



DOI: 10.2478/jolace-2022-0007

A Linguistic Analysis Study for Teaching American-English Pronunciation: A Case Study Research

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Abstract

This linguistic case study research investigates the process stages of a language learner's pronunciation errors through speech analysis detection techniques. The purpose of this study is to detect and analyze the pronunciation errors for internalizing the unique and individual pronunciation error patterns that vary from one individual to the next. A speech analysis technique, a method of applied linguistics, is used in combination with the case study method reveals a thorough evaluation map for the language learner's pronunciation error characteristics. In this case study, the participant of the study is a native Chinese speaker. Within the scope of this research study, both the theoretical literature review and the data collection process uncover that pronunciation, unlike other domains of language teaching areas, requires specific and individualized attention for effective teaching and learning strategies. The data collected in this research study is analyzed in terms of phonetic linguistic features, and a personalized pronunciation improvement plan is proposed based on the linguistic features and characteristics of the research participant's errors. A larger scale research study can be conducted for future research by verifying the findings of this research study with more language-specific research participants in order to develop individualized and learning-style focused pronunciation lesson plans for larger learning groups.

Keywords: English language pronunciation, individualized pronunciation education, Pronunciation errors, Phonetic linguistic features, Speech analysis

Introduction

The presence of Lingua Franca, as a widespread communication tool for trading, cultural and political needs has been part of human interaction among speakers of various languages throughout history (Baker, 2015; Hyland, 2002; Jenkins et al., 2017; Jenkins, et al., 2011; Mauranen, 2012; Seidlhofer, 2011). English language has become the world's most common lingua franca, and the demand of conveying the desired message through clear articulation in English has rapidly gained significance (Baker, 2017; Chen et al., 2020; Kecskes, 2021; Lee & Kim, 2020; Wu et al., 2020). Pronunciation instruction was first presented as part of the audio-lingual method, yet the worth of pronunciation instruction was often overlooked and underestimated until after communicative method became one of the popular language teaching techniques (Hamidova & Ganiyeva, 2020; Priya & Kumar, 2020; Mäkinen, 2021). With the emergence of communicative method, as being one of the most widely used methods in second language teaching, the significance of pronunciation in the language learning process is addressed as an essential component of a language classroom (Celce-Murcia et al., 2010; Darcy et al., 2021; Gordon & Darcy, 2016; Lee et al., 2015, Thomson & Derwing, 2015).

The advancements and research in second language pronunciation signify that pronunciation is being increasingly recognized as a more crucial language domain while providing desirable communication skills for language learners becomes more critical in second language teaching (Derwing & Munro, 2009; Foote et al., 2016; Hannahs, 2007;

Saalfeld, 2011). In the first place, it seems clear that one of the formerly accepted common judgments among researchers was to assume that language learners gain better pronunciation skills when they learn a language as early as possible, yet the necessity of teaching pronunciation is often overlooked (MacDonald, 2002, Gilbert, 2010). Toward that end, it is assumed that the similarity between first and second language, the duration of exposure to the target language along with the duration of residency within the target culture are among the factors that are assumed to bring along clearer speech production (Derwing & Munro, 2009; Kissling, 2014).

On the other hand, error detection studies that are specifically related to pronunciation, confirm that individual variation on pronunciation ability is significantly evident even though the influential components above may provide language learners access for ideal communicative skills. More fundamentally, individual pronunciation performance is indeed significantly inconsistent regardless of prior exposure (Major 2001; Osburne, 2003; Sturm, 2019), or individual characteristics of the pronunciation aptitude (Li, 2016) and motivation (Boo et al., 2015). The context, for understanding effective and applicable pronunciation instructional methods, involve age critical pronunciation aptitude and the basis for learning pronunciation along with a linguistic analysis of pronunciation. This analysis can be achieved through a meticulous case study within the framework of this research study.

By this definition, language learners have both individualistic and unique learning styles for pronunciation development, and investigating learner specific pronunciation errors could possibly represent which areas of pronunciation skills require special attention for improvement in the process of second language development. For this purpose, a thorough pronunciation analysis is conducted within a case study model to explore the following research questions in this empirical study:

- How could a language learner's pronunciation errors be detected for an individualized language improvement plan?
- How could language learners' pronunciation errors guide language teachers for developing personalized lesson plans to teach effective pronunciation lessons?

The formulation to investigate the answers within the context of above research questions depend on exploring the literature review for pronunciation skill development. Within context of this study; the discussion on the age-critical pronunciation aptitude and the systematic background structure for learning pronunciation will offer a framework for pronunciation instructional methods that is required to analyze effective and applicable pronunciation practices.

Literature review

Age critical pronunciation aptitude

Human beings have always been fascinated by the origin of languages and how diverse languages are acquired. Every child in the world, regardless of their ethnic or linguistic origin/background, is capable of learning a first language flawlessly in a natural way, if stimulating social exposure is provided (Dickinson & Morse, 2019; Galinsky, 2018; Singh, 2018). There are a number of influential theories that attempt to explain this miraculous and rapid linguistic growth by representing various sets of evidence (Byers-Heinlein et al., 2020; Dambudzo, 2018; Stahl & Feigenson, 2018), yet what seems obvious in the first language acquisition process is that infants have extraordinary abilities to promptly develop phonetic linguistic structures despite their immature cognitive skills (Gavin, 2006; Ramirez et al., 2017; Ramirez & Kuhl, 2017). When a child is in the process of

mastering the first language, the ability to differentiate sounds as distinctive speech units enables children to separate semantic units for meaning making and communication (Nasihati et al., 2019; Singh, 2021; Singh et al., 2018; Visser et al., 2021). Without further knowledge, an unknown language is perceived by infants as a stream of sound clusters without recognizing separate semantic units for meaning making (Nasr, 1997; Clark, 2016), yet the unsettling fact that still remains a mystery is the rapid and highly accurate pronunciation development during infancy.

Pronunciation acquisition during first language development is indeed vital for later years. What's more striking is that it seems highly likely that human beings are unable to talk, if they miss the opportunity to be socially and systematically exposed to language as infants (Li & Jeong, 2020; Ren, 2017). Behaviorists claim that children's language is mainly shaped by environmental factors, which can be referred as *tabula rasa*, while cognitivists claim that children have an innate prewired capacity to learn and function in their first language (Janetius, 2018; Kuhl, 2011). This innate capacity that refers to young children's mastery process of any first language in an extraordinarily short amount of time is metaphorized by Noam Chomsky as a 'little black box' within our brain, which is acknowledged as a language acquisition device (Saito, 2018). In fact, the critical age hypothesis refers to a biological period in which language can be fully acquired (DeKeyser, 2018). This hypothesis derives its roots from studies about goslings, rats and sparrows (Piper, 1998).

The extensive research on both animals and human beings confirm that one can learn a language relatively easily and achieve native-like fluency during a critical period (DeKeyser & Larson-Hall, 2005). Perhaps more importantly, infants, who did not have the chance to learn their first language, can never master any standard language fully regardless of their cognitive abilities. The fact remains that people who did not have the chance to be socially exposed to learning their first language will never learn to talk as a reflection of a whole linguistic repertoire (Vyshedskiy, 2017). By this definition, the most obvious examples for this inability are feral and isolated children (MacDonald, 2015). Feral and isolated children have become a focal point in an attempt to explore how people are able to acquire their first language only within a critical limited time span that refers to Chomsky's critical age hypothesis (Piper, 1998). But, more importantly, the critical age hypothesis is assumed to be rather explanatory than critical regarding the age factor in accordance with pronunciation difficulties (Ji, 2021).

It is often mistakenly assumed that adults are unsuccessful language learners, as their brain plasticity no longer resembles to a child's flexible brain (Merzenich & van Vleet 2013; Thomas, 2012). Adult learners' performance level in learning a second language varies from one individual to another; however, there are indeed many adult learners who were able to reach near native like fluency in a second language (Dummitt, 2019; Saito, 2021; Todd et al., 2000; Zahoor & Kausar, 2018). It draws the attention to the fact that there are recent studies that prove that adults can achieve native-like pronunciation skills through their individual motivational incentives (Ji, 2021). But, more significantly, it is not the language rules that must have been learned before a critical time to acquire a language. What seems obvious in the process of second language learning is that it is mainly the pronunciation acquisition that is dependent on hearing and producing sounds as an infant whether it will be the infant's first or second language. Perhaps most obviously, pronunciation skills are acquired very early in life regardless of the variety of the language in question. Thus, the pronunciation aptitude while learning other languages has indeed represents unique and individualistic characteristics, only if the person in

question is exposed to language as an infant despite the fact that there are various learning styles in pronunciation education.

Methodology

The participant: Judy

Judy, whose first language is Chinese, speaks English as her second language. Judy started learning English at the age of thirteen because it was customarily mandatory to learn English in her Chinese public school. Judy did not think English was hard when she first started to learn English because she did not use English for daily communication. But, she completely changed her mind and found English learning process rather challenging once she settled in the U.S. Judy's English proficiency level usually upset her as it has been overwhelming for her to keep up with daily chats, and she indicates that she cannot understand conversational English very well. Judy particularly finds difficult to use English in context because using English in social life require advanced pronunciation skills to keep up with a simultaneous conversation.

In her own words, Judy often feels frustrated at times when she is often misunderstood while trying to speak with the accurate pronunciation. Judy specifically states that she feels much more comfortable when pronouncing the words after seeing them in script, which is the outcome of rote learning that often heavily depends on memorization. The fact that English pronunciation and written spelling does not match gives Judy a hard time remembering the accurate pronunciation of a word since her fluency in her target language is still limited. Thus, Judy's pronunciation errors should be analyzed in order for Judy to gain more functional pronunciation skills.

The setting and the data collection process

The speech analysis process: The research study takes place in a laboratory after class hours, where Judy is working as a research assistant in one of the state universities in North Carolina. Before the study takes place, Judy is given a description on the purpose of the research study, and she provided her consent to be recorded while reading the specified transcript aloud (Please see Appendix A for the transcript), and Judy is given a pseudonym to keep her identity private. Judy is provided prior information on the data collection process, but she was not aware of the context or the content of the text prior to the data collection process to design the pronunciation analysis process in a natural setting. The phonetic transcription that is given to Judy had nineteen lines, and each line is purposefully selected to test Judy's pronunciation errors for all sounds that are present in English language. Judy is asked to read the passage on her own for a couple of times to get used to the text and context.

Judy is given the chance to practice the text until she is ready to read aloud the script, and it took Judy approximately 15 minutes to be prepared for the read aloud part of the test. Judy informed the researcher once she is ready to read the text aloud. Judy read the text without any interruptions, and her voice is recorded by using a voice recorder. The researcher listened to the voice recording repeatedly until the frequency of each pronunciation error is determined regarding the place of articulation.

Judy is given a phonetic transcription analysis for highlighting the issues of her pronunciation challenges. Each line, and then the overall passage is comparably evaluated based on single speech sounds. The sounds are marked as being problematic only if the meaning is distorted in a word to convey the overall semantic message. In other words, it should be noted that this research study does not focus on the component of accent whether it is foreign or a non-standard regional one. On the contrary, phonetic segmental

errors that clearly distorted meaning are significantly recognized as pronunciation errors. Judy's pronunciation skills are observed and analyzed in terms of consonants, vowels and suprasegmental quality for rhythm, stress and pitch. In the light of the speech analysis, Judy's pronunciation challenges are evaluated to determine Judy's instructional priorities in order for Judy to gain better pronunciation skills.

The pronunciation error analysis

Judy's pronunciation errors in English consonants

Judy's speech analysis is completed based on the script that was provided by the researcher (Please see Appendix A for line information), and the chart for Classification of North American English (NAE) Consonant Phonemes Chart is used as a guide to separate consonants based on their unique linguistic qualities. Judy's specific pronunciation errors are listed and interpreted based on their consistency and frequency. The NAE consonant chart is used to determine Judy's pronunciation errors regarding their place of articulation and voicing quality as follows:

Table 1: Judys' Speech Analysis of sound quality and consistency for Consonant Phonemes

Consonant phonemes	Description	Frequency	Line(s)
<i>alveolar liquids</i>	mispronounced voiced alveolar liquid /l/	1	1
	pronounced voiced alveolar liquid /l/ instead of voiced alveolar nasal /n/	1	7
<i>glide palatal</i>	used /y/ unnecessarily before or after voiced liquid palatal /r/	6	5, 6, 7, 9, 13, 14
	skipped pronouncing voiced liquid palatal /r/	2	9, 10
<i>liquid palatal</i>	replaced affricate voiced palatal /tò/ with the fricative voiceless palatal /ð/	1	2
	substituted final ending sound /tò/ for the alveolar stop /t/	2	11, 18
<i>dental fricative</i>	pronounced voiced dental fricative /ð/ instead of voiced alveolar stop /d/	8	2, 3, 5, 8, 13, 14, 15, 17
	pronounced voiceless dental fricative /θ/ instead of alveolar stop /t/	1	13
<i>labiodental fricative</i>	pronounced voiced labiodental fricative /v/ instead of voiced bilabial glide /w/ or voiceless bilabial glide /hw/	7	2, 5, 11, 13, 15, 16

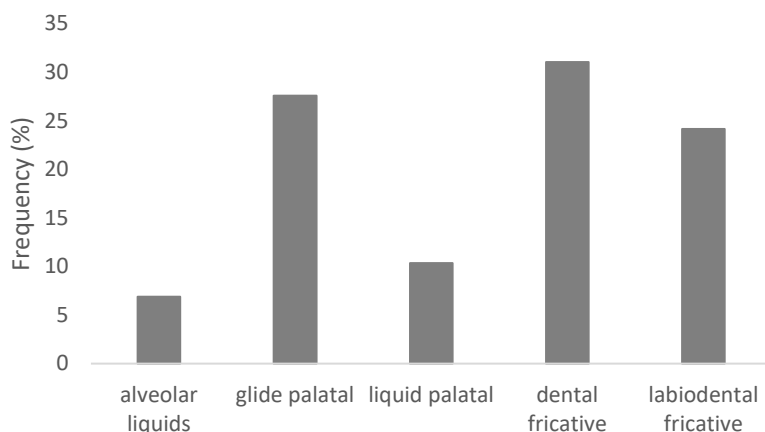


Figure 1: Judy's Error Quality and Frequency for Consonant Phonemes

Judy's data analysis on her consonant production shows that Judy's errors are mostly focused on alveolar liquids, affricate palatals, and dental fricatives. Since there is no consistency when Judy used or ignored voiced alveolar liquids, it is highly likely that Judy does not know any of these English words that included voiced alveolar liquids in context (Shi et al., 2020; Steacy et al., 2019). When Judy forms voiceless dental fricative /θ/ into a /t/, Judy uses dental fricatives, which means she fails to bring out her tongue, and instead she uses her alveolar ridge, which causes interference in her speech clarity.

In addition, Judy produces the labiodental fricatives without rounding her lips when she consistently misplaces voiced labiodental fricative /v/ instead of voiced glide /w/ or voiceless glides /hw/. As a result, Judy's pronunciation errors show consistency in mixing two consonant phonemes, and she is particularly incapable of differentiating voiced labiodental fricative /v/ from voiceless glides /w/ or /hw/. Judy uses the glide palatal /y/ before or after the voiced liquid palatal /r/, and this causes /r/ coloring, which results in the modification of the consonant in addition to unnecessary vowel length. Judy does not use her teeth to bring out her tongue, and she is using her alveolar ridge when she produces dental fricatives. Moreover, Judy consistently avoids pronouncing simple past tense suffixes when pronouncing regular verbs. Overall, the data specifically shows that Judy's most frequent consonant pronunciation errors are dental fricatives of 55.17% via 31.03% of dental fricatives and 24.14% labiodental fricatives. Thus, the most important finding of this analysis is that Judy needs special instruction on dental and labiodental fricatives.

Judy's pronunciation errors in English vowels

Judy's speech analysis is completed based on the script that is provided by the researcher (Please see Appendix A for line information), and The International Phonetic Alphabet for vowels is used as a guide to separate vowels based on their unique linguistic qualities. Judy's speech analysis on vowels is observed regarding the place of articulation. Judy's speech analysis indicates that she often substitutes standard vowels with wrong ones, and she has an inclination to lengthen the production of vowel sounds by applying extra stress patterns. Judy does not have consistent vowel clarity, and she hardly gives the right stress when producing sounds to convey meaning as analyzed below (see tab. 2).

Judy's errors are analyzed based on its vowel quality and frequency. Regardless of the vowel she needs to produce, her pronunciation showed common overgeneralizations for two vowel sounds. She switched to /æ/ 56% of the time when she had to pronounce varying vowels of /a/; /ə/; /ε/; /ɜ/.

Vowels	Description	Frequency	Line(s)
Open central "a"	/a/ is replaced for the vowel /æ/	3	1, 5, 9
Mid-central "a"	/ə/ is replaced for /æ/	4	5, 6, 13, 16
Open mid-central "e"	/ɛ/ is replaced for /æ/	2	7, 18
Mid-central "e"	/ɜ/ is replaced for /æ/	1	9
Mid-central "o"	/o/ is replaced for /ɔ/	2	4, 15
Mid-back "o"	/o/ is replaced for /ɔ/	1	14
Near-back "o"	/o/ is replaced for /ɔ/	3	11, 12, 15
Near front "i"	/i/ is replaced for /i:/	2	2, 10

Table 2: Judy's Speech Analysis of sound quality and consistency for Vowel Sounds

The second significant finding of her vowel pronunciation occurred 33% of the time for regionally different variations of /o/. On the other hand, her extra duration for the sound /i/ did not show consistency to reach conclusions. The evaluation of Judy's vowel production analysis shows that she needs extensive instruction to internalize the sounds /æ/ and /ə/.

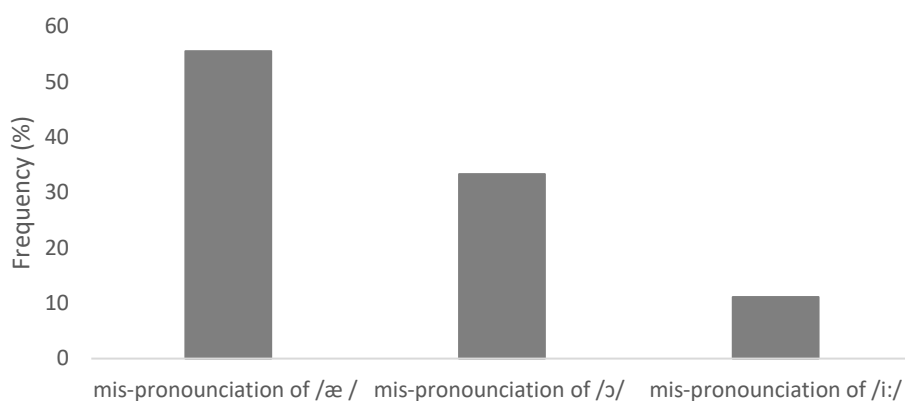


Figure 2: Judy's Error Quality and Frequency for Vowel Phonemes

Discussion

Pronunciation error detection is a fundamental process in planning pronunciation lessons since pronunciation and comprehension are often closely related as shown in the analysis process. The main purpose of addressing Judy's pronunciation errors is to identify the main problems that distort her overall pronunciation. Judy's vowel sound errors indicate a non-standard suprasegmental quality that basically interferes her meaning making.

Rhythm: Judy does not use the intonation patterns of American English rhythm when she is reading the given script aloud. It is almost impossible to differentiate content words from the action/function words based on the natural rhythm of English sounds, and this situation distorted the meaning Judy is trying to convey.

Stress: The nuances of stress often change the meaning of a word in English. Judy does not use the right pitch while matching the vowel sounds, and Judy's pronunciation created semantic confusions because she either lengthened the vowels unnecessarily or her speech sample included vowel reductions, where there is no vowel reduction is required.

In addition to this, Judy frequently used the wrong vowel as she did not know how to produce the right consonant immediately after the vowel in question, and this correlation distorted her speech clarity further.

Pitch: Judy talked in a linear tone and ignored the fact that English is a stress based language. It was hard to identify whether she was reading a statement or a question, which is stressed through either the rising or the dropping pitch in context. There were instances that she tried to give emphasis by raising the tone of her voice; however, her transfer from a rising intonation to a falling intonation was sounded rather linear, and this irregularity distorted the meaning she conveyed.

Judy's speech analysis along with her statement confirmed that she did not get any training on pronunciation acquisition. Since Judy did not have the chance to receive pronunciation instruction as part of her rote language learning practices, it is crucial to create suitable pronunciation activities for Judy. Judy's error consistency represent specific areas to be developed as listed above. While a reliable speech test that consists of all English vowels and consonants has been effective to determine instructional priorities that are specific to Judy's development, Judy's error analysis report indicates that she needs extensive and supportive pronunciation instruction, yet it is not ideal and practical to address all Judy's errors at once. The speech test explicitly showed that most of Judy's problems are transferring the vowel sounds from her first language, which is reflected as lack of rhythm in speech and word suffixes in Judy's speech patterns. This negative language interference highlights the issue of Judy's transferring her first language rhythm patterns to her target language, and therefore focus should be given to teach English patterns for the following areas to be improved:

- Rhythm for voicing and syllable length
- Stress for vowel clarity
- Pitch patterns for emphasis

Rhythm

I. Counting syllables

Rhythm is one of the most crucial components of clear speech, and it is the essential foundation of pronunciation practices (Reed & Levis, 2019). Rhythm of speech is determined by the number of syllables in a word. In Chinese Pinyin System, each letter symbolizes four different tones. Unfortunately, the speech analysis of Judy indicated that Judy transfers these tonal Chinese tones into English even though English is a stress-based language. Additionally, Chinese pronunciation depends on initial and final sounds. This is the main reason that Judy experienced difficulty in identifying initial and final sounds in English since she transferred her background phonological knowledge to her target language. Judy's language transfer issue draws the attention to Judy's ability on identifying the pitch in speech patterns, and it is the only way to distinguish lexical and grammatical meaning of sentences in the target language for Judy.

Since Judy's speech has almost no rhythm, identifying the stress markings could guide Judy for better contextualized understanding of the speech, and she needs to gain awareness for differentiating English syllables. Another problematic area is the fact that many reduced syllables such as definite and indefinite articles, auxiliaries and word endings are part of daily English while Judy's clear speech test pointed out that Judy does not have phonetic discrimination for the word endings. What's more, Judy specifically has trouble with final consonants. Therefore, Judy's rhythm problem can be targeted to be resolved by a number of effective teaching strategies that are described as follows:

Judy can be provided a list of vocabulary words to gain phonemic awareness for English syllables. It would be better if Judy is given words that she is familiar with, or a brief definition can be explanatory before the exercise takes place since it is crucial for the learner to make the connection between the word and the context it stands for. Cross-language comparisons of syllable number charts for displaying the numbers of syllables in Chinese and English can help Judy to compare and contrast English and Chinese syllables. As Judy is an adult learner, she can be assigned key vocabulary for homework, and she can see the syllabication in the dictionary and mark the number of syllables that occur in each key vocabulary word.

In this way, Judy can compare and contrast her first language to her target language to adopt the English syllable system. Chinese Pinyin System is indeed a representation of a tonal language. When Judy is able to identify the last syllable with this practice, she is more likely to produce the final consonants by overriding the interference of Chinese in her pronunciation. To this end, comparing her first language to English may also help Judy to differentiate the rhythm differences between Chinese and English. Another strategy that Judy can apply is tapping her hands on the desk to count the syllables.

This activity can also be an effective small group activity; however, instead of tapping the desk, the students can tap a pencil or another instrument of preference, and this group work would not spot and question an individual learner and could lower the affective filter and anxiety for language learners in general. As an additional activity, Judy can be given a number of sentence strips to work alone to count the syllables. Within a classroom setting, the students can get into pairs to share and compare their answers for peer supported learning. Another ideal peer supported learning activity for Judy could be brief yet effective pair practice exercise for improving her perception on the concept of rhythm as defined below:

II. Pair Practice

This activity takes no longer than 15 minutes. In this pair practice activity:

1. Students are assigned a number of sentences and should read them alone before the pair practice takes place.
2. Partners should switch roles as being Student A and Student B.
3. If the classroom has a number of students, partners can take turns for different roles. It would be advantageous if the students are coming from different linguistic backgrounds.
4. The teacher's role is being a guide rather than correcting every mistake on the spot. Yet, it would be practical for the teacher to take notes on error patterns to prevent future errors in speech and for planning future lessons. In this way, students would be more attentive by focusing on their responsibility. The teacher should circulate around the room to give individual attention to language learners.
5. This activity can also be used as a quiz and can be interpreted as a formal or informal assessment tool.

In Judy's case this activity can be applicable with the instructor's participation for an individualized lesson plan, or small group instruction can be preferred.

III. Syllable number game

Rhythm in words stands for syllable length, stress syllables and reduced vowels. Sentences link words with varying degrees of emphasis. Perhaps more importantly, Judy can benefit from focusing on rhythm in words and sentences, and games could be a good option. A language classroom can be more effective with the help of games regardless of

the age group of learners. One interactive activity that can be used for teaching rhythm is the syllable number game. This game takes about 10 –15 minutes depending on the proficiency levels of the students. For Judy, 10 minutes would be ideal. The students are divided into two or three groups depending on the class size. Each student goes to the board and writes as many words as they can. When the time is over, each student reads his or her list of words. The rest of the students check the spelling or syllable numbers. The words with the right syllable numbers and spelling get the points and make students win the game. This activity can be a great and fun tool to teach rhythm by focusing on number of syllables. In Judy's case, this game can be adapted to be played with the instructor for an individualized lesson plan.

Stress

English is stress based, but this does not mean that all languages are stress based. Knowing that, a language teacher should minimize the negative transfer from the learner's first language in order to prevent confusion on behalf of the learner. Specifically, language teachers should focus on the following critical aspects when teaching stress in English language.

- Length of vowel
- Clarity of vowel
- Pitch change

In Judy's specific case, the clear speech test significantly indicated that Judy is having trouble when producing English vowel sounds. Judy's vowels are usually longer than necessary and this situation distorts her meaning. In addition, Judy is experiencing /r/ coloring since her vowels are also affected by her consonants. In order to help improving Judy's speaking skills, pronunciation drills can be helpful. Detailed mouth illustrations of the vocal tract can be used to explain Judy how sounds are produced while mouth illustration charts and practices by using a rubber band may provide modeling of actual sound production. In this way, the relationship between teeth and tongue will demonstrate how the air is blocked and how the air flows along with tongue movements to distinguish sounds from one another. Another strategy that would help Judy to become conscious about her speech errors is to teach her the source of her own pronunciation errors by teaching placement of her tongue, lips and teeth.

Mainly, Judy's use of wrong stress patterns make her speech unclear. Her inability of using English stress patterns both conveys the wrong meaning during her speech and frustrates her while socializing. One strategy that would help Judy to be conscious about her own stress-related-pronunciation errors would be recording Judy's speech and have her compare her speech to a previously recorded conversation of hers.

As stress patterns are vital to clear speech and these patterns are clearly missing from Judy's speech, one of the most central aspects of teaching vowels to Judy is the length of vowels and clarity of the vowels along with pitch changes. Especially pitch changes can easily distort meaning as the listeners can easily get wrong messages when the language learner produces deformed stress patterns. In all languages including Chinese, there is a distinction between content and structure words. Yet, a few language learners are aware of these categories and apply the right emphasis. If Judy realizes the difference between content and structure words her speech can improve by conveying the right meaning with content words.

The best way to start teaching pitch changes in English to Judy is to guide her gain experiences on obtaining linguistic awareness on word functions as separate and complete units of utterances. Overall, Judy should be given the chance to discover how

pitch occurs depending on the word function within contextual dialogues. Since pitch changes are vitally crucial when conveying the meaning of a phrase, creating activities that would concentrate on length and clarity would be beneficial for Judy.

Exercises for word stress

One of the beneficial teaching strategies to exemplify emphasis within sentence structures is providing Judy a list of vocabulary words. Displaying charts that explicitly separates function and content words could show Judy how emphasis functions, and Judy could use highlighters to locate content words for stress. This ideal activity would help Judy to internalize in what ways function words do not refer to content meaning other than having grammatical functions. The possibility of giving plenty of examples from familiar words would be an effective way of teaching stress to Judy. On the other hand, providing unfamiliar words would pose a significant challenge for Judy as identifying sound formation of unknown content words would create further confusion for her. For instance, using Judy's name, city or country names that she knows would be great tools to point out uneven length of vowels.

More fundamentally, Judy could reach at better results if she is encouraged to see beyond the spellings of the words by using her ears to hear vowel sounds instead of solely focusing on the script. In this way, Judy can get the chance to feel the difference between full and reduced vowels. Once the teacher models how vowels change, Judy could be encouraged to focus on the changes in vowels. Note taking is another productive strategy that can enable Judy to use her listening skills effectively, and she could find content words when the teacher reads aloud or have Judy to listen to a CD for this purpose.

On the other hand, reducing vowels was very challenging for Judy since Judy sounds every vowel in Chinese. In spoken English the sound schwa is very common and is often reduced. Schwa can also be unstressed. All English Language learners including Judy should be aware of the effect of schwa so that they would develop a clearer speech. Another important technique can be saying a word that includes schwa with all the vowels in its full form and then with the reduced vowels. What seems obvious with this practice is that Judy can compare, contrast and practice vowel sounds so that she will notice the difference. While repeating the words several times and reducing the vowel by using schwa would help Judy to practice stress and vowel clarity, another practice to teach word stress to Judy would be writing singular and plural form of words for further word stress practices.

Pitch patterns

Pitch patterns have rhythm and melody to give the essential message to the listener. Interestingly, pitch patterns are not limited to asking questions and showing the speakers' attitude, but it also highlights the emphasis to make a comparison when distinguishing old information from new information. In much the same way, pitch patterns can help both the listener and speaker to distinguish questions from statements. Moreover, pitch patterns point out the speakers' mood such as indicating surprise, pleasure and anger.

Since Judy talks in English in a monotonous way, the meaning codes created by the pitch quality of a stream of speech are missing from Judy's conversations. Part of the reason is highly likely derived from the fact that she focuses more on tenses that prevents her from focusing on pitch patterns. Judy surely needs time and repetitive practice for adequately learning pitch patterns for conducting the right emphasis. But, practicing how to emphasize words by appropriate vowel lengthening, pitch change and vowel clarity would indeed improve Judy's pronunciation.

Using a kazoo

Using a kazoo is a great tool for making pitch patterns noticeable. Since kazoo can help the language learners feel the vibration that is coming from vocal cords, Judy would be more conscious about the pitch patterns. This technique also prevents any distractions derived from individual vocabulary words, and Judy could focus on the rhythm of the language. By using a kazoo, Judy can practice sounding out the sentences with the right pitch and intonation, and she can discuss the outcomes after the activity with her language instructor.

Pitch direction for forming questions

Chinese and English have diverse pitch variations. In English, rising the intonation at the end of a sentence indicates uncertainty while falling the intonation represents not being sure about an expression. If Judy is taught to compare her first language patterns with her target language, she would understand the underlying message in a sentence to overcome her pronunciation problems when asking questions.

One good strategy is having a pair of students to practice a dialogue for asking information. Judy and her classmates can use rubber bands while emphasizing the right intonation. The students can change pairs, and their speech can be recorded for self-check to help them understand how to form questions in English. After the analysis is displayed on the board for further discussion, the topic of the dialogues can be changed to increase fluency of using the appropriate pitch patterns when forming questions (Celce-Murcia et al., 2010).

Pitch patterns for practicing numbers

Many English language learners do not sound right when they are asked to give information about numbers. Moreover, they need to sound out numbers very often when spelling out their social security number, credit card number, bank card number or even a passport number. Since patterns of spacing for accurate pitch patterns are different in different cultures, language learners often transfer these patterns from their first language. Therefore, using pitch patterns for practicing numbers is a very practical and creative way to improve using pitch patterns in context.

In addition, Judy can practice the pitch patterns for spacing by listening to audio taped conversations. She can mark or highlight the rising and falling pitch in pairs. The pitch patterns can be displayed on the board and the students can practice role plays to have the chance to further practice rising and falling pitches in contextual situations. After the class, Judy can be assigned to call the post office for asking information or calling for a business for asking information. After that, Judy can be kept accountable for the information she is looking for. Lived life experiences such as this activity would help language learners and Judy to come up with alternative daily exercises to overcome their pronunciation problems in contextual settings for solving real life problems.

Conclusion

It is an amazing contradiction how infants are able to comprehend and use their first language in a very short time span when they are cognitively immature while children would never have the chance to talk later in life regardless of their cognitive maturity level, if they were abandoned in social isolation. By this definition, this research study first specifically encourages language teachers to encourage and maximize their students' first language acquisition for gaining better pronunciation and linguistic skills in a second language (Celce-Murcia et al., 1996; Norrman & Bylund, 2016).

The second purpose presented in this study aimed to bridge the gap to initiate discussion on how second language users acquire pronunciation skills under the influence of a variety of interconnected factors. Despite individual preferences; length of exposure to a second language, age, the role of the learner's first language, and individual inherent abilities and learning styles are among the top influential variables that shape the language learning setting. Therefore, an effective language teacher should consider these factors as variables whereas mutual intelligibility among learners should be the main purpose rather than achieving native-like pronunciation (Zoghbor, 2018) to provide the best pronunciation practices.

In particular, this research article mapped out how theory and research are combined to support the idea that pronunciation skills are indeed pretty individualistic. An in-depth case study analysis is specifically selected in this research study due to the complexity of learning pronunciation skills due to the individual variation during the acquisition process. Even though existing theoretical and practical research support the idea that certain perimeters such as the duration of exposure to the second language along with environmental and social support for developing a new language, and early starting age for acquiring a second language may result in good pronunciation skills (Kissling, 2014), individual and inherent differences signify that there is not a "one size fits all" solution to teach pronunciation. This is not to deny that it is still possible to improve effective pronunciation lesson plans to teach multilevel students within groups based on their linguistic speech analysis test as discussed in this case study within a wider intellectual context. It is therefore clear that internalizing individual learning differences through speech analysis can shed light on capturing the complexity of teaching pronunciation in small groups.

Within Judy's specific speech analysis results, Judy's speech clarity is not excessively distracted by her pronunciation difficulties, rather her inability to differentiate lax vowels from tense vowels distorted the meaning she tries to convey, which signals the main cause of her stress problem. Moreover, Judy used a linear intonation, which is not standard in English, and this non-standard pronunciation is the cause of Judy's rhythm problems. In parallel with this intonation problem, Judy also experiences difficulties of linking consonants to vowels, which thereby prevents the listeners from differentiating the statements from questions due to Judy's vowel reduction or vowel lengthening problems.

In the light of above findings, the frequent repeated errors of Judy are pointed in this research study to be the focus of the lesson specifically suggested and proposed for Judy even though it is almost impossible to focus on all the errors Judy has made at once. As a result, using the above listed effective pronunciation strategies, lowering the affective filter and meaningful in-context revision can provide consistency and success for Judy to overcome or reduce her pronunciation problems.

References

- Baker, W. (2015). *Culture and identity through English as a lingua franca: Rethinking concepts and goals in intercultural communication*. Boston, MA: De Gruyter Inc.
- Baker, W. (2017). English as a lingua franca and intercultural communication. In *The Routledge handbook of English as a lingua franca* (pp. 25-36). Routledge.
- Boo, Z. Z, Dornyei & S. Ryan (2015). L2 motivation research 2005-2014: Understanding a publication surge and a changing landscape. *System*, 55, 147-157.
- Byers-Heinlein, K., Schott, E., Gonzalez-Barrero, A. M., Brouillard, M., Dubé, D., Jardak, A., & Tamayo, M. P. (2020). MAPLE: A multilingual approach to parent language estimates. *Bilingualism: Language and Cognition*, 23(5), 951-957.

- Celce-Murcia, M., Brinton, D. M., & Goodwin, J. M. (2010). *Teaching pronunciation hardback with audio CDs (2): A course book and reference guide*. Cambridge University Press.
- Chen, Y. S., Ren, W., & Lin, C. Y. (2020). English as a lingua franca: From theory to practice. *Language Teaching*, 53(1), 63-80.
- Clark, E. V. (2016). *First language acquisition (3rd Ed.)*. Cambridge, UK: Cambridge University Press.
- Consonant and vowel charts for English*. (2021, December 12). Teaching Pronunciation Skills. Available on: <http://teachingpronunciation.weebly.com/consonant--vowel-charts-nae.html>
- Dambudzo, I. (2018). Familiarization/novelty preference method: contribution to psychologists' understanding of cognition in infants. *International journal of research in education and psychology*, 4(2), 17-23.
- Darcy, I., Rocca, B., & Hancock, Z. (2021). A Window into the Classroom: How Teachers Integrate Pronunciation Instruction. *RELC Journal*, 52(1), 110-127. Available on: <https://doi.org/10.1177/0033688220964269>
- Dickinson, D. K., & Morse, A. B. (2019). *Connecting through talk: Nurturing children's development with language*. Paul H. Brookes Publishing Co.
- Dekeyser, R. (2018). The critical period hypothesis: A diamond in the rough. *Bilingualism: Language and Cognition*, 21(5), 915-916.
- DeKeyser, R., & Larson-Hall, J. (2005). What Does the Critical Period Really Mean? In J. F. Kroll & A. M. B. de Groot (Eds.), *Handbook of bilingualism: Psycholinguistic approaches* (pp. 88-108). New York, NY, US: Oxford University Press.
- Derwing, T. M., & Munro, M. J. (2009). Comprehensibility as a factor in listener interaction preferences: Implications for the workplace. *Canadian Modern Language Review*, 66(2), 181-202.
- Dummitt, G. (2019). Translating Age: Does the Critical Period Significantly Affect Second Language Learning Among Adults? *WHEATON WRITING: A Journal of Academic Essays*, 4, 19-22.
- Foote, J. A., Trofimovich, P., Collins, L., & Urzúa, F. S. (2016). Pronunciation teaching practices in communicative second language classes. *The Language Learning Journal*, 44(2), 181-196.
- Galinsky, E. (2018). Helping Young Children Learn Language: Insights from Research. *YC Young Children*, 73(3), 16-17.
- Gilbert, J. B. (2010). Pronunciation as orphan: What can be done? As We Speak, Newsletter of TESOL (SPLIS), 7 (2).
- Gordon, J., & Darcy, I. (2016). The development of comprehensible speech in L2 learners: A classroom study on the effects of short-term pronunciation instruction. *Journal of Second Language Pronunciation*, 2(1), 56-92.
- Hamidova, S., & Ganiyeva, H. (2020). Approaches to the Teaching of Pronunciation in English. *Архив Научных Публикаций JSPI*.
- Hannahs, S. J. (2007). French phonology and L2 acquisition. *French applied linguistics*, 16, 50-74.
- Hyland, K. (2002). *Teaching and researching writing*. Harlow, UK: Pearson Education.
- Janetius, S. T. (2018). Brain Neural Network and Language Skills. *EC Neurology*, 10, 938-942.
- Jenkins, J., Cogo, A., & Dewey, M. (2011). Review of developments in research into English as a Lingua Franca. *Language Teaching*, 44(3), 281-315.

- Jenkins, J., Baker, W., & Dewey, M. (Eds.). (2017). *The Routledge handbook of English as a lingua franca*. Routledge.
- Ji, F. 2021 Investigating the Influences of Starting Age on Pronunciation: a Comparative Study of Chinese Learners of English As a Second Language.
- Kissling, E. M. (2014). What predicts the effectiveness of foreign-language pronunciation instruction?: Investigating the role of perception and other individual differences. *The Canadian Modern Language Review/ La revue canadienne des langues vivantes* 70(4), 532-558. University of Toronto Language Press.
- Kecskes, I. (2021). Processing implicatures in English as a Lingua Franca communication. *Lingua*, 256, 103067.
- Kuhl, P. K. (2011). Social mechanisms in early language acquisition: Understanding integrated brain systems supporting language.
- Larson-Hall, J. (2015). *A guide to doing statistics in second language research using SPSS and R*. Routledge.
- Lee, J., Jang, J., & Plonsky, L. (2015). The effectiveness of second language pronunciation instruction: A meta-analysis. *Applied Linguistics*, 36(3), 345-366.
- Lee, S., & Kim, A. (2020). Experiences and practices of English as a lingua franca communication in the international university: An integrative view of student voices. *Applied Linguistics Review*.
- Li, S. (2016). The construct validity of language aptitude: A meta-analysis. *Studies in second language acquisition*, 38(4), 801-842.
- Li, P., & Jeong, H. (2020). The social brain of language: grounding second language learning in social interaction. *npj Science of Learning*, 5(1), 1-9.
- MacDonald, S. (2002). Pronunciation-views and practices of reluctant teachers. *Prospect*, 17(3), 3-18.
- MacDonald, F. (October 12, 2015). Feral: The children raised by wolves. Available on: <https://www.bbc.com/culture/article/20151012-feral-the-children-raised-by-wolves>
- Mäkinen, L. (2021). *The role of pronunciation in Finnish EFL textbooks and EFL teaching* (Unpublished master's thesis). Department of Language and Communication Studies, University of Jyväskylä, Finland.
- Major, R. (2001). *Foreign accent: The ontogeny and phylogeny of second language phonology*. Mahwah, NJ: Lawrence Erlbaum.
- Mauranen, A. (2012). *Exploring ELF: Academic English shaped by non-native speakers*. Cambridge, UK: Cambridge University Press.
- Merzenich, M., Nahum, M., & van Vleet, T. (2013). *Changing brains: applying brain plasticity to advance and recover human ability*. Elsevier.
- Nasihati Gilani, S., Traum, D., Sortino, R., Gallagher, G., Aaron-Lozano, K., Padilla, C., ... & Petitto, L. A. (2019, May). Can a Virtual Human Facilitate Language Learning in a Young Baby?. In *Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems* (pp. 2135-2137).
- Nasr, R. T. (1997). *Applied English Phonology: For ESL/EFL Teachers*. University Press of America.
- Norrman, G., & Bylund, E. (2016). The irreversibility of sensitive period effects in language development: evidence from second language acquisition in international adoptees. *Developmental science*, 19(3), 513-520.
- Osborne, A. G. (2003). Pronunciation strategies of advanced ESOL learners. *International Review of Applied Linguistics in Language Teaching*, 41(2), 131-143.

- Piper, T. (1998). *Language and learning: The home and school years*. Merrill Prentice-Hall, Inc., Order Processing, PO Box 11071, Des Moines, IA 50336-1071.
- Priya, M. L. S., & Kumar, P. N. S. (2020). Teaching phonetics to enhance pronunciation in an ESL classroom. *Journal of Critical Reviews*, 7(2), 669-672.
- Ramirez, N. F., & Kuhl, P. (2017). The brain science of bilingualism. *YC Young Children*, 72(2), 38-44.
- Ramírez, N. F., Ramírez, R. R., Clarke, M., Taulu, S., & Kuhl, P. K. (2017). Speech discrimination in 11-month-old bilingual and monolingual infants: a magnetoencephalography study. *Developmental Science*, 20(1), e12427.
- Reed, M., & Levis, J. (2019). *The handbook of English pronunciation*. John Wiley & Sons.
- Ren, J. (2017). Reflecting on the Primary Phonetic Learning Based on the Critical Period Hypothesis in Language Acquisition. *Theory and Practice in Language Studies*, 7(10), 900.
- Saalfeld, A. K. (2011). Acquisition of L2 phonology in advanced learners: Does instruction make a difference. In *Proceedings of the Second Annual Conference on Pronunciation in Second Language Learning and Teaching* (pp. 144-152).
- Saito, K. (2015). Experience effects on the development of late second language learners' oral proficiency. *A Journal of Research in Language Studies*. 65:3, pp. 563-595.
- Saito, K. (2018). A Child Language Development. *言語センター広報 language studies*, (26), 77-86
- Saito, K. (2021). What Characterizes Comprehensible and Native-like Pronunciation Among English-as-a-Second-Language Speakers? Meta-Analyses of Phonological, Rater, and Instructional Factors. *TESOL Quarterly*.
- Seidlhofer, B. (2011). *Understanding English as a lingua franca*. Oxford, UK: Oxford University Press.
- Shi, J., Huo, N., & Jin, Q. (2020). Context-aware goodness of pronunciation for computer-assisted pronunciation training. *arXiv preprint arXiv:2008.08647*.
- Singh, L. (2021). Evidence for an Early Novelty Orientation in Bilingual Learners. *Child Development Perspectives*, 15(2), 110-116.
- Singh, R., Zapata, M., Morris, A. S., & Reading, Y. C. E. (2018). *Talk, Read and Sing With Your Child Every Day*.
- Stahl, A. E., & Feigenson, L. (2018). Infants use linguistic group distinctions to chunk items in memory. *Journal of experimental child psychology*, 172, 149-167.
- Steady, L. M., Compton, D. L., Petscher, Y., Elliott, J. D., Smith, K., Rueckl, J. G., Sawi, O., Frost, S. J., & Pugh, K. R. (2019). Development and prediction of context-dependent vowel pronunciation in elementary readers. *Scientific Studies of Reading*, 23(1), 49-63.
- Thomas, M. S. (2012). Brain plasticity and education. *British Journal of Educational Psychology-Monograph Series II: Educational Neuroscience*, 8, 142-156.
- Thomson, R. I., & Derwing, T. M. (2015). The effectiveness of L2 pronunciation instruction: A narrative review. *Applied Linguistics*, 36(3), 326-344.
- Visser, I., Geambasu, A., Bergmann, C., Byers-Heinlein, K., Doyle, F. L., Hannon, E., Johnson, S., Kachergis, G., Kosie, J., Lew-Williams, C., Mayor, J., Mueller, J., Rajimakers, M., Shukla, M., Tsui, A., Soderstrom, M., & Levelt, C. (2021). Many babies 3 rule learning-Stage 1 Registered Report Submitted.
- Vyshedskiy, A., Mahapatra, S., & Dunn, R. (2017). Linguistically deprived children: meta-analysis of published research underlines the importance of early syntactic language use for normal brain development. *Research Ideas and Outcomes*, 3, e20696. *Why is the international phonetic alphabet is the best thing ever?* (2021, December 12). A place for

linguistics, sociolinguistics, sociology, game theory, and more. Available on: <https://www.languagejones.com/blog-1/2016/12/24/why-the-international-phonetic-alphabet-ipa-is-the-best-thing-ever>

Wu, X., Mauranen, A., & Lei, L. (2020). Syntactic complexity in English as a lingua franca academic writing. *Journal of English for Academic Purposes*, 43, 100798.

Zahoor, M., & Kausar, G. (2018). Learning native-like English Pronunciation and cultural identity of Pakistani ESL learners. *New Horizons (1992-4399)*, 12(2).

Zoghbor, W.S. (2018). Teaching English pronunciation to multi-dialect first language learners: The revival of the Lingua Franca Core (LFC). *An International Journal of Educational Technology and Applied Linguistics, System*, 78, 1-14.

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Appendix 1

Phonetic Transcription Analysis

The participant's non-standard pronunciation was shown by underlined transcription and each particular mistake is defined in the analysis section of this paper.

A: Can I help you? (line 1)

B: Yes, I want to fly to Chicago on Wednesday the seventh and return on (line 2)

Friday the ninth. (line 3)

A: Of October? (line 4)

B: No, November. How much is the fare? (line 5)

A: Fares are cheaper if you stay over Saturday night. (line 6)

B: Thanks, but unfortunately I've already arranged some business here (line 7)

that Friday. So I'll just have to pay the extra cost. (line 8)

A: What time of day would you prefer? Morning or afternoon? (line 9)

B: Morning, because I have to be there by early evening. Is there a meal? (line 10)

A: Yes, they'll be serving breakfast ; and you'll also see a movie. (line 11)

B: Which movie? (line 12)

A: In both directions they'll show a short feature on planned (line 13)

communities. Going east the major film is City Slickers. I think it's a (line 14)

cowboy comedy. The movie going west is Big Joe. That's an adventure (line 15)

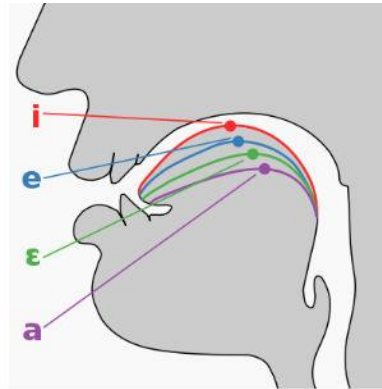
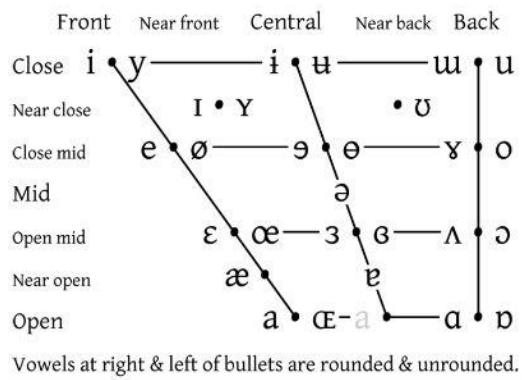
story about a boy who raises wolf. (line 16)

B: Sounds good, but what's the fare? (line 17)

A: Eight hundred and fifty dollars round trip. (line 18)

B: That's more than I expected! (line 19)

Appendix 2



The International Phonetic Alphabet