it difficult to become more fluent.*" Furthermore, he elaborated on the implementation of a particular language learning program at their institution, stating, "*So, this (learning) program is not finished yet, but another program has been implemented. That's what makes it difficult*

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for me." This statement highlights the presence of inconsistencies in teaching methods within the ongoing learning program, which contributes to the emergence of cross linguistic influence, particularly in pronunciation practice. Insufficient practice and inconsistencies in teaching methods can diminish adult learners' motivation to enhance their language skills [23]. This constitutes an additional factor that undoubtedly has a detrimental impact on students' language knowledge and skill development. Eventually, the culmination of these factors leads adult learners to a state of limited vocabulary mastery and insufficient exposure to the target language. This constitutes the key factor undermining adult learners' language proficiency, encompassing aspects of phonology, grammar, and other linguistic domains.

Therefore, the researcher concludes that the cross linguistic influences affecting adult learners of secondary bilingual boarding school can be categorized into two types, technical Factors and fundamental Factors. Technical factors are those caused by linguistic elements in the source and target languages. On the other hand, fundamental factors are those arising from the environment, behaviors, and habits of the adult learners themselves. Technical factors encompass similarity and differences in the sound system of the languages. These factors can either facilitate or hinder pronunciation depending on the presence or absence of shared sounds between the source and target languages. Fundamental factors, on the other hand, stem from various influences. These include adult learners' motivation in learning that leads to limited vocabulary and anxiety, language attitudes such as lack of practice and high intensity of native language use, and finally, the influence of the learning environment, including teacher's lack of creativity in learning English and lack of learning program evaluation.

However, among all the factors identified, the researcher concludes that language attitude and the learning environment are the most influential factors contributing to the cross-linguistic phenomenon. This finding is supported by Baker et al. [24], who argue that the environment can alter an individual's habits to foster self-motivation, enabling them to achieve rapid progress within a short period. Ultimately, the only effective strategy to address this situation lies in fostering adult learners' motivation to learn and practice, achieved through the development of a simple yet impactful English language learning program. Establishing a culture of English language practice within the school environment, accompanied by a supportive atmosphere, will encourage them to confidently explore the use of the foreign language.

4. CONCLUSION

In short, it can be concluded that adult learners of secondary bilingual boarding school exhibited the phenomenon of cross linguistic influence in the form of phonological interference during their learning process of EFL. The nature and extent of cross linguistic influence (henceforth, CLI) experienced by the adult learners were highly dependent on their prior exposure to EFL This dependency, in turn, influenced whether CLI would prove beneficial or detrimental to their pronunciation of specific English sounds. In addition, the emergence of phonological cross linguistic influence is primarily attributed to two overarching factors, technical factors and fundamental factors. Technical Factors encompass the similarities and disparities between the sound systems of the languages involved. Conversely, fundamental Factors comprise students' linguistic background, students' motivation and awareness, language attitude, and learning environment. This research offers new approach in understanding the influence of the language acquisition, environment, motivation on EFL learning in secondary bilingual boarding school.

Furthermore, the pervasive phenomenon of phonological cross linguistic influence constitutes an inevitable aspect of the foreign language acquisition process. The manifestation of this phenomenon, ranging from phonological interference to sociolinguistic interference, represents an interconnected cycle within the ongoing process of language proficiency development. This phenomenon serves as a testament to the enduring nature of an individual's inherent linguistic identity, shaped by their native language and regional dialects, which remains unaltered by the acquisition of additional languages.

Implications and suggestion for scholars are: 1) extending the investigations to the subsequent stages of interference; 2) encompassing orthographic interference to sociolinguistic interference to gain a deeper understanding of cross linguistic influence experienced by multilingual adult learners at those advanced stages; 3) developing appropriate and effective instructional modules for diverse linguistic backgrounds adult learners; 4) taking into account the potential cross linguistic influence that may impact their learning; and 5) considering the implications of cross linguistic influence when designing English learning strategies. In addition, this research could expand on orthographic and sociolinguistic interference scopes.

REFERENCES

[1] Alsagof, L. "*Innovation in ELT Programme Development: Building Strong Foundations with Learner Autonomy, "Leksika*, Vol.10, no.1, pp. 8-12.

p-ISSN: 2775-4227
e-ISSN: 2775-4219

[2] Gimson, A.C, An Introduction to the Pronunciation of English, London: Edward Arnold Press, 1989.

[3] Walker, T., Liyanage, I., Madya, S., & Hidayati, S, Media of Instruction in Indonesia: Implications for Bi/Multilingual Education, Switzerland: Springer Nature, 2019.

[4] Ficayuma, L; Hadi, F.; & Darmawan, A. "*Pelatihan Bahasa Inggris Menggunakan Birkenbhil Method Untuk Meningkatkan Kemampuan Receptive Skill Siswa Kelas VII SMP IT Insan Kamil Sidoarjo, Jawa Timu*r," *JURPIKAT*. vol. *2*. no. 1, pp: 189–205, doi.org: 10.37339/jurpikat.v2i1.533.

[5] Alatas, M. A., & Rachmayanti, I. "P*enggunaan Campur Kode dalam Komunikasi Santri di Pondok Pesantren Anwarul Huda Malang*," *Jurnal Satwika*, vol: 4, no. 1, pp. 43, doi.org: 10.22219/satwika.vol4.no1.43-55.

[6] Kusuma, I, "Fenomena Alih Kode Tuturan Multilingual Santri Pondok Pesantren Al-Islam Joresan Ponorogo," M.S. thesis, Fakultas Ilmu Budaya Universitas Diponegoro, Semarang, 2019.

[7] Tahir, S. Z. Bin. "*Multilingual behavior of pesantren IMMIM students in makassar," Asian EFL Journal*, vol, 5. no. 86, pp. 45–64.

[8] Nelson, C., Krzysik, I., Lewandowska, H., & Wrembel, M. "*Multilingual learners' perceptions of cross-linguistic distances: a proposal for a visual psychotypological measure*," *Language Awareness*, vol. 30, no. 2, pp. 176–194, doi.org: 10.1080/09658416.2021.1897132.

[9] Choi, J. "*Multilingual learners learning about translanguaging through translanguaging*," *Applied Linguistics Review*, vol. 11, no. 4, pp. 625–648, doi.org: 10.1515/applirev-2018-0117.

[10] Ortega Duran, M, "Crosslinguistic Influence in L2 English Oral Production: The Effects of Cognitive Language Learning Abilities and Input," M.S. thesis, Programa de doctoral, Department de Llengües i Literatures Modernes i d'Estudis Anglesos, Universitat de Barcelona, 2016.

[11] Van Dijk, C., Van Wonderen, E., Koutamanis, E., Kootstra, G. J., Dijkstra, T., & Unsworth, S. *"Cross-linguistic influence in simultaneous and early sequential bilingual children: A meta-analysis," Journal of Child Language*, no. 49, vol. 5, pp. 897–929. doi.org: 10.1017/S0305000921000337.

[12] Moattarian, A. "*Language Needs of Graduate Students and ESP Courses. Journal of Research in Applied Linguistic*," *Journal of Research in Applied Linguistics*, vol.5, no.2, pp.4-22:

[13] Aini, S.N., "*Analysing the Acoustic Evidence of Consonant Productions among Students University Level*, " LITERA, vol. 23, no. 1, pp. 76-90, doi.org: 10.21831/ltr.v23i1.67775.

[14] Wardani, N. A., & Suwartono, T., "*Javanese Language Interference in the Pronunciation of English Phonemes, " Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics*, vol.6, no. 2, pp. 14–25, doi.org: 10.22219/celtic.v6i2.8589.

[15] *Syafutri, T., & Saputra, A., " The First Language Interference toward Students' English Speaking as Foreign Language," Linguists: Journal of Linguistics and Language Teaching, v*ol. 7 no. 1, pp. 39, doi.org: 10.29300/ling. v7i1.4327.

[16] Baloch, S. S. "*L1 (Arabic) Interference in Learning L2 (English): An Analysis of English Spelling Used by Arabic Speakers at Undergraduate Level -a Case Study, "European Scientific Journal, vol.* 9, no. 16, pp. 226–232.

[17] Irma, Jabu, B., & Salija, K, "Interference of the students' Indonesian Language in delivering English presentation," M.S. thesis, English Education Department, Graduate School, Universitas Negeri Makasar, 2018.

18] Antunez Aguilar, A. A. "C*rosslinguistic Influence of an L3 on an L2 in the Productive Language Skills*," *Revista Lengua y Cultura*, vol. *3*, no. 6, pp. 1–9, doi.org: 10.29057/lc.v3i6.8618.

[19] Miles, M., Huberman, A.M., and Saldana, J., Qualitative Data Analysis: A Method Sourcebook. 3rd Ed. California: Sage Publication, 2014.

[20] Mahendra, M.W. & Marantika, I. M. Y., *"Phonological Interference in EFL Reading," English Language, Literature, and Teaching*, vol. 5, no. 1, pp. 27-34, doi: 10.32528/ellite.v5i1.3272

[21] Mahendra, M.W. & Marantika, I.M.Y., "*The Phonological Interference in EFL Reading," English Language, Literature, and Teaching, vol.* 5, no. 1, pp. 27-34, doi: 10.32528/ellite.v5i1.3272.

[22] Husnunnnisa, I. A. (2023, November 6). *Explanation Text*. Available: http://www.english-academy.id/teks-eksplanasi-dalam-bahasa-inggris.

[23] Domalaon, Normuel & Gilbas, Sherill. (2023). *Cross-linguistic Influence on Second Language Use of College Students*. American Journal of Humanities and Social Sciences Research. 7(6), 60-70.

p-ISSN: 2775-4227
e-ISSN: 2775-4219

[24] Baker, D.L.; Basaraba, D.L.; Polanco, P. "*Connecting the Present to the Past: Furthering the Research on Bilingual Education and Bilingualism*," *Review of Research in Education*, vol. 40, no.1, pp. 821–883. doi:10.3102/0091732X16660691.