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AN ERROR ANALYSIS ON ENGLISH DIPHTHONG PRONUNCIATION BY BANYUMASAN JAVANESE SPEAKERS IN INDONESIA

by

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Abstract:

First language interference is when a speaker transfers their L1 systems into L2. In Indonesia, vernacular could also cause interference. However, no research has been conducted to analyze the interference of L1 Banyumasan Javanese. This research analyzes English diphthong pronunciation errors due to interference in the Banyumasan Javanese language. This research is descriptive qualitative research, and the participants are ten L1 Banyumasan Javanese junior high school students. The data is participants' pronunciation of English diphthong sounds, and the data collection method is recording. Error analysis (EA) is used to analyze the data. The result showed that the diphthong [aʊ] has the least number of participants that pronounced incorrectly, and diphthong [ɪə], [eə], and [ʊə] are the most difficult for the Banyumasan Javanese speaker participants. The phonological error types are sound omission and substitution. The linguistic factor that caused the error is the difference in the phonological system between the Banyumasan Javanese and English languages. The difference in diphthong inventory caused the participants to substitute the diphthong with a monophthong sound similar to L1 Banyumasan Javanese. In contrast, the difference in the frequency of use of the diphthongs, where Banyumasan Javanese is more dominated by monophthongs, caused the participants to have difficulty in pronouncing complex diphthong sounds and eventually simplified the diphthong by omitting the last vowel of the diphthong. The result of this study could be used to consider phonology as one of the main focuses in English language teaching.

***Keywords**: Banyumasan Javanese, English, diphthong, interference, pronunciation error*

Abstrak:

Interferensi bahasa pertama terjadi ketika seorang penutur mengalihkan sistem B1 mereka ke B2. Di Indonesia, bahasa daerah juga dapat menyebabkan interferensi. Namun, belum ada penelitian yang dilakukan untuk menganalisis interferensi B1 Jawa Banyumasan. Penelitian ini menganalisis kesalahan pengucapan diftong bahasa Inggris karena interferensi bahasa Jawa Banyumasan. Penelitian ini merupakan penelitian kualitatif deskriptif, dan partisipannya adalah sepuluh siswa SMP B1 Jawa Banyumasan. Data yang digunakan dalam penelitian ini adalah produksi bunyi diftong bahasa Inggris oleh partisipan, dan metode pengumpulan data adalah

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perekaman. Analisis kesalahan digunakan sebagai metode analisis data. Hasil penelitian menunjukkan bahwa diftong [aʊ] memiliki jumlah partisipan yang paling sedikit yang salah pengucapannya, dan diftong [ɪə], [eə], dan [ʊə] adalah yang paling sulit bagi partisipan BJS. Kesalahan fonologis yang menyebabkan kesalahan pengucapan adalah penghilangan dan penggantian bunyi. Faktor linguistik yang menyebabkan kesalahan tersebut adalah perbedaan sistem fonologi antara bahasa Jawa Banyumasan dan bahasa Inggris. Perbedaan inventarisasi diftong menyebabkan peserta mengganti diftong tersebut dengan bunyi monoftong yang mirip dengan B1 Bahasa Jawa Banyumasan. Sebaliknya, perbedaan frekuensi penggunaan diftong, di mana bahasa Jawa Banyumasan lebih didominasi oleh monoftong, menyebabkan peserta mengalami kesulitan dalam mengucapkan bunyi diftong yang kompleks dan akhirnya menyederhanakan diftong tersebut dengan menghilangkan vokal terakhir diftong tersebut. Hasil penelitian ini dapat digunakan sebagai pertimbangan agar fonologi menjadi salah satu fokus utama dalam pengajaran bahasa Inggris.

***Kata Kunci**: Diftong, Inggris, Interferensi, Jawa Banyumasan, Kesalahan pelafalan*

INTRODUCTION

Pronunciation is a way to produce speech sounds that carry specific meanings in communication. In language acquisition, correct pronunciation is an essential skill in second language learning (Pourhosein Gilakjani, 2011). Learners must be able to distinguish each sound and produce it accordingly to communicate effectively (Burns, 2003). This requirement also applies to acquiring the English language; mastering standard pronunciation of English speech sounds is essential for EFL Learners (Florez, 1998).

However, the difference in phonological systems between the learner's native language and the English language could significantly affect the pronunciation process (Flege et al., 1995; Smith & Lado, 1958). Several studies have proven that the native language or the speaker's L1 often interferes during the pronunciation of English sounds, resulting in pronunciation errors (Abdelreheem, 2023; Al-Abdullah & Almutairi, 2024; Al-Yami & Al-Athwary, 2021; Behr, 2022; Farrah & Halahlah, 2020; Purnama et al., 2023; Puspandari & Basthomi, 2022; Rahman et al., 2021; Riaz, 2021; Saadah & Ardi, 2020). Those studies showed that the interference either caused the speakers to mispronounce individual English phoneme sound by replacing the English sounds that are not present in their native language with a closer sounds(Abdelreheem, 2023; Behr, 2022; Farrah & Halahlah, 2020; Purnama et al., 2023; Rahman et al., 2021; Riaz, 2021; Saadah & Ardi, 2020), or modified the word stress (Puspandari & Basthomi, 2022), and cluster sounds (Al-Abdullah & Almutairi, 2024; Al-Yami & Al-Athwary, 2021).

This interference is what Krashen (1981) called first language interference. In acquiring a second language, the contact between the first and target languages often interferes, eventually causing learners to transfer their L1 systems to the target language (Bernhardt & Krashen, 1989). This transfer results in deviation or error in the usage of the target language (Suhardi, 2009; Suwito, 2018). As stated in the studies above, regarding phonological interference, the speakers transfer their L1 phonological systems when pronouncing English sounds, resulting in deviated pronunciation. However, Indonesian is not the only language that could interfere with Indonesians. Most Indonesians have already mastered the Indonesian language and the vernacular, where the vernacular is most commonly acquired as the first language (Izzak, 2019). The process of acquiring a foreign language relies heavily on the basic knowledge of the first language acquired by the student (SILBER, 1977). Therefore, the vernacular language that the learner has plays a more significant role in L2 on the interference during the acquisition of the English language, including in the process of phonological acquisition of the English language.

Several previous studies have been conducted on the influence of vernacular as the speaker's L1 on the pronunciation of English speech sounds (Dewi et al., 2019; Falahuddin et al., 2019; Nurjannah, 2022; Tulaktondok et al., 2016). Those vernaculars are Javanese (specifically on the Brebes Javanese dialect in Dewi et al. (2019) article), Sundanese (Falahuddin et al., 2019), Acehnese (Nurjannah, 2022), and Torajan (Tulaktondok et al., 2016). The result of all of those studies showed that there is indeed a negative transfer of L1 vernacular to L2 English, resulting in errors in English speech sound pronunciation. These errors are primarily substitutions on English speech sounds, where the speakers tend to replace English vowels and consonants that do not exist in their L1 phonological system with sounds that closely represent them in their L1 (Dewi et al., 2019; Falahuddin et al., 2019; Nurjannah, 2022; Tulaktondok et al., 2016). For example, Sundanese speakers tend to replace the vowel [æ] with [ʌ] or [e], and vowels [əʊ] and [eə] are replaced with sounds [ʌ], and [ɜː] (Falahuddin et al., 2019).

Responding to the results of the previous studies, we can establish that the vernacular language in Indonesia causes several errors in the pronunciation of the English language. However, these errors did not happen unsystematically; specific patterns in those errors and linguistic factors might have caused them. As stated by Lado (1957), understanding the

difference in systems and the error patterns could help predict a learner's error in their sound production (Smith & Lado, 1958). Based on this, the researchers aim to analyze the patterns of phonological errors that happened due to the interference of one of the vernaculars in Indonesia that has not been studied yet, the Banyumasan Javanese Language.

Banyumasan Javanese is a dialect of the Javanese language. According to Chambers (1998), dialect is a language that is phonologically and grammatically different from other varieties (Chambers & Trudgill, 1998). Banyumasan dialect is spoken within Banyumas Residency, located between the Javanese spoken area and Sundanese spoken area. Hence, the Banyumasan dialect has both Javanese and Sundanese linguistic characteristics, which differ from the standard Javanese spoken within the Solo and Jogja regions (Paryono & Surabaya, 2003; Wedhawati et al., 2001). Based on the researchers' initial observation of one of the Junior High Schools within Banyumasan Residency, almost every student pronounces English sounds differently from standard pronunciation, even when they already have phonological awareness of English sounds. An interview with the English teachers also supports this observation; the teachers stated that the student's pronunciation sounds more like how Banyumasan Javanese sounds than how English sounds. This research served as a further investigation of the initial observation stated before.

The research only focused on English vowels, especially diphthong vowels. The reason is that, in English, vowels are the most complex speech sounds produced by EFL learners or English as L2 speakers (Schwartz et al., 2016). A *diphthong* is a vowel sound that moves or glides from one vowel to another (Philip, 2020). Therefore, the difficulty of these speech sounds will increase significantly for EFL learners. The vowel structure between English and Banyumasan Javanese is very different, especially regarding diphthongs. A *diphthong* is a vowel sound that glides from one vowel into another (Philip, 2020). English has eight diphthongs and is separated into two groups: centering diphthongs and closing diphthongs (Kelly, 2000). Centering diphthongs is diphthongs that glide into the [ə] vowels, which are [ɪə], [eə], [ʊə]. Closing diphthongs is a diphthongs that glide into [I] or [ʊ] vowels, which are [eɪ], [aɪ], [ɔɪ], [aʊ], [əʊ] (Kelly, 2000). Banyumasan Javanese only have five diphthongs. However, these diphthongs only appear in affective words where the diphthong is an additional meaning of 'very' (Sudaryanto et al., 1982; Sudaryanto, 1992). That diphthong then separated into two groups, rising and falling diphthongs (Marsono, 2013, 2019). In the

rising diphthong, the glide moves from low to high vowels, and there is only one diphthong in this group, [ʊɪ]. Falling diphthong moves from high vowels to low vowels; there are four diphthongs in this group, [ʊa], [ʊe], [ʊɔ], [ʊə] as reported by a scholar (Marsono, 2013).

The researcher used Kenworthy's (1987) theory of L2 learners' phonological error patterns to understand the patterns of errors in pronouncing diphthong sounds fully. The pattern that this research focused on is the phonological error pattern within a word. There are three possible patterns: 1) Sound substitutions, where the learner substitutes one sound for another; 2) sound deletions or omission, where the learner leaves out a sound within the word; and 3) sound insertion, where the learner adds a sound into the word (Kenworthy, 1987). Furthermore, this research also analyzes the linguistics factor that might have caused the errors. Hence, the research question of this study is: **what patterns of phonological error on the pronunciation of English diphthongs are exhibited by Banyumasan Javanese Speakers, and how can these errors be explained by L1 phonological interference?**

METHOD

Design

This research is a descriptive qualitative research. Qualitative research relies on the information the research participants provide, mainly words (Creswell, 2014). In this study, the qualitative method was used to identify the patterns and causes of the errors in the pronunciation of English diphthongs due to Banyumasan Javanese interference. The descriptive method was used to explain the data. The primary purpose of descriptive research is to give objective explanations regarding a certain social situation through the value of each variable (Hafni Shair, 2021). By analyzing how the Banyumasan Javanese speakers pronounce English diphthongs, the study clearly depicts the error patterns and their causes.

Participant

As the participants in the study were intentionally selected based on those specific criteria, purposive sampling was applied. The participants in this research are junior high school students from one of the schools in Banjarmangu, a sub-district in Banjarnegara, Central Java. The sample of this research consists of 10 third-grade students of said school who are native speakers of Banyumasan Javanese language. The selection criteria for the

participants cover (1) the participant's mother tongue/L1 is the Banyumasan Javanese language,(2) The participants used Banyumasan Javanese daily, (3) The participants already received standard English language education from elementary school but without outside education besides the compulsory research in school to generalize the participants' sociolinguistic background, and (4) The participant is capable of recognizing and speaking English words. The participants in this study are limitedly recruited from the same school and have similar sociolinguistics backgrounds. The data was acquired through a word list task under controlled conditions to ensure the consistency of the data.

Instrument

To collect the data, the researchers utilized several instruments to help analyze the pronunciation of English diphthong sounds by Banyumasan Javanese speakers. The first instrument is a world list to assist with the performance task. The world list is designed to capture specific types of pronunciation, and this research focused on the English diphthongs. The list includes monosyllabic English words containing diphthong sounds. The words were chosen based on the participant's familiarity with the words. This familiarity was determined by whether the participants understood the meaning of the words in both Indonesian and Banyumasan Javanese. Therefore, before the performance task began, the participants were asked first if they were familiar with the words. Below are the English monosyllabic words containing diphthongs that were validated as familiar to the participants and thus used as instruments in this research:

Table 1. List of English Words

Diphthong	Words	Phonetic Transcription
/ai/	Kite	[kaɪt]
/ei/	Say	[seɪ]
/ɔi/	Joy	[dʒɔɪ]
/əu/	Show	[ʃəʊ]
/au/	Now	[naʊ]
/eə/	Care	[keər]
/iə/	Fear	[fɪə]
/uə/	Tour	[tʊə]

The other instruments are recording devices to record the performance task. The researchers used an Anker Soundcore R50i device as a microphone to help better capture the

participants' pronunciation of the words and a Samsung Galaxy A71 smartphone to save the recording.

Data collecting technique

The data collection employs recording; since the object of this research is the pronunciation produced by participants, the data collection followed a series of steps. Ten participants who meet the criteria are selected and then guided into the record room. The participants are fully informed about the purpose of the research, including how the data will be analyzed and the confidentiality of their identities. Gaining consent from the participants and their homeroom teachers, the researchers explained the purpose of the task. They provided clear instructions to ensure no misunderstanding could happen. The researchers provided several English monosyllabic words that contain diphthongs to the participants to determine which words are the most familiar to all of the participants. Each represents different diphthongs; eight words are chosen as the word list instrument.

The recording phase begins with instrument preparation. The researchers prepared the word list in a secluded booth in the record room and set up all recording devices. Each participant is called to the booth one by one. Once inside the booth, the researcher activated the recording device and asked for their name for record identification. The names are solely used as personal labeling records to help label each recording. The researcher had added a code to each participant to use within the research to ensure anonymity (e.g., *participant name* _code a1.wav).

The researchers gave the participants instructions in Indonesian to make it easier to understand. The instruction was, "*When I* (the researcher) *point at a word, please read it clearly and loudly. Do your best and pronounce the word as you know it."* The researcher pointed at each word slowly as the participants read it to the microphone. After all the words had been pronounced, the recording was stopped. The recordings of each participant's pronunciation of word are used as the data. After the recordings are evaluated and deemed sufficient by the researcher, they are further categorized and analyzed.

Data analysis technique

After collecting the recordings, the researchers transcribed each participant's recorded pronunciation using the International Phonetic Alphabet (IPA). After transcription, the

researchers implemented the error analysis (EA) method to analyze the data. This analysis method was chosen to understand which diphthongs were most frequently mispronounced by all participants, the type of error that occurred, and the causes of these errors. To identify the errors, the researchers used Kenworthy's (1987) classification of phonological error. The data transcriptions were first compared to the proper transcriptions of the words obtained from the Cambridge dictionary. Then, any differences in transcription were categorized based on the patterns of errors observed. To analyze the factors that caused the errors, the researchers used Weinreich's (1979) patterns of L1 interference to determine which aspect most likely affected the errors.

RESULT AND DISCUSSION

Result

Phonological error patterns on English diphthong pronunciation

The first research question is to determine the patterns of phonological error exhibited by the participants. Using Kenworthy's (1987) classification of single-word phonological errors as the basis of analysis, the research found two types of phonological errors: substitution and omission. Below is the detailed analysis of the phonological mistake found in the English diphthong pronunciation by Banyumasan Javanese speakers (which will from now on be referred to as BJS) in this research:

Diphthong [aɪ] (D1)

Table 2. BJS's Pronunciation of Diphthong [aɪ]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	Kite	[kaɪt]	[kɪt]	Omission	a1
2			[kɪt]		a2
3			[kɪt]		a3
4			[kɪt]		a4
5			[kɪt]		a6
6			[kɪt]		a7

Table 2 above shows that six BJS pronounced diphthong [aɪ] differently than the standard English pronunciation. All of them showed the same phonological error, which is

omission. The diphthong [aɪ] is realized as monophthong [ɪ] due to the omission of the first vowel, namely the vowel [a], within the diphthong.

Diphthong [eɪ] (D2)

Table 3. BJS Pronunciation of Diphthong [eɪ]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	say	[seɪ]	[se]	omission	a2
2			[se]		a3
3			[se]		a4
4			[sæɪ]	substitution	a6
5			[sæɪ]		a7
6			[sæɪ]		a8
7			[sæɪ]		a9

Seven of the ten BJS participants in the research pronounced the diphthong [eɪ] differently from the standard English pronunciation as displayed in Table 3. Two different types of errors that caused the difference: omission and substitution. In omission, participants a2, a3, and a4 omit the final vowels of the diphthong, vowel [ɪ], and only pronounced the first vowel, resulting in the diphthong being realized as monophthong [e]. The second type of error is substitution done by participants a6, a7, a8, and a9. They substitute the first vowel of the diphthong with the vowel /æ/, resulting in the diphthong being pronounced as [æɪ] instead of [eɪ].

Diphthong [əʊ] (D3)

Table 4. BJS Pronunciation of Diphthong [əʊ]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	Show	[ʃəʊ]	[ʃɔ]	substitution	a3
2			[ʃɔ]		a4
3			[ʃɔ]		a6
4			[ʃɔ]		a7
5			[ʃɔ]		a8
6			[ʃɔ]		a9

Regarding the pronunciation of the diphthong [əʊ], six BJS participants pronounced it differently from the standard English pronunciation. Table 4 shows that only one type of error caused the difference: substitution. All six participants substitute the diphthong [əʊ] with the vowel [ɔ].

Diphthong [aʊ] (D4)

Table 5. BJS Pronunciation of Diphthong [aʊ]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	Now	[naʊ]	[nɔ]	Substitution	a3
2			[nɔ]		a4
3			[nɔ]		a6
4			[nɔ]		a7
5			[nɔ]		a8

Table 5 showed that five BJS participants pronounced the diphthong [aʊ] differently from the standard English pronunciation. The type of error that caused the difference is substitution. Similar to the diphthong [əʊ], participants a3, a4, a6, a7, and a8 all substituted the diphthong [aʊ] with the vowel [ɔ].

Diphthong [eə] (D5)

Table 6. BJS Pronunciation of Diphthong [eə]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	Care	[keər]	[kɪr]	substitution	a1
2			[kɪr]		a2
3			[kɪr]		a8
4			[ker]	omission	a3
5			[ker]		a4
6			[ker]		a5
7			[ker]		a6
8			[ker]		a7
9			[ker]		a9
10			[ker]		a10

Regarding the pronunciation of the diphthong [eə], all the BJS participants pronounced it differently from the standard English pronunciation. Table 6 shows that two phonological errors caused the difference: substitution and omission. In substitution error, participants a1, a2, and a8 substitute the diphthong [eə] with vowel [ɪ]. The second cause is an omission, in which participants a3, a4, a5, a6, a7, a9, and a10 omit the last vowel of the diphthong vowel [ə] and only pronouncing the first vowel, therefore realizing the diphthong as monophthong [e].

Diphthong [ɪə] (D6)

Table 7. BJS Pronunciation of Diphthong [ɪə]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	Fear	[fiə]	[fer]	substitution	a2
2			[fer]		a6
3			[fer]		a7
4			[fɪr]	omission	a1
5			[fɪr]		a3
6			[fɪr]		a4
7			[fɪr]		a5
8			[fɪr]		a8
9			[fɪr]		a9
10			[fɪr]		a10

Table 6 shows that all BJS participants' pronunciation of the diphthong [ɪə] differs from the standard English pronunciation. The data in Table 7 showed that two phonological errors caused the difference: substitution and omission. In substitution error, participants a2, a6, and a7 substitute the diphthong [ɪə] with vowel [e]. The second cause is an omission, in which participants a1, a3, a4, a5, a8, a9, and a10 omit the last vowel of the diphthong vowel [ə] and only pronouncing the first vowel, therefore realizing the diphthong as monophthong [ɪ].

Diphthong [ʊə] (D7)

Table 8. BJS Pronunciation of Diphthong [ʊə]

No	Orthography	Phonetic Transcription	BJS pronunciation	Type of error	Participant number
1	Tour	[tʊə]	[tʊr]	Omission	a1
2			[tʊr]		a4
3			[tʊr]		a7
4			[tɔr]	substitution	a2
5			[tɔr]		a3
6			[tɔr]		a5
7			[tɔʊr]		a6
8			[tɔʊr]		a8
9			[tɔʊr]		a9
10			[tɔʊr]		a10

Table 7 shows that all BJS participants' pronunciation of diphthong [ʊə] differs from the standard English pronunciation. The data in Table 8 showed that two phonological errors caused the difference: omission and substitution. In omission, participant numbers a1, a4, and a7 omit the last vowel in the diphthong, the vowel [ə], and only pronounced the first vowel, resulting in the realization of the diphthong as monophthong [ʊ]. The substitution error happened in participant number a2, a3, a5, a6, a8, a9, a10. Participants a2, a3, and a5 substituted the diphthong [ʊə] with a single vowel [ɔ]. In contrast, participants a6, a8, a9, and a10 substituted the diphthong with two individual vowel sounds, which are [ɔ] and [ʊ], creating the pronunciation [tɔʊr].

Discussion

The first objective of this study is to understand the phonological errors that happened in the pronunciation of English diphthongs by Banyumasan Javanese speakers. Based on the data in the finding, the researchers found that among all of the diphthongs in the English language, only diphthongs [ɔɪ] could be pronounced efficiently and correctly by all of the BJS speakers in this research. The diphthong [aʊ] has the least number of participants that

pronounced incorrectly, with only five participants, followed by diphthong [əʊ] and [aɪ], then diphthong [eɪ]. Diphthong [ɪə], [eə], and [ʊə] are the most difficult for the BJS participants since all of them mispronounced it. The phonological errors that caused the incorrect pronunciation are sound substitution and sound omission, with sound substitution being the most common. Understanding the causes behind these errors is the second objective of this study. The researchers focused on linguistic factors, and after analyzing the result, we found that the linguistic factor that caused this error was the difference in phonological structure between Banyumasan Javanese and English. However, different patterns of errors are caused by other factors within the phonological structure itself. Those factors are differences in vowel inventories and patterns and differences in the frequency of use of the sound.

The difference in vowels and diphthong inventory between the BJS L1 and English is the main reason for the substitution error in some diphthongs. The English diphthongs that are affected by substitution are [eɪ], [əʊ], [aʊ], [ɪə], [eə] and [ʊə]. Banyumasan Javanese and English have different vowel inventories and patterns, especially in the inventory of their vowel diphthong. Banyumasan Javanese only have five diphthongs, [ʊɪ], [ʊa], [ʊe], [ʊɔ], and [ʊə] (Marsono, 2013), while English has eight diphthongs, [ɪə], [eə], [ʊə]. [eɪ], [aɪ], [ɔɪ], [aʊ], and [əʊ] (Philip, 2020), and only one diphthong exists in both languages, the [ʊə] diphthong. The BSJ participants in this research assimilate the unfamiliar English diphthong sounds with the closest monophthong sounds in Banyumasan Javanese, substituting the diphthong for monophthong. For example, the diphthong [eɪ] in the word [seɪ] is substituted with two individual vowel sounds, [æ] and [ɪ], by four participants. Since the diphthongs [eɪ] do not exist in the Banyumasan Javanese inventory, those participants assimilate the unfamiliar sound with two similar vowels in Banyumasan Javanese, resulting in the pronunciation becoming [sæɪ].

This result matches Rahman et al.'s (2021) and Saadah and Ardi's (2020) studies. Both studies analyzed the effect of differences in phonological inventory on the English diphthong production by non-natives. Their result showed that the differences in phonetic systems between the languages determined the difficulty of the production. Saadah & Ardi's (2020) study involving Indonesian EFL Learners showed that diphthong /ɔɪ/ is produced by Indonesian EFL learners with the least mistakes since both the Indonesian and English language has /ɔɪ/ diphthong (Saadah & Ardi, 2020), while Rahman et al. (2021) study

involving Pashto speakers showed that the diphthong /uə/ and /eɪ/ are highly problematic and difficult to produce since the Pashto speakers often confused the diphthongs with other vowel pairs in Pashto language resulting in mispronunciation (Rahman et al., 2021).

The researchers also found some unique patterns of substitution on some diphthongs. For example, the substitution occurs on diphthongs [əʊ] and [aʊ]. The research found similarities in the substitutions of these two diphthongs:

[əʊ] = [ʃəʊ] > [ʃɔ] (D3:a3,a4,a6,a7,a8,a9)

[aʊ] = [naʊ] > [nɔ] (D4:a3,a4,a6,a7,a8)

Both diphthongs showed a similar pattern in the substitution, in which the BJS participants substituted them with the monophthong [ɔ]. This substitution likely happened due to the acoustic similarity between the last vowel [ʊ] in both the diphthong and the vowel [ɔ]. Both vowel [ʊ] in the diphthongs and vowel [ɔ] are back vowels in both English and Banyumasan Javanese language (Marsono, 2013; Philip, 2020), and this shared acoustic feature is perceived as similar sounds by the participants and lead to the substitution of the diphthongs with the vowel [ɔ]. This pattern of substitution is in line with Best (1995) models of interference called the perceptual assimilation model (PAM), where the assimilation between the non-existent L2 sound and the close sound in L1 happened due to the proximity in the acoustic properties of the sounds (Best.C.T, 1995).

Another unique pattern of substitution can be seen in the diphthongs [ɪə] and [eə]:

[eə] = [keər] > [kɪr] (D5:a1,a2,a8)

[ɪə] = [fɪə] > [fer] (D6:a2,a6,a7)

Both diphthongs are substituted with the closest monophthong in the Banyumasan Javanese language, which is [ɪ] for diphthong [eə] and [e] for diphthong [ɪə]. The unique aspect of this substitution is that the vowels that substitute the diphthong are the first vowel of each diphthong but are used inversely. Aside from some unique patterns, all the results' substitutions are similar to those of previous studies. Dewi et al.'s (2019) research also found that when faced with an unfamiliar sound, the Brebes Javanese speaker will replace it with a sound closely representing it in the Brebes Javanese language. For example, they replace the consonant dʒ/ to /and consonant /v/ to /with the vowel /I/ to /i/and vowel /æ/ to /e/ (Dewi et

al., 2019). Falahuddin's (2019) research also showed similar results. Regarding vowels, Sundanese speakers tend to replace the vowel [æ] with [ʌ] or [e], and vowels [əʊ] and [eə] are replaced with sounds [ʌ], and [ɜ:] (Falahuddin et al., 2019).

In the case of the diphthong [ʊə], even though it exists in both Banyumasan Javanese and English languages, all participants still made phonological errors in pronouncing it. The errors are not caused by the difference in phonological inventory between the two languages but by the difference in the frequency of use of the diphthongs in both languages. In Banyumasan Javanese, diphthongs are used similarly to Standard Javanese, which only appears in affective words where the diphthongs are added to 'very' (Sudaryanto et al., 1982; Sudaryanto, 1992). For example, the word green in Javanese is ijo [ijo]. To emphasize the meaning of "very," the vowel [ʊ] is added at the front and changed the word into [ʊɪjo]. Therefore, the use of diphthongs in Banyumasan Javanese is minimal. On the contrary, diphthongs are commonly used in English and appear in nouns, verbs, adjectives, etc. There is no specific rule for using diphthongs. From this, it could be concluded that Banyumasan Javanese are more dominated by monophthongs rather than diphthongs. Therefore, the Banyumasan Javanese speakers are more accustomed to pronouncing a simple single vowel sound rather than complex diphthong sounds that require a glide.

This habit caused the error in diphthong [ʊə] pronunciation and the omission error in some of the diphthongs. There was a negative transfer from L1 Banyumasan Javanese to L2 English, where the rare use of diphthongs in Banyumasan Javanese resulted in participants having difficulty producing diphthong sounds. Those participants simplify the pronunciation by omitting one of the vowels in the diphthong, simplifying the diphthong into a monophthong. Furthermore, the BSJ participants could only perceive the unfamiliar diphthongs in English by their first vowel, unable to perceive the significance of the glide into the second vowel, and eventually caused the omission of the final vowel in diphthong [eɪ], [ɪə], and [eə]. Pratiwi and Indrayani's (2021) research also showed that diphthong reduction still happened to post-graduate EFL students. Their research showed that the diphthong [ɪə] was also realized as a monophthong by omitting the final vowel and only pronouncing the first (Pratiwi & Indrayani, 2021).

Overall, the interference of L1 Banyumasan Javanese on the pronunciation of English diphthongs in this research aligns with Weinreich's (1979) theory. Weinreich stated that some

of the interference characteristics are a change of structure of the L2 due to transfer and the transfer of an element from L1 into L2 (Weinreich & Martinet, 2010). The structure change can be seen in the substitution occurred in some diphthongs. Best (1995) and Flege's (1987) theory stated that learners perceive the sound in L2 through the filter of their L1 when encountering an unfamiliar sound. This sound does not exist in their L1 phonological system; they will assimilate it with the closest available sound in their L1 (Best.C.T, 1995; Flege, 1987). This assimilation of unfamiliar sounds eventually changed the English diphthong structure within the word. The second characteristic, the element transfer, can be seen in omitting some diphthongs. The pronunciation of English diphthongs by Banyumasan Javanese speakers in this research exhibits a negative transfer from their L1 (Banyumasan Javanese) into their English language usage, which eventually results in omission (Richards & Sampson, 1984).

CONCLUSION AND IMPLICATION

Conclusion

This research has successfully answered all of the research questions presented above. First, from the findings, the phonological errors that caused the incorrect pronunciation are sound omission and substitution, with sound substitution being the most common. In substitution, the changes are; [eɪ] > [æɪ], [əʊ] > [ɔ], [aʊ] > [ɔ], [eə] > [ɪ], [ɪə] > [e], [ʊə] > [ɔ] and [ɔʊ]. In omission, the changes are: [aɪ] > [ɪ], [eɪ] > [e], [eə] > [e], [ɪə] > [ɪ], [ʊə] > [ʊ]. It could also be concluded that of all of the diphthongs in English, only diphthong [ɔɪ] could be pronounced efficiently and correctly by all of the BJS participants in this research. The diphthong [aʊ] has the least number of participants that pronounced incorrectly, with only five participants, followed by diphthong [əʊ], [aɪ], and [eɪ]. All of the participants pronounced the diphthongs [ɪə], [eə], and [ʊə] incorrectly, making it the most challenging diphthong for Banyumasan Javanese speakers.

Second, the linguistic factor that causes these errors is the difference in phonological structure between Banyumasan Javanese and English. The difference in diphthong inventory caused the participants to substitute the diphthong with a monophthong sound in L1 Banyumasan Javanese. Meanwhile, the difference in the frequency of use of the diphthongs, where Banyumasan Javanese is more dominated by monophthongs, caused the participants to

have difficulty in pronouncing complex diphthong sound and eventually simplified the diphthong by omitting one of the vowels.

Limitation

It is essential to note the limitations of this research and the potential subject to investigate. This research only analyzes the linguistic factor that caused the interference and error in pronunciation. In other words, the researchers have not considered any non-linguistic factor that might affect participants' pronunciation of English diphthongs. The data method used in this research also has plenty of limitations. While using the word list task as the performance test is efficient and produces reliable data, using a more direct task that does not require additional cognitive processing of reading that might affect the data could be a better option. For example, an imitation or shadowing task, where the participant only repeats the word they hear, can be used to avoid the participants being affected by the word's orthography. The word list used in this research also did not consider the phonetic environment of the diphthong within the word, which could be a consideration for future research within this field.

Furthermore, this research does not analyze the actual frequency of the diphthong (F1 and F2) further to show that the similarities in acoustic properties in the vowel could cause substitutions. Therefore, this limitation can be considered for further research to discuss pronunciation errors due to mother tongue interference, especially in the Banyumasan Javanese. It may be regarding the diphthong or monophthong dominance in Banyumasan Javanese.

Implication

Several interesting facts have been revealed based on the results of this research. This result has several important implications for future research, English language teaching, and curriculum design. As shown through this study, the rare use of diphthong sounds within the lexicons of the Banyumasan Javanese language makes it difficult for its speakers to pronounce English diphthong sounds. Therefore, the frequency of use of a sound should be considered as a factor in future studies of first language interference. In addition, the results of this study can also be used as a reference for more in-depth analysis regarding the dominance of monophthongs in Javanese, including Banyumasan Javanese.

Furthermore, the result of this study could also be a consideration that phonology should be one of the main focuses in English language teaching. While the words used in this study are familiar to the participants, most still mispronounce them due to a lack of training or teaching in class. Creating a module that discusses English phonology and the application of proper pronunciation training in English classes can help overcome these pronunciation errors. In addition, English teachers also need to receive in-depth training on appropriate English pronunciation to teach the material more effectively.

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