INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 13, Issue 4, (2023) E-ISSN: 2222-6990

Acquiring L2 Phonology: Foreign Accent and L1 Influence

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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v13-i4/16607 DOI:10.6007/IJARBSS/v13-i4/16607

Published Date: *13* April 2023

Abstract
Acquiring another language is a fairly challenging process. Pronunciation is one of the language components which embodies a source of concern for many learners. The reason behind this concern is that English has many difficult sounds for non-native speakers. As an English learner, improving pronunciation can help not only in making natural sentences, but also in making the speech clear and understandable. This work is trying to shed light on the process of acquiring L2 phonology; how it occurs, and what factors could affect the perception of L2 speech sounds. Also, the paper discusses the concept of foreign accent and how this phenomenon influences speech perception, i.e., how accurately the speech is perceived when spoken from a non-native English speaker. Further, the paper argues the impact of accent variation on the intelligibility level of the English spoken language with highlighting the accent-intelligibility relationship, which is considered as a crucial in many, many different spheres.
Keywords: Language Acquisition, Accent Variation, Speech Intelligibility, Speech Perception

Introduction

Nowadays, English has become a worldwide language (Bello et al., 2020) - it has powerfully captured humans' interest of learning, as it made the world like a small village. Up to date, the population of English language learners (ELLs) has been quickly increasing, yet the obstacles, on the other hand, still hinder the path to their target (Valeev et al., 2020). Pronunciation plays an important role in the process of learning English as a second language (L2). As the language is the means of communication, any unusual factor like mispronouncing a word, a phrase, or even a whole sentence would definitely lead to confusion, miscommunication, or further straight concealment. On the other hand, if the process went

smoothly and the messages were clearly conveyed, communication would be considered as successful.

However, the decision of admitting any successful communication is conditional on many factors. Among them is utterance, which is the crucial factor through which a listener can process the information and consequently could be able to absorb a response. Successful communication is reckoned to be the outcome of perceiving speech that must be at least fairly intelligible (Levis, 2018). Overall, utterance plays a senior role in communication because it helps us convey our intended meaning and content with others effectively. By recognizing the actual vocabulary within a context; the precise phoneme, the explicit syllable and the particular word, we can ensure that our messages are received as intended and avoid misunderstanding.Thus, this research tends to initially discuss how the phonological structure of the second language (L2) is acquired/ learnt, especially in the interior of the dominant of the first language (L1). Also, the article moves on to explain the effect of the acquisition/ learning in such circumstances and how could influence speech perception and the level of intelligibility as well. As such, this article can help future researchers to be conversant about the stated subject, which is acquiring L2 phonology. it can help them to be aware of the challenges and difficulties that learners may face when acquiring L2 phonology so that they can provide appropriate support and intervention for those learners who struggle with L2 phonology. It can also assist learners to produce and understand sounds accurately, to reduce accent variation, to enhance listening skills as well as to increase confidence. The article was developed by visiting literatures related to speech intelligibility including the ones investigating or discussing the issue caused by it. The article proposes to broaden the scope of researchers' thinking hoping to introduce a piece of value article.

Interaction of L1 And L2 Phonological Structures

Regardless of the extensive exposure to native input, non-native features are frequently manifested in L2 speech, and the reason behind this is the incomplete acquisition of the L2 segmental and prosodic aspects of the phonological system (Flege et al., 1999; Major, 2001). From another point of view, L1 sound characteristics heavily impact the perception of L2 speech sounds. This fact explains the great L2 variability in pronunciation among learners of L2s from various language backgrounds. The process of mastering new or similar L2 sounds inevitably involves L1 influence and also reflects all the differences that exist between L1 (native) and L2 (target) with regard to their phonemic inventories, allophonic variations and phonotactic constraints (Burleson, 2007). This influence/ interference causes the phenomenon that is linguistically known as foreign-accented speech (Kirkova-Naskova, 2010). According to Munro (1998), foreign-accented speech can be defined as non-pathological speech which is produced by L2 learners and differs from the characteristic speech of native speakers of a given language in partially systematic ways. However, there is apparent struggle among non-native speakers when they come to pronounce a phoneme that does not exist in their native inventory. Their difficulty ends with some pronunciation errors, which typically differ according to the native languages of L2 learners (Burleson, 2007).

Considerable efforts reported in the literature have been dedicated to investigating the influence of L1 on the acquisition of L2 phonology. Several models and theories such as Lado's (1957) Contrastive Analysis Hypothesis, Best's (1994, 1995) Perceptual Assimilation Model, Flege's (1995) Speech Learning Model, and Best and Tyler's (2007) Perception Assimilation Model for L2 have explained how the L1 influences L2 phonology. The phonological differences of the second language present challenges for L2 learners. Segmental features

such as vowel and consonant contrasts that do not occur in L1s, are considered problematic for adult learners to acquire and discriminate. A well-acknowledged example is the difficulty Japanese English learners have with the contrast /r/–/l/, in view of the perception of these two same consonants in Japanese. Such segmental differences in phonology indicate crucial challenges, especially for adult L2 learners (Chrabaszcz et al., 2014; Flege & MacKay, 2004; Goto, 1971).

In regard to L1 and L2 phonological differences, a study was initially carried out by Flege (1987) to investigate L2 learners' ability to produce new and similar phonemes in a foreign language. It was pointed out that in learning a new language, ending up with foreign-accented speech, specifically for adults, is considered as proof of a critical period in learning certain aspects of speech. In his study, Flege considered L2 phonemes, in relation to those of the L1, which might be taxonomized acoustically either as identical, similar, or new, and this difference would affect production, as well as the way it is perceived by a listener. Flege et al (2003) stated that FAS features mostly arise from interaction of the phonological structures of both the L1 and L2 languages. Generally, adults are characterized as having a limited chance of getting rid of their L2 accents (Scovel, 1969; Flege, 1981).

However, ELLs' pronunciations do differ from native speakers', and in fact, it is not an arbitrary difference. Learners are likely to recall the phonological properties of the sound system of their first language while perceiving their second language (Bilbao, 2002). Hence, ELL's speech production is shaped by their language background, which results in accented speech (Escudero, 2005). The perception of foreign-accented speech is quite different from perceiving the native norm speech. This difference appears with each new language system, which is likely to interfere with the perception of L1 sound system (Escudero, 2001).

With respect to speech perception in second language learning, interference can happen between native languages (NL) and target languages (TL). Put simply, an individual's language background can negatively or positively affect the perceptual input. Some current studies advocate that the NL phonological system works as a filter that promotes L2 learning. However, with the differences that exist, like having those sound contrasts, confusion tends to be obviously magnified. As Boomershine (2013) concluded, speakers without English experience face a problem in discriminating sounds which are in close proximity in space and phonetic similarity, such as /i/ and /i:/, as there might not be a comparable category in the L1 sound system. In their L2 learning, learners perceive and produce new sounds, different types of intonation patterns, unfamiliar phonotactic clusters of sounds to be able to send a clear message (Archibald, 1998; Kirkova-Naskova, 2010).

However, mastering these skills is not usually as simple as hoped, especially since the process happens by engaging previous L1 learners' categories to scaffold understanding of L2 phonological systems. The 'piggybacking' way, as Pennington (2007) stated, is where the new sounds of a target language are developed in the L1 sound system. This effect touches on sensitive concepts in terms of the segmental and supra-segmental levels (Kirkova-Naskova, 2010; Odlin, 2000). In addition, L2 speech reveals less speech intelligibility (Munro & Derwing, 1995a) because of different factors impacting a speaker's speech as there are prosodic variances that contribute to a foreign accent. These prosodic variances are different from native speakers' productions of stress, intonation, rhythm, and duration (Flege, 1995).

In pursuing an investigation on the relationship between accentedness and pronunciation, Fayer and Krasinski (1987) examined the reactions of native speakers of English and Spanish speakers of English to speech samples produced by Puerto Rican learners of English. Participants also had to complete a questionnaire for the purpose of the study. Different

variables were at the core of the investigation, among them intelligibility, pronunciation, and intonation. The results showed that participants (Native listeners and Spanish listeners) offered or gave different acceptability ratings of speech samples of Puerto Rican speakers. The Spanish listeners rated the linguistic forms of the speakers much lower than the natives, and also conveyed more annoyance. This means that the Spanish listeners were intolerant to the non-native speech rather than the natives. That is, they were more critical of the speech produced by the other non-natives (i.e., their fellows).

Moreover, it was revealed that divergent articulation of words was more problematic than intonation. Jingna and Yao (2013) conducted a study to investigate accentedness in Chinese EFL learners' speech. Twenty native English listeners were asked to rate for accentedness, comprehensibility, and intelligibility. Native listeners listened to 30 sentences produced by 28 Chinese EFL learners, and two native English speakers, where the task was to complete a questionnaire. The study produced these findings: a) prosodic features had a significant correlation with accentedness, and they significantly affected comprehension of accented speech; b) there was a significant negative correlation between accentedness and comprehension of accented speech; and c) native speakers of English had fairly tolerant and positive attitudes regarding accentedness.

Accent and Speech Perception

As many second and foreign language learners of English are encouraged to achieve the goal of being successful communicators in practical communicative contexts, achieving such a goal does not necessarily require L2 learners to acquire a native-like accent. Kennedy and Trofimovich (2008) stated that the learners whose L2 production is not totally native-like, but capable of effective communication are obviously successful second language users.

In most communicative environments, listeners are influenced by an abundance of linguistic and non-linguistic information. Linguistically, listeners are exposed to specific speech content information, such as syllables and words and how they are connected, resulting in a message sent by a speaker and received by a listener. The non-linguistic content of speech is also presented within the stream of speech, and it delivers a variety of data about a speaker's identity, including age (Van Lancker et al., 1985), gender (Monsen & Engebretson, 1977), social economic status, health (Labov, 1972), regional membership and emotional state (Murray & Arnott, 1990).

However, individuals have shown their capability to overcome speech signal variability as a way of retrieving meaningful information. In fact, the human system is amazingly flexible regarding speech perception. During their life span, individuals are presented with numerous versions of their native language in speech form. Furthermore, people differ from each other in the way they speak. For example, they differ in their speaking rate, intensity, and pitch. Different speakers produce the same sound differently in terms of acoustic properties. Furthermore, one particular speaker can produce the same sound differently at different times (Clarke, 2000). Also, each person's voice holds a distinctive auditory signature, which contributes to the acoustic variability that is needed when perceiving speech (Laing et al., 2012).

Regardless of the debates on how speech is perceptually mapped into discrete categories as a natural operation of the human auditory system, Escudero (2005) supports the proposal of speech processing as linguistic decoding. That is, speech perception occurs within a linguistic structure by making sense of the speech through language-specific sound categories. However, not all listeners perceive speech in the same way. The difference comes from the

interpretation that listeners carry out on the acoustic properties, which is in fact based on the listener's native language. Recognizing speech can be complicated due to different factors such as background noise (as in a street setting) and distortion or change in the signal (phone calling).

From another perspective, there is difficulty with auditory perception associated with natural intra-speech and inter-speech variability. Within phonetic processing, achieving a certain level of abstraction from speech signals is the result of speech perception. In other words, speech perception is a language-specific phenomenon where there are perceptual mappings and phonetic categories (Escudero, 2005). Pertaining to accents and variation, the more listeners are exposed to a specific variety of accent, the less they struggle in their perception and their auditory discrimination. That is, their perception would be altered from phonological to general auditory. But, as Werker and Logan (1985) stated, listeners can differentiate even the sounds that do not exist in their language when specific methods are followed, for example, exposing listeners to 'Inter-Stimulus Interval'. The following section provides an overview of the most significant theories applied in speech perception field.

Speech Intelligibility and Accent Variation

The phenomenon of foreign accent results from some of the apparent facts about how L1 influences L2 acquisition. L2 speakers of English are often obviously recognized due to their pronunciation, and notwithstanding, sometimes even their L1 background can be acknowledged from their accent (Munro, 2008). Moreover, Ellis (1994) mentioned that the said phenomenon of accented speech "is so well attested that it hardly requires documenting" (p. 316). Furthermore, as was observed by Pennington (1996), the definition of 'foreign accent' is not widely accepted, and the term 'nativized varieties of English' portrays considerably less difference between a native accent and a foreign one.

On a further note, foreign accented speech has numerous impacts on L2 learners, taking into account the detection of accent, reduction in both, acceptance, and especially, intelligibility and negative assessment (Flege, 1988). As acknowledged by the Common European Framework of Reference for Language (CEFR), accentedness and intelligibility are two interrelated terms concerning speech production, with one affecting the other (Beinhoff, 2014). However, there is a difference between intelligibility and comprehensibility. Where the former reflects the task of recognition, the latter accomplishes the task of speech comprehension. Specifically, in comprehension tasks, the listeners comprehend the meaning of the spoken speech. With this they have achieved what is referred to as 'speech understanding' (Van Heuven, 2008).

However, an accent may work as an indicator of non-native competence. In this manner, interlocutors modify speech input in communicating with L2 users (Gass &Varonis, 1984). As a result, an accent may trigger context of L2 users from native speakers (Varonis & Gass, 1982) so as to improve communication. In view of the effect and other possible responses of L2 speech, accents are highly significant for both L1 and L2 speakers of English. With no phonetic training, listeners can often identify the speech of L2 speakers even with very little speech data. Several accent detection studies have been designed to evaluate this sensitivity in distinguishing a speaker as non-native and the effects of intelligibility.

In a study conducted by Schmid and Yeni-Komshian (1999) with the objective of examining accent on intelligibility, native speakers were asked to identify mispronunciations in speech for both native and non-native speakers. Four native speakers of English and four non-native speakers of English (a Castilian Spanish, a Puerto Rican Spanish, and two Tamil accented

speakers) took part in the study. Participants were given instructions to press the space bar when they detected mispronunciations that were intentionally created by changing a single phoneme in each word (i.e., "brook" converts to "drook"). The results indicated that with the native speech, listeners made a quick decision and were more accurate in achieving the task of detecting mispronunciations, as opposed to the non-native accented speech, where the listeners had to expend more effort to make the decision and respond to the task. Hence, the results revealed that accent influences perception, and it can distort the intended message, leading to misunderstanding and miscommunication.

Although foreign accents have received a pervasive attention, its impact on communication in educational contexts has not been fully determined. Studies have found that L2 users find difficulty in understanding speech from other speakers or also of being understood due to pronunciation errors that disrupted their speech intelligibility. However, researchers have also pointed out that perfect language output does not imply competence in communication. Interlocutors can still understand L2 speech with grammatical or pronunciation errors by applying top-down processing or other strategies. On the contrary, when pronunciation errors lead to communication breakdown, clear comprehension is not usually accomplished. Above all, the accent-intelligibility relationship is vital, significant and essential in numerous fields such as language teaching and language testing and extends to even human legal rights. Hence, this relationship needs to be extensively investigated.

Conclusion

Learning another language is not an easy task. One of the common issues faced by many English language learners is having difficulty in speaking and pronunciation. Making meaningful connections with the English-speaking community is the most desirable goal for English learners. As such, pronunciation is considered critical in language learning, i.e., by using the correct sounds in speaking, others can understand the intended meaning more clearly. Moreover, good pronunciation can make learners become more confident.

Understanding the process of acquiring/ learning L2 phonology is one of the elements covered in this article. Highlighting the reason behind the imperfect acquisition of the L2 segmental and prosodic aspects of the phonological system can rationalise the great variability of L2 in pronunciation among learners from various language backgrounds. However, sounding non-native like does not hinder perception if the speech perceived with a fairly level of intelligibility. Rather, attaining universal intelligibility must be the target rather than achieving a native sound like accent (Walker, 2010; Salheen, Thai, Ali & Nimehchisalem, 2019; Bello, Thai, Chan & Nimehchisalem, 2020). Presented in this study is a significant contribution to the existing literature, which is sparse, especially in the scope of non-native context.

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