Journal of Pan-Pacific Association of Applied Linguistics, 27(1), 1–19.
https://doi.org/10.25256/PAAL.27.1.1

Effects of Starting Age of Formal English Instruction on L2 Learners' Listening Comprehension*

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Chung, B., & Bong, H. K. M. (2023). Effects of starting age of formal English instruction on L2 learners' listening comprehension. ***Journal of Pan-Pacific Association of Applied Linguistics, 27*****(1), 1–19.**

This paper examined whether a younger starting age of formal instruction on a foreign language is beneficial in expanding circle countries. An experimental study was designed to examine to what extent the five varieties of English language teachers are intelligible to Japanese- (JSLs) and Korean-speaking language learners (KSLs), who have different starting ages of formal English education. First, 132 JSLs and 214 KSLs participated in a listening test where the accents of audio stimuli were varied. The results showed significant differences in the listening test scores between the two groups of learners and among the five varieties of English. It was found that KSLs who started learning English language at an early onset demonstrated proficient listening performance. These findings provide support for the premise that "younger is better" in development and persistence of L2 sound identification. At the same time, both JSLs and KSLs demonstrated sensitivity to input varieties of English. This highlights the importance of exposing students in the classroom to various English accents that may encounter in real-world situations.

Keywords: starting age, phonological awareness, intelligibility, English as a Lingua Franca

1 Introduction

A considerable body of research has been conducted on intelligibility in the context of English as a lingua franca (ELF). The driving force is the insight that it is not a necessary condition for non-native English speakers to acquire native-like standards of pronunciation so as to communicate in English with people from different linguistic and cultural backgrounds (see Seidlhofer & Widdowson, 1999). Instead, it has been argued that the goal of language teaching should be to foster communicative competence and mutual intelligibility among the various English users (i.e., Jenkins, 2000). The insight

* This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2020S1A5A8047381).
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stimulated diverse strands of research, which explored speech intelligibility strategies (Matsumoto, 2011) and investigated the effective features required to improve the intelligibility in different countries, including Japan and South Korea (Barrass et al., 2020; Chung & Bong, 2019, 2021, 2022; Chung et al., 2016; Deterding & Kirkpatrick, 2006; Deterding & Mohamad, 2016; Fec, 2021; Rahimi & Ruzrokh, 2016). Despite this growth of interest in second/foreign language (L2) intelligibility, there is a general lack of research into the phonological awareness of L2 learners, a facet that is held to be necessary to achieve mutual intelligibility (Yenkimaleki & van Heuven, 2021).

In Japan and Korea, English is learned and taught as a foreign language belonging to expanding circle countries (Kachru, 1985). Each country is characterized by having a highly centralized education system (Ho, 2006), and English education in these countries shares similarities in that they are increasingly emphasizing a communicative teaching approach: prioritizing communication skills as a key education objective in the English language curricula both in Japan (MEXT, 2022) and in Korea (Ministry of Education, 2022). To this end, each country has offered government-funded English teaching programs to recruit native English-speaking teachers (NESTs), such as the Japan Exchange and Teaching (JET) Program and English Program in Korea (EPIK), resulting in a diverse workforce of English language teachers, comprising both NESTs and non-native English-speaking teachers (NNESTs). With communal efforts to develop communicative competence, however, it has been argued that the approach to English language teaching practices in both countries focuses heavily on grammar and vocabulary skills, which may hinder developing communicative competence (Iwai, 2009; Whitehead, 2017).

The Korean education system nonetheless has taken the lead in mandating English subjects at the elementary school level, with Japan subsequently having made English instruction compulsory under the revisions. Since 1997, English instruction has been compulsory for grade 3 (at the ages of 8-9) in Korean elementary schools. However, mandatory English instruction has been in place in Japanese middle/junior high schools since 2010. From 2011 the English subject became compulsory for Japanese elementary schools, starting in Grade 5 (at age of 10-11), and from 2020, this was lowered to Grade 3. It would be a course of study 2028, for undergraduate students in Japan and Korea who have the same starting age range for learning English. By then, a gap of some years in the starting age of formal L2 instruction will exist between students in each country.

Taking into account the similar yet different contexts of English education in Japan and Korea, this study set out to compare the intelligibility levels of English language teachers (NESTs and NNEST) to JSLs and KSLs whose starting age of formal L2 instruction differed at the time of experiment. The study employed the concept of intelligibility, as defined by Smith and Nelson (2006), using a word-level phonological identification test. The starting age of formal L2 learning can have an impact on phonological awareness due

to the critical period hypothesis and reduced interference from the learner's first language (L1). In this study, the subjects' responses to a phonological identification task were interpreted as testing the speech intelligibility levels of different types of English language teachers. Additionally, grammatical competence of L2 learners was also taken into consideration whether it plays a role for L2 learners to better identify the sounds of English teachers. This study thus attempts to make a useful contribution to research on the effect of starting age of formal L2 learning by measuring how intelligible English language teachers are to two groups of L2 learners.

2 Literature Review

Fine-grained examination of the various factors contributing to L2 listening ability conducted in the current study and thus influencing L2 phonological awareness is essential for enhancing our theoretical understanding of roles and empirical significance of the underlying components of the current study orientation/construct: i.e., Learners vs. Teachers oriented factors.

2.1 Age: The earlier, the better?

In the field of L2 acquisition, a large body of literature has investigated age effects. Traditionally, considerable research on age-related factors has been grounded in the Critical Period Hypothesis (CPH), which assumes that L2 acquisition will be relatively successful usually before the age of puberty (Lenneberg, 1967). Indeed, it was argued that younger acquirers enjoy an advantage compared to adult learners: i.e., The ultimate attainments of early starters will exceed those of adult learners; earlier learners will reach a higher level of L2 proficiency in the long run; older learners' approach early phases of morphological and syntactical learning more quickly but show less significant progress than younger learners (Krashen et al., 1979). Recently a large-scale study suggested that an enhanced L2 learning performance is preserved until a later age than expected: approximately until 17 (Hartshorne et al., 2018), although the authors argued consistently that younger learners are better. However, traditional approaches to the CPH have been challenged on several spears. For instance, Muñoz (2011) suggested that the age factor is not necessarily a strong determiner in L2 acquisition. Focusing on the long-term advantage of early starters and the relative impact of different input on learners' oral performance, Muñoz (2011) analyzed film-retelling oral narratives from 160 learners of English, and the findings showed that contact with high-quality inputs is a better predictor of learners' oral performance in the foreign language than starting age.

Nevertheless, previous studies on L2 listening skills development show that the principle "the earlier, the better" applies. For example, Shinohara and

Iverson (2021), in order to investigate the effect of age on the acquisition of English /r/-/l/ phoneme contrast in Japanese speakers of English as a Foreign Language (EFL), trained Japanese speakers across a wide age range (young children through adults) using a computer-based phonetic training program, and showed that training improved younger learners' perceptions (L2 phoneme learning) more than adult learners over the 10 training sessions. In addition, Jaekel et al. (2022) examined the receptive skills of two cohorts of EFL learners in Year 5, Year 7, and Year 9 in Germany, who differed in their age of EFL onset in elementary school, and demonstrated a long-term benefit of an earlier start, supporting the claim that the earlier the better in L2 learning (listening skills development). Furthermore, investigating the necessary and sufficient conditions for reversing the decline in foreign-language phonetic perception that occurs between six and twelve months of age, Kuhl et al., (2003) explored infants' acquisition of language and their ability to discern differences in phonetic units of native and foreign language, and revealed that learning took place earlier by social interaction not by pre-recorded exposure regardless of the length of exposures.

As we pointed out previously, the education systems within Japan and Korea display a centralized approach, with different starting ages of learning L2. Given the findings from previous studies indicating that listening skills in a L2 are influenced by the age at which learning begins, it seems reasonable to assume that variations in the onset of L2 education led to disparities in L2 listening proficiency. Therefore, it seems worth exploring age effects in L2 listening skills development. Due to an early/earlier start in a school setting, this current study aims to investigate whether there are any age-related outcome differences between KSLs and JSLs, in English as a foreign language learning, so as to inform educational policy decisions on when to introduce a formal foreign language education in school.

2.2 Syntactic knowledge

Aside from the age factor, data from several sources have shown that listening ability is associated with other factors, such as syntactic knowledge. While many empirical studies (Ha, 2021; Zhang & Graham, 2020; Zhang & Zhang, 2020) have shown that vocabulary knowledge in L2 listening plays important roles in successful listening comprehension, recently several studies have examined the role of various factors including syntactic knowledge in L2 listening and the relation between those factors and listening comprehension. For instance, Li et al., (2000) scrutinized possible determinants affecting L2 learners' listening comprehension. Conducting five tests — an IELTS academic listening test, a vocabulary test, a phraseological knowledge test, a syntactic knowledge test, and metacognition awareness — with 105 English major students, the results of a regression analysis indicated that phraseological and syntactic knowledge would enable improvement of L2 listening

comprehension skills. Two decades later, Vafaee and Suzuki (2020) reached similar conclusions. They investigated the effects of cognitive, linguistic, and affective factors on L2 listening comprehension, examining 262 EFL students learning Spanish. Using IELTS, vocabulary, syntactic, working memory, and metacognitive tests, and applying a structural equation modeling analysis, they demonstrated that not only syntactic knowledge but also vocabulary knowledge is a stronger predictor of L2 listening ability. Similarly, Park (2004) compared L2 listening and reading comprehension among 168 undergraduate students in Korea, focusing on three variables (linguistic knowledge, background knowledge, and question types). The results indicates that having linguistic and background understanding would help learners in reading comprehension more than listening: the two variables combined explained 20% of reading comprehension, but only 14% of listening (Park, 2004). By contrast, an earlier study by Hoover and Gough (1990) revealed that listening competence affects reading development. Testing English-Spanish bilingual elementary students using the *Interactive Reading Assessment System* (Calfee & Calfee, 1979, 1981) assessment, the study found that reading skills are the product of decoding and linguistic comprehension skills (Hoover & Gough, 1990). Whether L2 syntactic knowledge is a prerequisite for the development of L2 listening ability remains inconclusive; however, a body of literature indicates that the two competencies are closely linked to one another. Due to the associations between the two skills, this study attempts to assess the syntactic knowledge of participants. In the context of the present study, syntactic knowledge and grammar refer to the understanding and application of the rules and structures that govern sentence formation and organization in the second language being learned. It involves knowledge of grammatical categories, sentence patterns, and the ability to produce and comprehend sentences in accordance with the rules of the language. This would effectively eliminate the potential variable being considered in the starting age comparison in this research.

2.3 Native vs. non-native speech

It is well established that a non-native variety of English is more intelligible to shared-L1 listeners, as in the interlanguage speech intelligibility benefit (ISIB) (Bent & Bradlow, 2003; Wang & van Heuven, 2015; Xie & Fowler, 2013), and the shared L1 advantage (Harding, 2012). Comparing the word recognition rate from speech produced by native English, Mandarin, and Korean speakers, Bent and Bradlow (2003) found that the answer rates were higher in shared-L1 speech than in different L2 proficient speech. Bent and Bradlow (2003) used the findings as evidence and probed for the presence of ISIB, accounting for a strong L1 influence. Subsequently studies by Wang and van Heuven (2015), and Xie and Fowler (2013) among others confirmed ISIB as they found that a variety of English was more intelligible to shared-L1 listeners, Mandarin-

speakers in particular, than it was to NSs and/or listeners with other linguistic backgrounds. Thus, it can be assumed that ISIB or shared-L1 advantage is likely to manifest as improved in speech intelligibility.

The ISIB, also known as the shared-L1 advantage, may facilitate improved comprehension between English speakers possessing similar language backgrounds. However, existing literature (Chung & Bong, 2017; Matsuura, 2007; Newbold, 2017) indicates that the level of intelligibility is influenced by the degree/type of familiarity with accents. For example, in mainland Europe, where frequent exposure to a diversity of language occurs, this naturally-occurring familiarity of listeners with various English accents plays a role as a factor that helps people better understand different varieties of English (Newbold, 2017). In addition, the extent of familiarity with English accents is the best predictor of intelligibility to Japanese-speaking learners (JSLs) of English in that JSLs understood a familiar accent, general American English (AmE), better than a less familiar variety of English, namely Hong Kong English (Matsuura, 2007). Moreover, in Korea, institutionally-driven familiarity suggested by Chung and Bong (2017) to recognize a Korean English language teaching environment where AmE input prevailed over other varieties has some effects on the level of intelligibility.

Notwithstanding, a preference for native English-speaking teachers (NESTs) over non-native English-speaking teachers (NNESTs) in listening and speaking class seems prevalent not only among L2 learners (Levis et al., 2017; Walkinshaw & Oanh, 2014) but also among teachers (Hwang & Yim, 2019; Uchida & Sugimoto, 2020). According to Levis and his colleagues (2017), in the same manner from students both in outer and in expanding circle countries showed a preference towards NESTs in classrooms that focused primarily on pronunciation instruction, although the differences between NESTs and NNESTs were likely to be unnoticed in a speech perception task. In addition, to L2 language learners in Vietnam and Japan, NESTs and NNESTs have been presented as having different properties and each holds distinct advantages and disadvantages (Walkinshaw & Oanh, 2014). Both Vietnamese and Japanese students seem to have perceived NESTs as ideal role models for acquiring knowledge of a different culture and pronunciation norms, albeit they have limitations such as sometimes weak in explaining grammar knowledge and tendency to provoke cultural tensions (Walkinshaw & Oanh, ibid). On the other hand, NNESTs were viewed as possessing expertise in teaching grammar and able to tailor education to learners' needs while their pronunciation was considered inferior but more comprehensible (Walkinshaw & Oanh, ibid). Interestingly, Japanese students reported positive perception toward Filipino teachers, who are considered NNESTs, and they would not necessarily interfere with the acquisition of "authentic" English from NESTs (Kobayashi, 2021). However, particularly in listening and speaking lessons, learners are likely to hold the view that NESTs are more qualified (Walkinshaw & Oanh, 2014).

In light of the perspective of teachers, Hwang and Yim (2019) conducted interviews to investigate the identities of NESTs and NNESTs teaching elementary school students in South Korea. Their study revealed that favoritism toward NESTs in English education triggers discriminatory attitudes toward English varieties of NNESTs (Hwang & Yim, 2019). Additionally, NESTs consider their key role to be teaching proper English pronunciation (Hwang & Lim, 2019).Comparably, Uchida and Sugimoto (2020) analyzed essays written by NNESTs, and pointed out that Japanese preservice teachers were likely to maintain the viewpoint that NNESTs should sound like NESTs. In addition, Uchida and Sugimoto (2020) claimed that the lack of communication experience in monolingual classrooms could account for the results that Japanese teachers expressed uncertainties regarding their English pronunciation and were unfamiliar with the concept of intelligible pronunciation.

Likewise, NNESTs cope with challenges in teaching English pronunciation and speaking skills. In addition to L2 language learners revealing a preference toward NESTs in learning L2 pronunciation skills (Walkinshaw & Oanh, 2018), NESTs themselves considered teaching English pronunciation as their value (Hwang & Yim, 2019), leaving NNESTs little space for teaching English pronunciation. However, considering the effects of ISIB (Bent & Bradlow, 2003; Wang & van Heuven, 2015; Xie & Fowler, 2013), and shared L1 advantage (Harding, 2012), considerable uncertainty exists regarding whether it is particularly disadvantageous for NNESTs to deliver intelligibility-related lessons.

2.4 Research questions

Given the previous research, this study set out to examine the intelligibility of English language teachers, NESTs, and NNESTs to two groups of non-native English speakers (NNS), Japanese-speaking learners of English (JSLs) and Korean-speaking learners of English (KSLs) whose starting age of formal instruction on English as a foreign language (EFL) varied. In doing so, the following research questions have been formulated:

1. Is there any significant difference in L2 perceptual competence between two groups of students with different starting ages of formal L2 instruction?
2. Do the types of English varieties of teachers affect the L2 perceptual competence?

3 Methods

3.1 Participants

A total number of 346 English language learners in Japan and Korea participated in the study. The sample comprised 132 undergraduates in Japan and 214 in South Korea. All participants were aged 17 years and above at the time of testing and had no known hearing difficulties. We calculated the starting age based on the national curriculum the participants received. According to the education systems in each country, the formal teaching of English as a foreign language began when JSLs were at the age of 12 or13, attending from middle school or junior high-school. On the other hand, formal English education for KSLs began when they were at the age of 8 or 9, approximately four years earlier than JSLs, in the third grade of elementary school under the 7th Korean National Curriculum. Their English language proficiencies were assessed by conducting a grammar test using the Oxford Placement Test 1 (OPT1) (Allan, 2004). The results indicated statistically significant differences in English grammatical competence between JSLs and KSLs [t (344) = -11.948, p = .000]. The mean rate of JSLs in the grammar test was 62.4 (SD = 9.387), whereas that of KSLs was 49.6 (SD = 9.865). In order to mitigate the potential impact of the differences in grammatical competence, grammar score was incorporated as a covariate in the subsequent analysis. The demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic Characteristics of Participants

		Gender		Age	Starting	Grammar score	
	#	Male (%)	Female (%)	Range	Age	Mean	Range
JSLs	132	56 (42.4)	76(57.6)	17-21	12-13	62.4	33-81
KSLs	214	119(55.6)	95(44.4)	19-26	8-9	49.6	20-76
Total	346	175(50.6)	171(49.4)	17-26	8-13	56.0	20-81

Note. JSLs = Japanese-speaking learners of English; KSLs = Korean-speaking learners of English; Age = age at the time of test; Starting age = starting age of formal L2 instruction

3.2 Speaker data acquisition

Five sets of audio recordings of English language teachers were obtained. Four were recorded by NESTs from Oregon, the US (representing a variety of AmE), Oxford, the UK (BrE), Toronto, Canada (CE), and from New Zealand (NZE), and the other by a NNEST from South Korea (representing a variety of KoE). All individuals possessed a considerable pedagogical background, having accrued over ten years of English teaching experience in South Korea. Each speaker was asked to read 100 sentences from a script in a listening test

as part of OPT1 (Allan, 2004) after receiving approval to retest from the author. The same stimuli were recorded by all five individuals. Recording took place in a quiet office, and the recordings were saved in 16-bit wav-format, 22kHz. The audio lengths for NESTs and NNEST were from 8 min 25 sec to 8 min 48sec. All sets of audio recordings were designed to test the intelligibility of English language teachers in AmE, BrE, CE, KoE, and NZE speech, and were employed in a listening test, that is, 'the intelligibility test of AmE', 'the intelligibility test of BrE', 'the intelligibility test of CE', 'the intelligibility test of KoE,' and 'the intelligibility test of NZE' in the experimental study.

3.3 Data collection

Based on the categorization of intelligibility by Smith and Nelson (2004), we conducted word- and utterance-level phonological recognition tasks in the cloze test format. As one of the conventional methods to test comprehension, the cloze test with binary options of minimal pair words was employed to test how well test-takers can discriminate sounds of English language teachers at the word- and utterance-level. The intelligibility test was adapted from the listening section of OPT 1 (Allan, 2004) which consisted of 100 fill-in-the-blank sentences. Test-takers were required to choose the option that best filled in the gap in each sentence based on what they heard (e.g., I gather you've been having trouble with your _____.) The test was conducted in 2017-2018 in Japan and South Korea with different audio types. Five types of audio in different varieties of English (AmE, BrE, CE, KoE, or NZE) were given to the participants in each country: 26 JSLs and 30 KSLs were provided with audio recordings in AmE, 28 JSLs and 35 KSLs were provided with audio recordings in KoE, and 29 JSLs and 33 KSLs in NZE. The participants were instructed to listen to one of the five audio sets on a singular occasion and subsequently indicate their responses on the test paper.

3.4 Data analysis

The aim of this study was to investigate whether the L2 perceptual competence is differentiated by (1) two student groups with different ages of starting formal L2 instruction (JSLs and KSLs), and (2) teachers' varieties of English (AmE, BrE, CE, KoE, and NZE). Before the analysis was conducted, it was necessary to exclude outliers, that is those items that may affect the mean. The following criteria, which narrowed the target words to 70 from 100 items, were applied: (1) only target words of common nouns, except proper nouns (e.g., Dennis, Penny's), and (2) difficulty level of target words, less than B2 in CEFR. The 70 target words in the intelligibility test were coded 1 and 0 for a correct and incorrect answer, respectively. We used the mean correct rates of the 70 items as a dependent variable for the following two analyses. First, a two-way analysis of covariance (ANCOVA) was performed to compare the mean rates

between the starting age of formal L2 instruction of listeners and teachers' varieties of English, while accounting for adjustment effects of syntactic competence (grammatical skill) differences between the test-taking groups. Estimated marginal means were compared using Bonferroni post hoc tests.

4 Results

To address the first and second research questions, the estimated marginal means (EMMs) of correct rates on the listening test (intelligibility test) adjusted for grammar scores were compared. The mean correct rates for all English varieties were above the accepted threshold (> 60%) based on several previous studies on intelligible speech (Monsen, 1981; Smith & Nelson, 2006). The estimated marginal means of listening test results by two listening test takers are presented below in Figure 1.

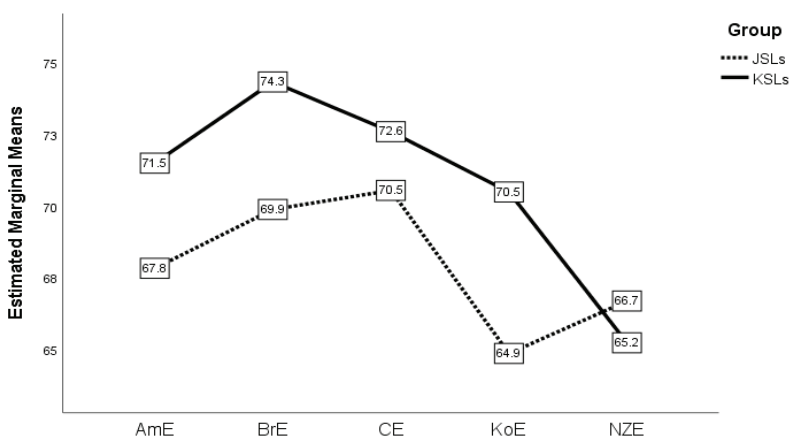

Figure 1. The estimated marginal means of listening test results by Japanese- and Korean-speaking learners of English
Note. Covariates appearing in the model are evaluated at the following values.: RC = 54.44

Overall, even considering differences in the grammatical competence level between the two groups, KSLs outperformed JSLs over four English varieties and maintained higher scores until JSLs came from behind in the test with the NZE variety. Comparatively, JSLs had higher test scores than KSLs with the NZE variety in spite of being 2 to 5 points down for other varieties. For JSLs, the highest score was found when they heard CE (*EMM* = 70.5). After that, the scores declined in the order of BrE (*EMM* = 69.9), AmE (*EMM* = 67.8), NZE (*EMM* = 66.7), and KoE (*EMM* = 64.9). On the other hand, KSLs found BrE most intelligible (*EMM* = 74.3), followed by CE (*EMM* = 72.6), AmE (*EMM* = 71.5), KoE (*EMM* = 70.5), and NZE (*EMM* = 65.2).

Table 2 displays the results of a two-way ANCOVA analysis. The interaction of students' L1 backgrounds (group; JSLs and KSLs) and teachers' English varieties (accent; AmE, BrE, CE, KoE, and NZE) did not have a significant effect, F (4, 335) = 2.186, p = 0.070. Thus, each of the main effects of test-taker groups and teachers' English varieties was considered, rather than trying to compare the two variables in terms of their combined effect. Simple main effects analysis showed that the listening test results were significantly different depending on each of the variables: the group of test-takers with different L1 backgrounds (JSLs and KSLs) (p = 0.004), and the English varieties of teachers (p = 0.000). Taken together, test groups and English varieties were found to account for 16% of the total variations (R^2 = .160) in scores obtained from the listening test.

Table 2. Two-Way ANCOVA Results for Listening Test Scores of Two Groups

Sources of variation	SS	*df*	MS	*F*	*p*
Group	439.440	1	439.440	8.241	0.004**
Accent	1716.025	4	429.006	8.046	0.000***
Group*Accent	466.341	4	116.585	2.186	0.070
Error	17862.924	335	53.322		

***p < .001, **p < .01

Note. R^2 = .160 (Adjusted R^2 = .135); SS = Sums of square; MS = Mean square

As shown in Table 3, the post-hoc Bonferroni test analysis revealed significant differences depending on student groups and teachers' English varieties.

Table 3. Bonferroni Corrected Post-Hoc Test Results of Variables

Factor	JSLs		KSLs		Total	
	N	EMMs ± SE	*N*	EMMs ± SE	*N*	EMMs ± SE
AmE	26	67.8 ± 1.49	33	71.5 ± 1.29	59	69.7 ± 0.96[a]
BrE	23	69.9 ± 1.75	54	74.3 ± 1.02	**77**	**72.2 ± 0.96**[b]
CE	25	70.5 ± 1.46	58	72.6 ± 1.01	**83**	**71.6 ± 0.88**[c]
KoE	29	64.9 ± 1.37	36	70.5 ± 1.22	**65**	**67.7 ± 0.91**[d]
NZE	29	66.7 ± 1.39	33	65.2 ± 1.28	**62**	**66.0 ± 0.93**[e]
Total	**132**	**68.0 ± 0.74****	**214**	**70.8 ± 0.55****	**346**	**b = c > d = e***

**p < .01, *p < .05

Note. EMMs = the estimated marginal means; SE = Standard error; Covariates are evaluated at the following values.: grammar comprehension = 54.44

Specifically, it was revealed that KSLs had an EMM of 70.8 (SE = 0.55) in the L2 perception test, which was significantly different from JSLs by 2.8

points (p = .004). With regard to teachers' English varieties, KoE (67.7 ± 0.91) and NZE (66.0 ± 0.93) were found to be significantly more difficult to recognize relative to the other two varieties, BrE (72.2 ± 0.96) and CE (71.6 ± 0.88), for both JSLs and KSLs (p > .05). AmE did not exhibit notable differences with other varieties of English, suggesting neither intelligible nor less intelligible to both JSLs and KSLs.

5 Discussion

5.1 Research question 1: Is there any significant difference in L2 perceptual competence between two groups of students with different starting ages of formal L2 instruction?

The findings suggest that the performance in the English phonemic discrimination task differs significantly between JSLs and KSLs. KSLs performed better than JSLs in the task. JSLs (N = 132) showed adjusted means (adjusted for grammar comprehension test scores as a covariate) of 68.0 ± 0.74 in the listening task, which was significantly different from KSLs (N = 214; mean difference between KSLs and JSLs: 2.9 ± 1.0, p = .004). Dissonance between L2 listening and L2 grammar competencies was detected as higher English grammar comprehension scores in the diagnostic tests did not guarantee higher English listening performance across the two groups of L2 learners.

An interesting finding is that the grammar competency of the listeners did not predict the performance in the listening task. Although the grammar scores of JSLs were significantly higher than those of KSLs, the opposite results were obtained in the listening task. This finding does not support the previous research, where grammar/syntactic knowledge was found to be a strong determiner of L2 listening ability (Li et al., 2020; Park, 2004; Vafaee & Suzuki, 2020) or vice versa, showing listening competence is a determinant of reading development (Hoover & Gough, 1990). Contrary to Park (2004)'s study, where linguistic and background knowledge explained 14% of listening comprehension, the current findings in this study indicated that 16% of listening test results were explained by test-takers' L1 background and teachers' English varieties after controlling for the effect of grammar competency.

A possible explanation for this might lie in instructional settings, the starting age of formal L2 learning, in particular. A number of similarities in English education systems are displayed in the two test countries — Japan and Korea (i.e., centralized education systems; Ho, 2006), but they differed in terms of the starting age of L2 formal instruction in the curriculum that the test-taker groups received. KSLs started learning a compulsory English subject at the age of 8-9 in elementary school, while JSLs started at 12-13 in middle

school. Undergraduate students who engaged in learning English from elementary school outperformed those who learned English from middle school. The results imply that the earlier start to L2 learning students helped adult learners perform better in the listening task. The view that "younger is better" when it comes to developing and persistence of L2 phonemic discrimination skills has been supported.

The findings in this study are in line with Hartshorne et al. (2018), Jaekel et al. (2022), Krashen et al. (1979), Kuhl et al. (2003), Lenneberg (1967), and Shinohara and Iverson (2021), where L2 development was observed in response to earlier L2 learning. At the same time the results were inconsistent with Muñoz (2011), where no significant correlation was found between starting age and three sets of test scores (global proficiency, vocabulary, and phonetic discrimination). The length of time spent learning English in this study (Muñoz, 2011) was more than 14 years on average, which is slightly longer than the time in this study (an average of 10 years in formal L2 learning). However, the L1 of the participants in Muñoz (2011)'s study was Spanish, which shares an alphabet and approximately 15,000 cognates with English language (Nash, 1997). Despite the longer period of L2 learning experience, the similarity between L1 and the target language of the learners may limit the claims for the earlier start of L2 learning having a weak correlation with L2 improvement.

5.2 Research question 2: Do the types of English varieties of teachers affect the L2 perceptual competence?

The findings show that English varieties of English language teachers did influence the listening test scores regardless of the listeners' L1 background. The listening scores for BrE (72.2 ± 0.96) and CE (71.6 ± 0.88) accents were significantly higher than those for KoE (67.7 ± 0.91) and NZE (66.0 ± 0.93) ($p < .05$) for both groups, JSLs and KSLs. AmE (69.7 ± 0.96), ranked third out of five, was still higher than two varieties of English (KoE and NZE), but found to be neither more intelligible nor less intelligible to the test-takers. For both JSLs and KSLs, they seemed sensitive to English varieties; however, native English accented teachers were not necessarily intelligible.

NESTs have been considered by both younger learners and teachers as ideal models of pronunciation because of their correct language use (Levis et al., 2017; Uchida & Sugimoto, 2020; Walkinshaw & Oanh, 2014). Nonetheless, a number of challenges that NESTs face have been pointed out: raising learner's anxiety owing to different cultural backgrounds (Walkinshaw & Oanh, 2014); manifesting native speakerism in L2 teaching practice (Jenks & Lee, 2020); and lowering the WTC of students when they believe that NESTs are not adequately equipped with teaching skills (Lee, 2000). In contrast to some disadvantages NESTs have faced, the findings in this study provide positive evidence that the speech of NESTs, especially those from the UK and

Canada, is more likely to be easier for L2 learners to identify (JSLs and KSLs), in parallel with their favorable perceptions toward them (Levis et al., 2017; Walkinshaw & Oanh, 2014).

On the other hand, the results demonstrated that all students, who either started learning L2 from elementary school (KSLs) or middle school (JSLs), were equally sensitive to English varieties in distinguishing the L2 sounds. The speech in NZE was as difficult to identify as that in KoE, both of which are assumed to be less familiar than BrE and CE accents to all listeners. The findings suggest that not all native English language speakers were intelligible, especially when they are less familiar to the listeners, consistent with a previous study (Chung & Bong, 2019). Also, despite ISIB (Bent & Bradlow, 2003) or shared-L1 advantage (Harding, 2012), KSLs showed lower intelligibility for KoE. One possible reason why KSLs may have struggled to find KoE intelligible could be their exposure to English-speaking environments, where speaking practice is limited, affecting their listening skills. Preference toward NESTs' speech has been attributed to a monological English learning environment (Uchida & Sugimoto, 2020) and institutionally-driven familiarity (Chung & Bong, 2017). In this regard, more varieties of English should be reflected in the potential input that L2 learners will encounter in the classroom.

6 Conclusion

The study's findings emphasize the significant role played by the age of initiation in L2 learning, highlight the need for reconsideration of factors influencing L2 listening skills development, and underscore the importance of recognizing the variability in intelligibility among different English varieties taught by NESTs and NNESTs. The central findings of the present study were that the age of starting plays a significant role in explaining the different outcomes of L2 listening comprehension/proficiency by JSLs and KSLs. The study provides robust evidence, demonstrating statistically significant results, which support the notion that an earlier initiation of L2 learning enhances learners' listening comprehension.

In contrast to numerous prior studies that have suggested a close relationship between grammar (including syntactic knowledge) and listening skills, the current findings challenge the claims regarding the correlation between the two aspects. Instead, these results imply that factors influencing the development of L2 listening skills should be reevaluated, suggesting that the acquisition of syntactic knowledge in the L2 may progress independently from other linguistic skills, such as listening or speaking abilities.

Additionally, the study contributes to the literature on L2 listening in the context of EFL by shedding light on the intelligibility variations among different English varieties and emphasizing the potential impact of NESTs and

NNESTs on learners' comprehension. This study conducted a comparison of intelligibility levels among five different varieties of English spoken by two categories of English language teachers: NESTs and NNESTs. The analysis revealed significant statistical differences among the English varieties, indicating that not all native English varieties were universally intelligible to all student groups.

However, the current study has a few limitations. First, it is important to note that the starting age of formal L2 instruction may be different from the actual time when students are first exposed to English. Depending on other variables (e.g., social status of family, desire for learning L2), English learning may have been started earlier than the starting age of formal instruction. Another limitation is related to the participants' L1. Given that the L1 of the two groups differ (Japanese and Korean) and the starting ages of English instruction vary (early and later), the proficient listening performance of KSLs could be attributed to either their L1 or their earlier onset of learning. Also, speech rates and the silent interval between sentences of audio stimuli for the listening test could have been controlled, although the five sets of audio stimuli in this study fall within the length range of 8 min 25 sec to 8 min 48 sec. Finally, in order to compare ISIB effect, it would be beneficial to have NNESTs with more balanced L1 backgrounds. To conclude, implications of the findings are that an earlier age of L2 learning onset helps to improve L2 perceptual competence, and that learning inputs with diverse varieties in formal instructional settings would lead students to be less sensitive to different English accents.

References

Allan, D. (2004). *Oxford placement test 1*. Oxford University Press.

Barrass, J. P., Baffoe-Djan, J. B., Rose, H., & Boggs, J. A. (2020). Intelligibility and comprehensibility of Korean English speakers' phonological features in lingua franca listening contexts. *Journal of AsiaTEFL, 17*(1), 124-142.

Bent, T., & Bradlow, A. R. (2003). *The interlanguage speech intelligibility benefit. Journal of the Acoustical Society of America, 114*(3), 1600-1610.

Calfee, R., & Calfee, K. (1979). *Interactive reading assessment system.* Unpublished manuscript, Stanford University, Stanford, CA.

Calfee, R., & Calfee, K. (1981). *Interactive reading assessment system* (rev. ed.). Unpublished manuscript, Stanford University, Stanford, CA.

Chung, B., & Bong, H. K. M. (2017). A study on the perceptions of Korean EFL learners on four native varieties of English accents. *English Language & Literature Teaching, 23*(1), 17-38.

Chung, B., & Bong, H. K. M. (2019). A study on the relation between intelligibility and attitudes. *English Teaching, 74*(2), 103-123.

Chung, B., & Bong, H. K. M. (2021). Intelligibility of Korean-accented English: Effects of listener's familiarity. *English Teaching, 76*(1), 33–56. doi:10.15858/engtea.76.1.202103.33

Chung, B., & Bong, H. K. M. (2022). A study on the intelligibility of Korean-accented English: Possibilities of implementing AI applications in English education. *Journal of AsiaTEFL, 19*(1), 197-215.

Chung, H. S., 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.

Deterding, D., & Kirkpatrick, A. (2006). Emerging South-East Asian English and intelligibility. *World Englishes, 25*(3/4), 391-409.

Deterding, D., & Mohamad, N. R. (2016). The role of vowel quality in ELF misunderstandings. *Journal of English as a Lingua Franca, 5*(2), 291-307.

Fec, E. (2021). An analysis of the lingua franca core from the perspective of teaching pronunciation at Japanese universities. *Tohoku University of Public Interest and Literature Comprehensive Research Papers, 40*, 77-88.

Ha, T. H. (2021). Exploring the relationships between various dimensions of receptive vocabulary knowledge and L2 listening and reading comprehension. *Language Testing in Asia, 11*(20), doi: 10.1186/ s40468-021-00131-8.

Harding, L. (2012). Accent, listening assessment and the potential for a shared-L1 advantage: A DIF perspective. *Language Testing, 29*(2), 163-180.

Hartshorne, J. K., Tenenbaum, J. B., & Pinker, S. (2018) A critical period for second language acquisition: Evidence from 2/3 million English speakers. *Cognition, 177*, 263-277.

Ho, E. S-c. (2006). Educational decentralization in three Asian societies: Japan, Korea and Hong Kong. *Journal of Educational Administration, 44*(6), 590-603.

Hoover, W. A., & Gough, P. B. (1990). The simple view of reading. *Reading and Writing, 2,* 127-160.

Hwang, K., & Yim, S. Y. (2019). The negative influence of native-speakerism on the sustainability of linguistic and cultural diversities of localized variants of English: A study of local and expatriate teachers in South Korea. *Sustainability, 11*, 6723.

Iwai, Y. (2009). Toward communicative competence in the Japanese context: The challenges facing Japanese English teachers. *The Journal of Asia TEFL, 6*(2), 77-99.

Jaekel, N., Schurig, M., Ackern, I. v., & Ritter, M. (2022). The impact of early foreign language learning on language proficiency development from middle to high school. *System, 106*, 102763.

Jenkins, J. (2000), *The phonology of English as an international language.* Oxford University Press.

Jenks, C. J., & Lee, J. W. (2020) Native speaker saviorism: a racialized teaching ideology. *Critical Inquiry in Language Studies, 17*(3), 186-205.

Kachru, B. B. (1985). *English as a lingua franca: Attitude and identity.* Oxford University Press.

Kobayashi, Y. (2021). Japanese English learners' perceptions of Filipino teachers' online English lessons: Implications for global Englishes research. *RELC Journal.* doi: 10.1177/00336882211061629

Krashen, S., Long, M., & Scarcella, R. (1979). Age, rate, and eventual attainment in second language acquisition. *TESOL Quarterly, 13*(4), 573-582.

Kuhl, P. K., Tsao, F-M., & Liu, H-M. (2003). Foreign-language experience in infancy: Effects of short-term exposure and social interaction on phonetic learning. *Proceedings of the National Academy of Sciences, 100*(15), 9096-9101.

Lee, J. H. (2020) Relationships among students' perceptions of native and non-native EFL teachers' immediacy behaviours and credibility and students' willingness to communicate in class. *Oxford Review of Education, 46*(2), 153-168.

Lenneberg, E. H. (1967). *Biological foundations of language.* Wiley.

Levis, J., Sonsaat, S., & Link, S. (2017). Students' beliefs about native vs. non-native pronunciation teachers. In J. d. D. Martinez Agudo (Ed.), *Native and non-native teachers in English language classrooms* (pp. 205-237). Gruyter.

Li, L., Xu, H., & Zhang, X. (2000). Exploring the role of phraseological knowledge and syntactic knowledge in L2 listening comprehension. *Lingua, 248,* 1-13.

Matsumoto, Y. (2011). Successful ELF communications and implications for ELT: Sequential analysis of ELF pronunciation negotiation strategies. *Modern Language Journal, 95*(1), 97-114.

Matsuura, H. (2007). Intelligibility and individual learner differences in the EIL context. *System, 35*(3), 293-304.

MEXT. (2022, January 21). *2017 Revised Junior High School Course f Study English translation* (provisional translation). https://www.mext.go.jp/a_menu/shotou/new-s/1417513_00002.htm

Ministry of Education. (2022). *The basic plan for national curriculum.* Seoul: Ministry of Education.

Monsen, R. B. (1981). A useable test for the speech intelligibility of deaf talkers. *American Annals of the Deaf, 126*(7), 845-852.

Muñoz, C. (2011). Input and long-term effects of starting age in foreign language learning. *IRAL, 49,* 113-133.

Nash, R. (1997). *NTC's dictionary of Spanish cognates.* NTC Publishing Group.

Newbold, D. (2017). "Co-certification": A close encounter with ELF for an international examining board. *Journal of English as a Lingua Franca, 6*(2), 367-388.

Park, G-P. (2004). Comparison of L2 listening and reading comprehension by university students learning English in Korea. *Foreign Language Annals, 37*(3), 448-458.

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., & Widdowson, H. G. (1999). *Controversies in Applied Linguistics.* Oxford University Press.

Shinohara, Y., & Iverson, P. (2021). The effect of age on English /r/-/l/ perceptual training outcomes for Japanese speakers. *Journal of Phonetics, 89*, https://doi.org/10.1016/j.wocn.2021.101108

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). Blackwell Publishing.

Uchida, Y., & Sugimoto, J. (2020). Pronunciation goals of Japanese English teachers in the EFL classroom: Ambivalence toward native-like and intelligible pronunciation. *The Language Teacher, 44*(1), 3-9.

Vafaee, P., & Suzuki, Y. (2020). The relative significance of syntactic knowledge and vocabulary knowledge in second language listening ability. *Studies in Second Language Acquisition, 42,* 383-410.

Walkinshaw, I., & Oanh, D. H. (2014). Native and non-native English language teachers: Student perceptions in Vietnam and Japan. *Sage Open, 4*(2), 1-9.

Wang, H., & van Heuven, V. J. (2015). The interlanguage speech intelligibility benefit as bias toward native-language phonology. *i-Perception, 6*(6), 2041669515613661. doi:10.1177/2041669515613661

Whitehead, G. E. K. (2017). Teachers' voices: Obstacles to communicative language teaching in South Korea. *Asian EFL Journal, 19*(4), 5-31.

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.

Yenkimaleki, M., & van Heuven, V. J. (2021). Effects of attention to segmental vs. suprasegmental features on the speech intelligibility and comprehensibility of the EFL learners targeting the perception or production-focused practice. *System, 100,* doi: 10.1016/j.system. 2021.102557

Zhang, P., & Graham, S. (2020). Learning vocabulary through listening: the role of vocabulary knowledge and listening proficiency. *Language Learning, 70*(4), 1017-1053.

Zhang, S., & Zhang, X. (2020). The relationship between vocabulary knowledge and L2 reading/listening comprehension: A meta-analysis. *Language Teaching Research, 26*(4), doi: 10.1177/13621 6882091399

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Received: May 20, 2023
Revised: June 25, 2023
Accepted: July 2, 2023