

English Teaching, Vol. 74, No. 2, Summer 2019

DOI: 10.15858/engtea.74.2.201906.103

A Study on the Relation Between Intelligibility and Attitudes * **

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Chung, Bohyon, & Bong, Hyun Kyung Miki. (2019). A study on the relation between intelligibility and attitudes. *English Teaching*, 74(2), 103-123.

The purpose of this paper is to examine the intelligibility and attitude towards four English varieties to Korean-speaking learners (KSLs) of English, who have been exposed mainly to General American (or Korean-accented English) in their English language learning classrooms throughout the primary and secondary schools. A total of 105 Korean undergraduate students listened to a recording in one of the four accents (General American, British, Australian, and Korean-accented English) and completed an intelligibility test followed by a questionnaire survey on attitudes. Analysis revealed that British English was most intelligible to KSLs among four varieties whereas that of Australian was least intelligible. Attitudes toward an English variety did not exert a strong force that may contribute to the level of intelligibility. The findings also showed at which phonological features identified KSLs were most sensitive to intelligibility differences. We conclude that the more exposed English variety to KSLs, the more favorable attitudes can be formed, but is not necessarily intelligible. What the findings demonstrate is that attitudes are not the best explanation of intelligibility and call for improvement in ways of directing KSLs' attention to some phonological features in a learnability perspective.

Key words: intelligibility, English varieties, Lingua Franca Core, phonological features, listener attitudes

* This paper is an extension of work originally presented in *the IAFOR International Conference on Education – Hawaii (IICEHawaii2018)*.

** This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2017S1A5A8021743).

1. INTRODUCTION

New modes of communication and global mobility have made English the most-used language (Pimienta, Prado, & Blanco, 2009) and have kept its status steadily robust. In response to increased language contact, English has become more diverse than ever. Not only new forms of English—both written and spoken—have emerged, but also variations have been created in pronunciation. These phenomena captured the interests of scholars and professionals in a way that suggests a paradigm shift in English language teaching (ELT). One influential model in reference to the spread of English is World Englishes proposed by Braj Kachru (1985). His three-concentric circles model consisting World Englishes is divided into three categories: the Inner, Outer, and Expanding Circle. As it typically approached national level accounts, it is roughly in parallel to traditional model of English: English as a native language (ENL), English as a second language (ESL), and English as a foreign language (EFL). In that sense, Kachru's model was once pointed out that it does not sufficiently reflect the growing use of English (Crystal, 2003).

Recently, English as a lingua franca (ELF) paradigm encapsulates the multilingual and multicultural encounters in which native (NSs) and nonnative speakers (NNSs) interact with each other and keeps pace with the contact language used across cultures (Darvin, 2017; Seidlhofer, 2001). ELF is distinguished its own position from other models in that it is being fluid, hybrid, and evolving in nature and is perceived as Translanguaging phenomenon (Cogo, 2016; Dewey, 2007; Jenkins, 2006; Wei, 2016). This concept is in contrast to the terms used for World Englishes such as nativized, new Englishes, or indigenized varieties of English (Jenkins, 2006).

In Korea, English education is somewhat distant from the English use as a global language in multinational settings and remains dependent on monolingual orientation, namely general American English (AmE). To take English native speaking teachers as an example, their nationality rate over the last decade (2008-2017) indicates a strong preference over AmE in Korean educational context. Of the seven eligible nationalities for E-2 visa allowing their paid work as a foreign language instructor—American, Australian, British, Canadian, Irish, New Zealand, and South African, 74.5% of English teachers were from the US and Canada, and British citizenship was followed with 10.9%. All other nationalities accounted for less than 3% (KOSIS, 2018). This profound preference for AmE over other English varieties displayed in the Korean ELT environment was claimed to form an *Institutionally-driven Familiarity* (Chung & Bong, 2017), suggesting learners could develop misconceptions that only native English varieties are legitimate. The reason for AmE dominance in Korea has been partially considered due to Korea's historical and cultural links with the United States (Paik, 2018). South Korea was under American military control from 1945 to 1948, immediately after the end of Japanese rule. Since then,

the general framework of English education goals and teaching methods has passed down to date (Ibid.). Moreover, fluency in AmE has played an important role to signify high social and economic status (Chung & Bong, 2017) while South Korea has been going through the process of modernization.

The problem is, KSLs would eventually encounter situations in which they needed to understand an English other than AmE. As L2 English speakers outnumber L1 speakers (Crystal, 2003), the possibility of engaging in conversations with other L2 speakers has grown. The abilities of KSLs to cope with difficulties arising out of the ELF context, however, are questionable. The challenge is held to be serious where even Inner-Circle (ENL) varieties are not mutually intelligible (Smith & Nelson, 2006). Hence, the present study was carried out to investigate the intelligibility levels of four different varieties of English (General American, British, Australian, and Korean-accented English) targeting KSLs and their attitudes toward each array. This study is expected to broaden understanding of how well KSLs have been prepared for the global interactions and overall diversity.

2. LITERATURE REVIEW

2.1. Speaker-Oriented Accounts of Intelligibility

Smith and Nelson (2006) made a useful distinction between intelligibility, comprehensibility, and interpretability: intelligibility being concerned with the word and utterance-level of recognition, comprehensibility referring to a meaning attached to a word or utterance, and interpretability regarding the degree to which one can read implicit messages of a speaker. In accordance with the characterization of intelligibility above, research on intelligibility has been conducted to make a case that speech of L2 speakers should be intelligible enough to foster mutual understanding and communication (Derwing & Munro, 2015; Jenkins, 2000; Matsuura, 2012; Smith & Nelson, 2006; Walker, 2010). Above all, Jenkin's studies (2000) proposed a list of phonological inventories called *Lingua Franca Core (LFC)* which details minimum features of pronunciation resulting in intelligible communication. The followings are a summary of LFC features.

1. All the consonants except [θ], [ð], and dark 'l' [ɫ]
2. Consonant clusters in initial and medial position
3. Vowel length difference
4. Nuclear/tonic stress placement

Since her seminal work, follow up research has been done employing the LFC features. Field (2005) sought to measure the impact of lexical stress on both L1 and L2 English speakers and confirmed that they similarly evaluate the problematic speech. Deterding (2013) expanded the varieties of English to East Asian countries and identified 183 tokens of misunderstanding between L2 speakers. Of all factors, pronunciation appeared as the most significant in hampering intelligibility, and most phonological elements were more or less overlapped with the LFC. In a more recent study, Sewell (2015) investigated 91 listeners in Hong Kong to transcribe the English of Hong Kong broadcasters and found that most of the problems that arose were related to consonantal variations in line with LFC. Besides, few studies have included KoE variety to compare with LFC, paying attention to both segmental and suprasegmental features. It was reported that the phonological representations of KoE and other Asian varieties which led to communication breakdown or misunderstanding were likely to exhibit LFC related features. The omission of consonant sounds, voicing, and vowel quantity, those consisting of LFC features were emphasized (Chung, 2009; Chung, Kim, & Lee, 2016).

Furthermore, the LFC features prompted researchers to incorporate them in the classroom pedagogy (Rahimi & Ruzrokh, 2016; Walker, 2010). Walker (2010) extensively adopted the LFC to compile a phonology syllabus for Arab learners. Walker (Ibid.) describes the specifics of the curriculum, from classroom materials to assessments suggesting how LFC concepts may be taught. Rahimi and Ruzrokh (2016) have applied LFC to test its pedagogical effect in the Iranian context and to understand the attitudes for lower-intermediate level high-school students. The results showed that attitudes remained the same over the course of six months, but that their intelligibility level and recognition skills significantly improved after the instructions drawing on LFC features. Nonetheless, empirical research on intelligibility is still marginalized and needs to provide more evidence, especially in the Korean EFL context. Thus, one goal of our current study addresses the magnitude of intelligibility of four English varieties to KSLs with reference to LFC feature, which is seemingly important, but remained to be analyzed.

2.2. Listener-Oriented Accounts of Intelligibility

As aforementioned, both segmental and suprasegmental aspects of English pronunciation are often mentioned to be a major culprit (Deterding, 2013; Jenkins, 2000; Matsumoto, 2011) for maintaining intelligibility. It is by no means pronunciation is the only feature prioritized in the manner of intelligibility. Other factors determining intelligibility, more of listener variables, have also been explored in previous studies.

Gass and Varonis (1984) initiated the discussion on familiarity, suggesting that familiarity either with a topic, a speaker, or an accent, would influence or enhance the

comprehensibility of L2 speech. Although the distinction between comprehensibility and intelligibility does not seem clear-cut the two terms have been used interchangeably in the context of the study by Gass and Varonis (1984), familiarity has often been associated with improving intelligibility. In particular, given the advantage of familiar L2 sounds (phonetic segment), Bent and Bradlow (2003) probe the presence of an interlanguage speech intelligibility benefit (ISIB). They proposed that L2 speakers would find English speech by the same L1 background speakers more intelligible, than any other L2 English varieties. Comparing the word recognition rate of speech produced by an L1, Mandarin, and Korean speakers, the findings revealed that the rate was higher in shared-L1 speech than that of different L2 proficient speech. ISIB was divided further into two, as ISIB for listeners and talkers (Hayes-Harb, Smith, Bent, & Bradlow, 2008), and both constructs have been tested to ensure accountability of independent constructs (Wang & van Heuven, 2015; Xie & Fowler, 2013). Similarly, Harding (2011) suggested the shared-L1 advantage in intelligibility.

By contrast, native language effects of listeners seem to be in dissonance with the level of intelligibility. Similar or familiar sounds between L1 and L2 have been viewed to explain the source of difficulties in phonetic acquisition as in Flege's Speech Learning Model (SLM). With the assumption that difficulty in perception can interfere with learning, similar L1 and L2 sounds could hinder recognizing the difference and prevent from learning L2 phones. That is, different L2 speech sounds from L1 inventory are suggested to be easier to hear the differences. In the context of English /r/, for instance, Aoyama and Flege (2004) found that Japanese speakers became better at discriminating English /r/ than /l/ due to 'perceived phonetic dissimilarity'.

As is the case with other aspects of language, extensive research has been conducted to observe the attitudes of language learners toward certain English varieties. In general, what is adopted as *standard norm* of English or as a correct model of English, was seemingly sound particularly in the context of EFL (expanding circle) as in Hong Kong (Chan, 2016, 2018), in Japan (Matsuura, 2012; McKenzie & Gilmore, 2017; Tokumoto & Shibata, 2011), and in Korea (Ahn, 2014; J. Y. Lee, S. K. Mo, S. H. Lee, & K. Sung, 2013; Lindemann, 2003). It is interesting, however, to see that second language learners in outer circle countries (ESL) found less leaning toward L1 English varieties (Bernaisch, 2012; Bernaisch & Koch, 2016). Though many studies have examined the attitudinal aspect of L2 speakers toward English varieties, its potential to be regarded as the source of variation in intelligibility did not seem to be directly explored. Given the speaker (LFC) and hearer roles (familiarity, ISIB, shared-L1 advantage, attitudes) related to intelligibility, three research questions were formulated to analyze the intelligibility of four varieties of English and toward their attitudes among KSL.

1. Will the four varieties of English be different in the degree of intelligibility by KSLs?
2. What phonological features of each variety of English will KSLs find least intelligible and readily intelligible?
3. What role does KSLs attitude toward English varieties play in the intelligibility of four varieties?

3. METHODOLOGY

3.1. Participants

3.1.1. Intelligibility test takers

Intelligibility (listening) test takers were 133 KSLs enrolled at a university in Daejeon, Korea. Participants in general were considered to be basic users of English, which corresponds to the Common European Framework of Reference (CEFR) level A2, as confirmed via administering Oxford Placement Test 1 (OPT1) (Allan, 2004). Among them, the participants were chosen based on the grammar score in OPT1 to ensure the homogeneity of participants. Given that intelligibility test in the current study was applied to word-level, which required a certain level of vocabulary and grammar skills, the grammar test score was taken into account in sampling design. The total of 105 became the subject in this study whose grammar score fell between 30 to 60 (out of 100) without any statistical differences ($\chi^2(3) = 7.247, p = .064$). The participants were in four intact English classes, and the number of individuals in each class varied from 23 to 33. There were 82 males (78.1%) and 23 female students (21.9%), and most students reported to have no experiences in studying abroad ($N = 87, 82.9%$). Only 17.1% of students ($N = 18$) stated that they had study abroad experiences for a relatively short term, all less than a year, and some indicated the countries they stayed in: ENL countries ($N = 5$) (i.e., Australia, New Zealand, the US) or countries speaking ESL ($N = 6$) (i.e., India, Thailand, the Philippines), or countries teaching EFL ($N = 7$) (i.e., China, Japan).

3.1.2. Audio speakers

Four audio speakers were asked to read the set of 100 sentences taken from a script for a previously developed listening test (OPT 1) after receiving permission to retest from the author. Each speaker recorded their reading themselves in a quiet place within a time limitation of 9 minutes in total for ensuring the pace at which speakers deliver the speech.

The audio lengths of four speakers ranged between 8 min 25 sec to 8 min 34 sec, less than 10-second difference per audio. Recordings were digitized at 16 bits and 22 kHz.

Three speakers were native English speakers, and the other was a native speaker of Korean: a speaker of General American English (AmE), Australian (AusE), and British (BrE), and a Korean-accented English (KoE) speaker, speaking English as a foreign language. The different English accents served as a speaker variable, however, audio speakers showed a similarity regarding having substantial experience as English language teachers only in Korea: three English native speakers had more than a decade of English language teaching experiences and one KoE accented speaker had over seven-year of teaching experience. It is reasonably considered that all audio speakers would have high familiarity with KoE speech. Table 1 shows the characteristics of the audio speakers.

TABLE 1
Characteristics of the Audio Speakers

Accent	Birth Place	Gender	Teaching Experience	Audio Duration
AmE	Oregon, USA	Female	10 years	8 min 28 sec
AusE	Australia	Male	11 years	8 min 34 sec
BrE	Oxford, UK	Male	15 years	8 min 27 sec
KoE	Republic of Korea	Female	7 years	8 min 25 sec

3.2. Instruments

3.2.1. An intelligibility test

For measuring intelligibility, a couple of test formats have been used in the previous studies: frequently through a cloze dictation or transcription (Bent & Bradlow, 2003; Deterding, 2013; Field, 2005; Jenkins, 2000; Matsuura, 2012; Rahimi & Ruzrokh, 2016; Sewell, 2015; Smith & Nelson, 2006; Wang & van Heuven, 2015; Xie & Fowler, 2013), and a multiple-choice type to choose the best corresponding question or comment in response to the stimuli sentences (J-K. Lee, 2014). In this study, an identification task involving minimal pairs, a so-called forced choice task was used. The rationale for using the set of 100 different minimal pairs, instead of focusing on a single phonetic feature, is to determine from multiple cases what phonological features KSLs need to reset in effective English learning educational practice. A total of 100 sentences taken from the listening section of the OPT 1 (Allan, 2004) were given with a minimal pair for test takers to select the sound they heard from the audio. Of 100 items, the minimal pairs were distinguished primarily by a consonant sound (62 items), a vowel sound (37 items), or nuclear stress

(1 item). In order to test the reliability of the scale, Cronbach's alpha coefficient was calculated, and it indicated that the test instrument to be reliable ($\alpha = .713$).

3.2.2. A questionnaire survey on attitude

Another focus was to find out how KSLs respond to an English variety from the intelligibility test stimuli. An attitude questionnaire adapted from Jenkins (2007) was used. It was originally developed to explore the view toward ELF among trainee teachers of English in higher learning institutions. The attitude questionnaire in this study consisted of four items, attempted to identify 1) *correctness* of an accent, 2) *acceptability* for international communication, 3) *pleasantness*, and 4) *familiarity* with the accent. For these items, we decided to use a five-point scale to indicate how much they agreed with each item. To avoid the risk that respondents inaccurately inflate the meanings of numerical scale, we added plus and minus to the numbers to best represent the concept of positive and negative attitudes, namely from -2 "strongly disagree" to 2 "strongly agree." The result of Cronbach's alpha coefficient suggested that the questionnaire survey was moderately reliable ($\alpha = .776$).

3.3. Data Analysis

To prioritize intelligible varieties of English among four accents, the mean scores from the intelligibility test (listening test) were compared. In the current study, since some groups consisted of less than 30 participants, a Kruskal-Wallis H test was performed instead of a one-way ANOVA. In the latter analysis, test items from the intelligibility test were categorized according to the phonological features, scrutinizing which of the features bear a resemblance to LFC features and indicating key phonological factors in the Korean context. Furthermore, data collected from the questionnaire survey were reported in means (M) and standard deviation (SD). In the second week of spring semester in 2018, the participants in four general English classes were given with IRB approved informed consent and a survey on personal information. Each class was randomly assigned to one variety of English, and it was played under instructions by one of the researchers. Immediately after the intelligibility test, the attitude questionnaire survey was administered.

4. RESULTS AND DISCUSSION

4.1. Intelligibility of Four English Varieties

The results demonstrated that KSLs found BrE speech the most intelligible with the highest mean score of 75.1 out of 100 ($SD = 6.16$). AmE speech had shown to be the close second intelligible English variety to KSLs ($M = 74.3$, $SD = 8.12$) and followed by KoE ($M = 70.5$, $SD = 6.52$). The mean score of AusE accented speech marked the lowest among four varieties of English ($M = 67.9$, $SD = 5.76$), indicating AusE to be the least intelligible English variety to KSLs. Figure 1 shows the comparison of mean scores between four varieties of English.

A Kruskal-Wallis test provided solid evidence of a difference ($p = .000$) that there was a statistically significant difference in intelligibility scores to KSLs ($\chi^2(3) = 17.855$, $p = .000$). Dunn's pairwise tests were done for the four pairs of groups. There was very strong evidence ($p = .003$, adjusted using the Bonferroni correction) of differences especially with the scores of KSLs listened to AusE variety. The scores of AusE speech was significantly lower than BrE and AmE, respectively. That is, speakers with two most prominent English varieties, namely BrE and AmE were found to be substantially more intelligible than AusE to KSLs. Interestingly, KoE did not show significant differences from any others. The finding was antithetical to the theory of shared-L1 advantage (Harding, 2011) and ISIB (Bent & Bradlow, 2003; Wang & van Heuven, 2015; Xie & Fowler, 2013) which implies intelligibility benefits occurring between interlocutors from the same language background.

In the study, the two prominent English native varieties, BrE and AmE, were more intelligible to KSLs than the shared-L1 variety, KoE. The relatively less exposed AusE variety of English, on the other hand, has resulted in low achievement defined as scores among KSLs.

4.2. Key Phonological Factors Affecting Intelligibility

The set of 100 minimal pairs in the intelligibility test have been examined, starting with categorizing under one main distinctive feature. Care was taken to ensure the validity of the categorization. For example, the distinctive feature categorization was not a once off exercise but a process of sustained examination which took over two semesters. Following the distinctive feature identification for minimal pairs, they were grouped and regrouped to figure out the commonalities in consideration of numerical analysis from the intelligibility test. Thus, a total of five key phonological factors consisted of 84 items were formulated. The other 16 items were minimal pairs occurred

at non-homorganic consonants failed to link to any binary extremes. Cronbach's alpha coefficient score provided the evidence suggested that there is compatibility between five factors ($\alpha = .574$). The five factors were intended to encompass binary features that might have improved or reduced intelligibility. There were two factors related to consonants, two factors linked with vowels, and one suprasegmental associated feature. The five factors and their sample minimal pairs in the intelligibility test are shown in Table 2.

TABLE 2
Key Phonological Factors More and Less Intelligible to KSLs

Factor (<i>N</i> of items included)	MORE Intelligible	Example <i>Answer : Distractor</i>	LESS Intelligible	Example <i>Answer : Distractor</i>
[F1] Consonant Voicing (39)	[-voice]	<u>H</u> e : <u>I</u> an	[+voice] in onset	<u>D</u> ennis : <u>t</u> ennis
[F2] Liquids (11)	Lateral /l/ except in coda	g <u>l</u> ass : c <u>l</u> ass	Rhotic /r/	r <u>a</u> rely : re <u>l</u> ly
[F3] Vowel Quality (21)	Most vowel sounds	r <u>e</u> ading : wr <u>i</u> ting	/ɔ, ə, ɜ/	l <u>a</u> unch : l <u>u</u> nch
[F4] Vowel Quantity (9)	Diphthongs	def <u>i</u> ance : def <u>e</u> nse	- Coda voicing effect - Epenthesis	- sh <u>o</u> d : sh <u>o</u> t - t <u>e</u> rrain : t <u>r</u> ain
[F5] Suprasegmental (4)	-	-	- Different nuclear stress - Syllable assimilation	- p <u>e</u> rson <u>n</u> el : p <u>e</u> rsonal - c <u>a</u> n (t <u>e</u> ll) : c <u>a</u> n't (t <u>e</u> ll)

Factor 1: Consonant Voicing

Consonant Voicing factor contained thirty-nine minimal pairs contrasted by voicing feature. Notably, it was found that consonant sounds in initial and medial positions were problematic especially at labial and alveolar places. Less than half of the respondents chose the distraction with voiceless sounds when they listened to voiced counterparts. 48.6% of KSLs selected *Dennis* instead of *tennis*, and only 21% answered correctly for minimal pairs of *fiscal – physical* (/s/-/z/). Likewise, some voiced consonant sounds were least intelligible to KSLs. This finding suggests that initial and medial voicing contrasts should be paid more pedagogical attention.

Factor 2: Liquids

A set of eleven minimal pairs with liquids contrasted in place feature (/l -r/) was consisted of the second factor. Lateral /l/ is seemingly an advantage over rhotic /r/ to KSLs. The lack of liquid /r/ in Korean is likely to be a plausible explanation for this

phenomenon. As for /r-l/, Korean does not share the distinctive feature with English. In Korean, /l/ is the only liquid phoneme, and they are realized in two allophones: as [r] in the onset and as [l] in the coda. The risk of confusion between two sounds could have contributed to hampering English /r/ to be intelligible to KSLs. To be specific, /r/, especially in the medial position, seemed problematic. In the minimal pair of *horrid day* – *holiday*, KSLs showed 58.7% of correct-answer rate, and 58% answered correctly for *pirated* – *piloted* minimal pair. In addition, it was noteworthy that dark-L in the coda position appeared to cause problems for accurate recognition as in the minimal pair of *barrel* – *barrow*, which places against the LFC features.

Factor 3: Vowel Quality

Vowel Quality involved twenty-one pairs where a vowel sound was different from another. Even though vowel quality is regarded as a non-LFC feature, many instances in this study were a trend opposite, indicating vowel sounds can contribute to reducing intelligibility to KSLs. Of them all, no correspondence of the sound /ɜ:/ in Korean was likely to attribute to ill-perception of vowel sounds. KSLs tend to misperceive /ɜ:/ with /ɔ:/ or other approximants. For the minimal pair of *launch* – *lunch*, corrected-answer rate was only 33.3%, and 43.5% of KSLs answered correctly for the *autistic* – *artistic* minimal pair. It goes in line with the study by J-A. Lee (2001) suggesting that the lack of equivalence of /ɜ:/ in Korean is responsible for hindering intelligibility. Other distinctive vowel sounds shared with Korean did not seem to bring KSLs under difficulties in recognition, showed over 70% of accuracy rate. The shared-L1 vowel sounds were sufficient to achieve intelligibility.

Factor 4: Vowel Quantity

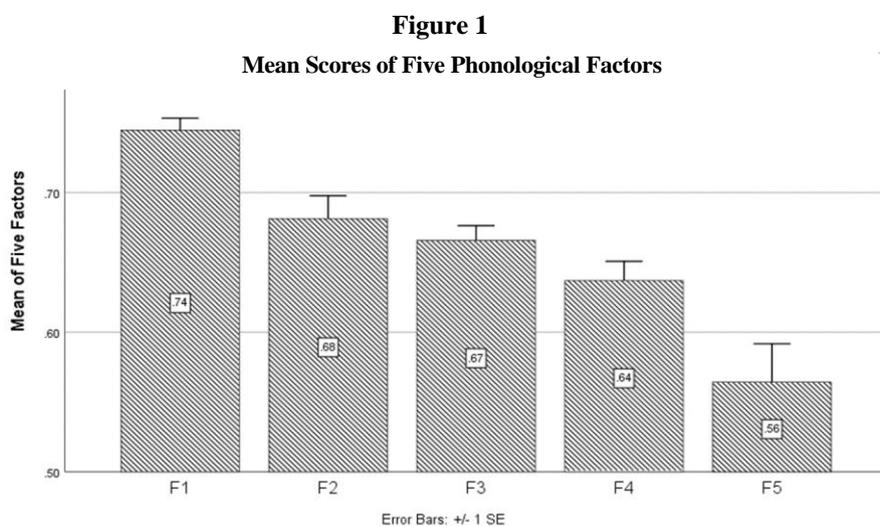
Nine minimal pairs were included in *Vowel Quantity* factor with following contributory features: diphthong sounds (i.e., *defiance* – *defense*), coda voicing effect (i.e., *shod* – *shot*), and adding syllable (i.e., *terrain* – *train*). As vowel length was regarded as one of the LFC features, retention of diphthong sounds enhanced intelligibility. At the same time, the findings showed evidence that a relatively obscure feature to KSLs, coda voicing effect, caused difficulty. For example, voiceless consonant leads to the preceding vowel to be articulated shorter. In the study, 31.2% of KSLs could perceive its subtle difference in vowel length before voiced or voiceless obstruent as in a minimal pair of *shod* – *shot*. Moreover, only 23.9% of KSLs identified the correct word in a minimal pair of *terrain* – *train*. In this case, adding syllable (vowel epenthesis) seemed to trigger problems in intelligibility to KSLs. As Korean does not have consonant clusters, /tr/ was likely to have been misperceived as /ter/, adding a vowel sound between consonants. At the same time, these two minimal pairs might also be

regarded under lexical issues, as the correct answers (*shod* and *terrain*) are not familiar KSLs compared to their distractors (*shot* and *train*). Result of this kind could lead to argue that familiarity rather hinders intelligibility than facilitating.

Factor 5: Suprasegmental

That leaves the final 5) *Suprasegmental* factor consisted of four minimal pairs contrasted with nuclear stress placement and one phonological rule (syllable assimilation). The nuclear stress placement contrast, in particular, was likely to hamper intelligibility as in a minimal pair, *personnel* – *personal*. This result is on par with the studies by Field (2005) and Jenkins (2000), who asserted suprasegmental feature is crucial for intelligibility as much as other core LFC features. Thus, the finding suggests that the role of suprasegmental features is robust in determining intelligibility, regardless of English varieties.

Besides, the five factors exhibited hierarchy characterized by the presence of mean differences. In Figure 1, mean scores of each factor were presented. In general, KSLs found the *Consonant Voicing* feature most easy to distinguish, followed by *Liquids*, *Vowel Quality*, and *Vowel Quantity*. The least intelligible factor was related to *Suprasegmental* features. These results suggest that KSLs' difficulty in perceiving different tonic stresses for each token may contribute to reduce intelligibility.



Note. F1: Consonant Voicing; F2: Liquids; F3: Vowel Quality; F4: Vowel Quantity; F5: Suprasegmental

4.2.1. More or less intelligible English varieties for each factor

In seeking to determine intelligible or unintelligible English varieties for each phonological factor, mean scores and its standard deviations were compared by four varieties of English. As shown in Table 3, the findings showed that there were significant differences between two or more varieties of English on all factors, except for factor 5 *Suprasegmental*.

TABLE 3
Intelligible or Unintelligible English Varieties for Each Key Phonological Factor

Factor	MORE Intelligible	LESS Intelligible	Mean Difference	<i>t</i>	<i>p</i>
Factor 1	AmE	AuE	0.08	25.753	.007
Factor 2	BrE	AusE	0.19	34.480	.000
Factor 3	AmE	KoE	0.10	25.528	.011
	BrE		0.10	27.913	.010
Factor 4	BrE	AmE	0.12	25.054	.011
		AusE	0.19	37.228	.000
Factor 5	-	-	-	-	-

Note. *p* value were corrected using the Bonferroni-method.

For the factor 1, *Consonant Voicing*, AmE was significantly more intelligible than AusE ($\chi^2(3) = 12.075$, $p = .000$) with the mean difference of 0.08 ($p = 0.007$, corrected using the Bonferroni-method). This finding supports that familiarity affects the level of intelligibility, consonant voicing features in particular, as KSLs recognized them with more ease in AmE – most favored and preferred by KSLs (Ahn, 2014; Chung & Bong, 2017). Between other pairs of English varieties, no evidence of a statistical difference was found.

For the *Liquids* factor, the intelligibility scores between four accents groups exhibited evident differences ($\chi^2(3) = 16.655$, $p = .001$). Of them all, BrE and AusE appear to be in stark contrast ($p = 0.000$, using the Bonferroni correction). In other words, KSLs found BrE intelligible significantly better than AusE for the liquid sounds. No differences were observed in other English varieties. This finding seems worth noting because KSLs are known for having a good command of AmE, represented by its rhoticity. However, KSLs found BrE and AusE, which speakers pronounce words with /r/ in syllable coda as loosely, or simply r-dropping, to be the most or least intelligible accents for liquids sounds.

Concerning factor 3 *Vowel Quality*, strong evidence was also found that discrepancies between accents are inevitable ($\chi^2(3) = 13.441$, $p = .004$). Not surprisingly, KSLs

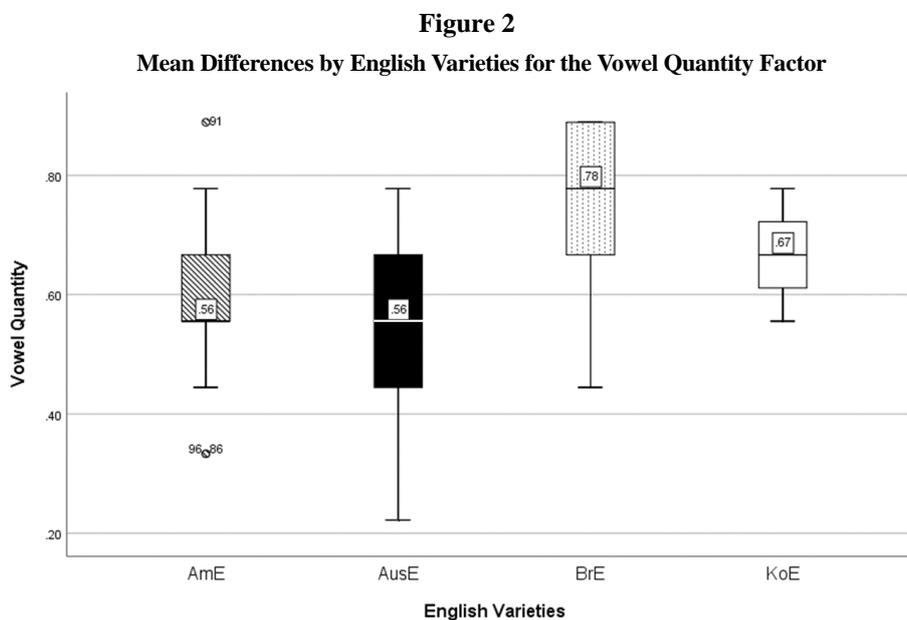
benefited from the speech in normative varieties, AmE and BrE. On the other hand, the findings directly conflict with a shared-L1 advantage (Harding, 2011) or ISIB (Bent & Bradlow, 2003). The scores in KoE accent was significantly lower than those two intelligible varieties ($p < 0.05$, using Bonferroni correction). That is, KSLs tend to find vowel sounds in L1-accented English (KoE) most unintelligible.

Vowel quantity, factor 4, has been considered as one of the LFC core features and so was determined the intelligibility of four English varieties to KSLs ($\chi^2(3) = 21.680$, $p = .000$). However, the findings show fairly compelling evidence that the vowel lengths in BrE manifested as more intelligible, even better than AmE ($p = .11$, using Bonferroni correction) and AusE ($p = .00$, using Bonferroni correction). The findings lend further support that AmE is not always easy to recognize their vowel length along with liquid sounds.

In the text of Factor 5, *Suprasegmental*, all four varieties of English were found to be similar in the level of intelligibility ($\chi^2(3) = 5.881$, $p = .118$). None of the English accents was found to be more or less intelligible than any other.

The findings suggest that phonological factors reducing intelligibility, in general, were deemed to be rooted in the absence of L1 characteristics. It is counter to SLM, which assumes that the more unique L2 sounds from the native language, the easier they are able to learn. Even considering that KSLs in the current study have had at least a decade of English language learning experience, it is difficult to assume that KSLs have acquired the distinctive English sounds successfully. For instance, concerning voiced consonants (e.g., /z/ or /ʒ/), which do not occur in L1 consonant inventories, KSLs tend to consider them as approximate /s/ in Korean, a voiceless counterpart. Another unintelligible minimal pair contained alveolar stop sounds. As only voiceless stop sounds exist in Korean (Shin, 2015), the voiced sound /d/ in onset position have been mistaken with its voiceless counterpart, /t/, showing severe difficulty in AusE and KoE accents.

Aside from the cause of decreasing intelligibility, it is worth noting that there was a factor, *vowel quantity*, where BrE facilitated intelligibility even more than AmE to KSLs (Figure 2). This result draws attention since AmE is found to be intelligible no less than BrE in other factors. It suggests that vowel quantity factor, the length of vowels, is irrespective of AmE dominant tendency to KSLs. Thus, it is plausible to consider that at least vowel length in AmE would not necessarily be easy for KSLs to recognize. Meanwhile, it should be emphasized that familiarity-related effect, that is the shared-L1 advantage (Harding, 2011) or ISIB (Bent & Bradlow, 2003; Wang & van Heuven, 2015; Xie & Fowler, 2013) were hardly confirmed in our study population. Instead, KSLs found the L1-accented speech, KoE, more or less as intelligible as the other varieties. In this study, the extent of familiarity with L1-accented English did not appear helpful in improving intelligibility.



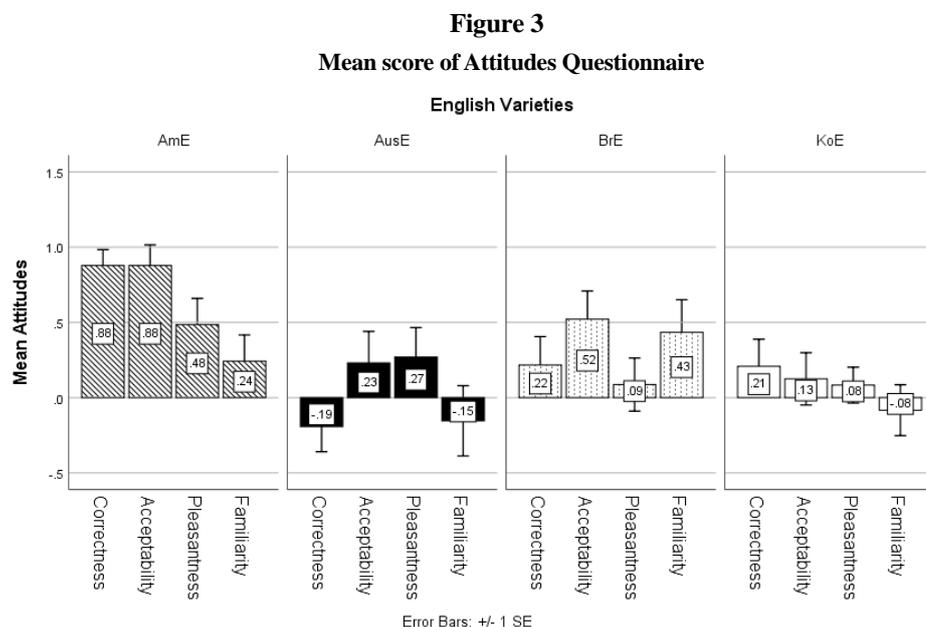
Note. Number of cases in each group: AmE = 33, AusE = 26, BrE = 23, KoE = 23

4.3. Attitudes Towards Five English Varieties

Why were BrE and AmE accented speakers relatively more intelligible to KSLs? The third goal of our study was to explore the link between attitudes and the intelligibility of English varieties. In the previous studies, ambivalent attitudes were expressed depending on various English accents (Chan, 2016, 2018; Chung & Bong, 2017; Lee et al. 2013) and considered as a potential predictor in the level intelligibility (Lindemann, 2003; Matsuura, 2012). It was likely that speech produced by L1 English speakers would be associated with positive attitudes whereas that of L2 English speakers would have a disadvantageous impact on the attitudes.

The findings from the questionnaire survey revealed that general attitudes toward the four varieties of English were largely varied ($\chi^2(3) = 11.930, p = .008$). KSLs responded in the most positive way to AmE ($M = 3.62, SD = .640$). BrE was the second ($M = 3.32, SD = .636$), and followed by KoE ($M = 3.05, SD = .597$), and the least favored was AusE ($M = 3.04, SD = .874$). Among the four English varieties, KSLs inarguably favored AmE over AusE with a statistical difference ($p = .015$, corrected using the Bonferroni-method) and AmE over KoE ($p = .031$, corrected using the Bonferroni-method). BrE did not reveal any significant differences from the other varieties of English. This finding indicated that intelligibility and attitudes are only loosely interrelated.

A closer look at Figure 3 indicated that AmE reached peaks for the three scales from the questionnaire survey: *correctness*, *acceptability*, and *pleasantness*. In other words, KSLs perceived AmE as the most correct, acceptable, and pleasant accent compared to other different English varieties. It is unsurprising that this prevalent inclination toward AmE paralleled to the previous studies examining attitudes of language learners in East Asian countries (Ahn, 2014; Lee et al., 2013; Lindemann, 2003; McKenzie & Gilmore, 2017; Tokumoto & Shibata, 2011).



Note. Number of cases in each group: AmE = 33, AusE = 26, BrE = 23, KoE = 23; each category with bars presents the sub-constructs in the original questionnaire (Jenkins, 2007).

On the other hand, the findings do not support the view that attitudes make an impact on intelligibility, showing that the total mean attitude scores are not unitary with those of intelligibility. Although KSLs found AmE highly intelligible as much as they approved of AmE, the same could not be said to others. The findings in the previous section (see 4.1) revealed that the most intelligible English variety to KSLs was BrE with the highest mean score of 75, differing by one point from AmE in the second place with a score of 74. However, KSLs indicated mediocre attitudes toward BrE, but it was found to be the most intelligible accent of all. Thus, the attitudes toward an accent should not be considered reliable predictors of their levels of intelligibility.

5. CONCLUSION

The current study has focused on testing the level of intelligibility and attitudes toward four varieties of English among KSLs, according to the categorization of intelligibility in the study by Smith and Nelson (2006). A significant difference in the magnitude of intelligibility toward four English varieties was confirmed. KSLs were more likely to find BrE and AmE English varieties the most intelligible while AusE the least intelligible. KoE, L1-accented English, was neither facilitating or impede intelligibility to KSLs.

Two accounts of intelligibility were examined, one that takes it to apply to speakers, and another to listeners. In speaker-oriented accounts, the phonological factors that can contribute to determining intelligibility to KSLs were further pinned down with attention to LFC features. Five phonological factors—Consonant Voicing, Liquids, Vowel Quality, Vowel Quantity, and Suprasegmental—were identified having the qualities that both highly and less intelligible to KSLs, in agreement with features of LFC. All in all, the non-existent consonant sounds in L1 phonological inventory, and length of vowels often caused the difficulties in recognizing the English sound. It is noteworthy that AmE was considerably less intelligible than BrE for *Vowel Quantity* factor. These result support that blind faith in AmE should be set aside as it may not be intelligible to KSLs for distinguishing English vowel lengths.

In listener-oriented accounts, our attempt to reveal the relationship between attitudes and intelligibility led to interesting findings. The attitudes of KSLs toward the accents modulated a weak effect on intelligibility levels. In terms of BrE, intelligibility level and the attitudes toward it operated independently. Though BrE was found to be the most intelligible variety of all to KSLs, their attitudes deemed relatively unfavorable comparing to AmE. At the same time, the lowest intelligibility level of AusE accent seemed orient to negative attitude of KSLs. In this study, the more exposed English variety to KSLs, the more favorable attitudes can be formed, but is not necessarily intelligible.

In the context of ELF, it would seem reasonable to consider both speaker and listener roles. The degree of match between a speaker's intelligibility in English and the listener's tolerance of variance in pronunciation should be achieved. Therefore, stress should be placed upon promoting the various English learning input, so that KSLs as listeners can be exposed to a range of and develop acceptability limits for different English varieties. Furthermore, main problematic features leading to misunderstanding or communication breakdown should also be rigorously classified to foster intelligibility of KSLs speakers. It will be only when the KoE specific features are clearly defined that the ideal learning process, or learnability can be created in support of a better preparation for ELF communication.

Future studies would worth investigating the relationships between speech performance

and intelligibility of KoE. In this study, the extent of KoE intelligibility was likely to be at lower level comparing to other native English varieties. However, its direct relevance of intelligibility to the speech production is scant. In this regard, further analysis might be beneficial to locate the source of problems in the speech production that is potential to hamper its intelligibility.

ACKNOWLEDGEMENTS

We are grateful to Dave Allan for permission to reuse the listening section of OPT 1.

REFERENCES

- Ahn, H. (2014). Teachers' attitudes towards Korean English in South Korea. *World Englishes*, 33(2), 195-222.
- Allan, D. (2004). *Oxford placement test 1*. Oxford: Oxford University Press.
- Aoyama, K., Flege, J. E., Guion, S. G., Akahane-Yamada, R., & Yamada, T. (2004). Perceived phonetic dissimilarity and L2 speech learning: the case of Japanese /r/ and English /l/ and /r/. *Journal of Phonetics*, 32, 233-250.
- Bent, T., & Bradlow, A. R. (2003). The interlanguage speech intelligibility benefit. *The Journal of Acoustical Society of America*, 114(3), 1600-1610.
- Bernaisch, T. (2012). Attitudes towards Englishes in Sri Lanka. *World Englishes*, 31(3), 279-291.
- Bernaisch, T., & Koch, C. (2016). Attitudes towards Englishes in India. *World Englishes*, 35(1), 118-132.
- Chan, J. Y. H. (2016). A multi-perspective investigation of attitudes towards English accents in Hong Kong: Implications for pronunciation teaching. *TESOL Quarterly*, 50(2), 285-313.
- Chan, J. Y. H. (2018). The choice of English pronunciation goals: Different views, experiences and concerns of students, teachers and professionals. *Asian Englishes*. Advance online publication. <https://doi.org/10.1080/13488678.2018.1482436>
- Chung, B., & Bong, M. H. K. (2017). A study on perceptions of Korean EFL learners on four native varieties of English accents. *English Language & Literature Teaching*, 23(1), 17-38.
- Chung, H. (2009). A study on the rhythm of Korean EFL learners' English pronunciation. *Journal of the Korean Society of Phonetic Science and Speech Technology*, 1(2),

141-149.

- Chung, H., Kim, Y-K., & Lee, S-K. (2016). A study on the features of English as a lingua franca in Asian contexts: Segmental features. *Language and Linguistics*, 71, 237-266.
- Cogo, A. (2016). Conceptualizing ELF as a translanguaging phenomenon: Covert and overt resources in a transnational workplace. *Waseda Working Papers in ELF*, 5, 61-77.
- Crystal, D. (2003). *English as a global language* (2nd ed.). Cambridge: Cambridge University Press.
- Darvin, R. (2017). Social class and the inequality of English speakers in a globalized world. *Journal of English as a Lingua Franca*, 6(2), 287-311.
- Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. Amsterdam: John Benjamins.
- Deterding, D. (2013). *Misunderstanding in English as a Lingua Franca: An analysis of ELF interactions in South-East Asia*. Boston, MA: Mouton de Gruyter.
- Dewey, M. (2007). English as a lingua franca and globalization: An interconnected perspective. *International Journal of Applied Linguistics*, 17(3), 332-354.
- Field, J. (2005). Intelligibility and the listener: The role of lexical stress. *TESOL Quarterly*, 39(3), 399-423.
- Gass, S., & Varonis, E. M. (1984). The effect of familiarity on the comprehensibility of nonnative speech. *Language Learning*, 34(1), 65-87.
- Harding, L. (2011). Accent, listening assessment and the potential for a shared-L1 advantage: A DIF perspective. *Language Teaching*, 29(2), 163-180.
- Hayes-Harb, R., Smith B. L., Bent, T., & Bradlow, A. R. (2008). The interlanguage speech intelligibility benefit for native speakers of Mandarin: Production and perception of English word-final voicing contrasts. *Journal of Phonetics*, 36(4), 664-479.
- Jenkins, J. (2000). *The phonology of English as an international language*. Oxford: Oxford University Press.
- Jenkins, J. (2006). Current perspectives on teaching World Englishes and English as a Lingua Franca. *TESOL Quarterly*, 40(1), 157-181.
- Jenkins, J. (2007). *English as a lingua franca: Attitude and identity*. Oxford: Oxford University Press.
- Kachru, B. B. (1985). *English as a lingua franca: Attitude and identity*. Oxford: Oxford University Press.
- KOSIS. (2018). Foreign immigrants by nationality/status of residence. Retrieved on December 25, 2018, from the World Wide Web: http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1B28023&conn_path=I3
- Lee, J-A. (2001). Korean speakers. In M. Swan & B. Smith (Eds.), *Learner English* (pp.

- 325-342). Cambridge: Cambridge University Press.
- Lee, J-K. (2014). Native and non-native talkers' mutual speech intelligibility of English focus sentences. *Linguistic Research*, 31(3), 441-463.
- Lee, J. Y., Mo, S. K., Lee, S. H., & Sung, K. (2013). Korean English speakers' perception of East-Asian English speakers' pronunciation. *The Journal of Asia TEFL*, 10(4), 1-40.
- Lindemann, S. (2003). Koreans, Chinese or Indians? Attitudes and ideologies about non-native English speakers in the Unities States. *Journal of Sociolinguistics*, 7(3), 348-364.
- Matsumoto, Y. (2011). Successful ELF communications and implications for ELT: Sequential analysis of ELF pronunciation negotiation strategies. *The Modern Language Journal*, 95(1), 97-114.
- Matsuura, H. (2012). Japanese learners' evaluative reactions and affective responses toward English accents. *The Shogaku Ronshu*, 80(4), 21-32.
- McKenzie, R. M., & Gilmore, A. (2017). The people who are out of 'right' English: Japanese university students' social evaluations of English language diversity and the internationalization of Japanese higher education. *International Journal of Applied Linguistics*, 27(1), 152-175.
- Paik, K. (2018). The English language in Korea: its history and vision. *Asian Englishes*, 20(2), 122-133.
- Pimienta, D., Prado, D., & Blanco, Á. (2009). *Twelve years of measuring linguistic diversity in the Internet: Balance and perspectives*. Retrieved on March 07, 2010 from the World Wide Web: <http://unesdoc.unesco.org/images/0018/001870/187016e.pdf>
- Rahimi, M., & Ruzrokh, S. (2016). The impact of teaching Lingua Franca Core on English as a foreign language learners' intelligibility and attitudes towards English pronunciation. *Asian Englishes*, 18(2), 141-156.
- Seidlhofer, B. (2001). Closing a conceptual gap: the case for a description of English as a Lingua Franca. *International Journal of Applied Linguistics*, 11(2), 133-158.
- Sewell, A. (2015). The international intelligibility of Hong Kong English accents. *System*, 49, 86-97.
- Shin, J. (2015). Vowels and consonants. In L. Brown & J. Yeon (Eds.), *The handbook of Korean linguistics* (pp. 3-21). Malden, MA: Wiley-Blackwell.
- Smith, L. E., & Nelson, C. L. (2006). World Englishes and issues of intelligibility. In B. B. Kachru, Y. Kachru, & C. L. Nelson (Eds.), *The handbook of World Englishes* (pp. 428-445). Malden, MA: Blackwell.
- Tokumoto, M., & Shibata, M. (2011). Asian varieties of English: Attitudes towards pronunciation. *World Englishes*, 30(3), 392-408.

- Wang, H., & van Heuven, V. J. (2015). The interlanguage speech intelligibility benefit as bias toward native-language phonology. *i-Perception*, 6(6), 1-13.
- Walker, R. (2010). *Teaching the pronunciation of English as a Lingua Franca*. Oxford: Oxford University Press.
- Wei, L. (2016). New Chinglish and the post-multilingualism challenge: Translanguaging ELF in China. *JELF*, 5(1), 1-25.
- Xie, X., & Fowler, C. A. (2013). Listening with a foreign-accent: The interlanguage speech intelligibility benefit in Mandarin speakers of English. *Journal of Phonetics*, 41(5), 369-378.

Applicable levels: Tertiary

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Received on April 25, 2019

Reviewed on May 24, 2019

Revised version received on June 1, 2019