

# How Do Non-native Speakers Perceive the Role of Phonology and Lexicogrammar in Improved Comprehensibility?

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## Abstract

Recent second language studies have begun to show how native speakers of English judge comprehensibility by relying on various kind of linguistic information in foreign accented speech (e.g., Saito, Trofimovich, & Isaacs, 2015 in *Applied Psycholinguistics*, Cambridge University Press). This paper investigates non-native speakers' perception of the relationship between different linguistic skills (pronunciation, vocabulary and grammar abilities) and their improved comprehensibility. A total of 71 Japanese learners of English in Canada who noted a wide variety of proficiency rated the relative importance of three major linguistic skills (i.e., pronunciation, vocabulary, and grammar) required to achieve successful comprehensibility. The results showed that (a) these learners demonstrated relatively high awareness and interest in phonological aspects of language (oral and aural skills) rather than lexicogrammatical aspects of language (vocabulary and grammar); and (b) their sensitivity to phonology was positively correlated to their length of residence profiles (1 month to 13 years). Taken together, non-native speakers seem to perceive the role of phonology in successful communication more strongly, as they process more input and interaction with other native and non-native speakers in a second language speaking environment.

## Background

Attaining adequate second language (L2) speaking proficiency has become increasingly crucial in the context of the globalized world whereby English serves as a lingua franca for cross-cultural communication not only between native and non-native speakers but also non-native and non-native speakers in academic and business settings. On the one hand, researchers have found that many non-native speakers tend to view nativelike proficiency as their ideal learning goal. On the other hand, there has been much empirical evidence that even young bilinguals (starting learning an L2 before five to six years) can still show detectable foreign accent in their L2 speech (e.g., Abrahamsson & Hyltenstam, 2009). In this regard, many L2 education researchers have emphasized the importance of setting a realistic goal, such as comprehensibility. According to Derwing and Munro (2009), comprehensibility is defined as “the listener’s perception of how easy or difficult it is to understand a given speech sample” (p. 478). This construct has been measured as native (and non-native) speakers’ intuitive ratings of foreign accented speech by using a 9-point liker scale (*1 = very easy to understand; 9 = very difficult to understand*).

Recent L2 studies have begun to examine whether, to what degree, and how native speakers pay attention to segmental, prosodic, temporal, lexical and grammatical aspects of language while making an overall judgement of comprehensibility (e.g., Crowther, Trofimovich, Saito, & Isaacs, 2015; Crowther, Trofimovich, Isaacs, & Saito, in press; Isaacs & Trofimovich, 2012; Saito, Trofimovich, & Isaacs, forthcoming, in press; Saito & Shintani, in press; Trofimovich & Isaacs, 2012). These studies have suggested that native speakers have shown that native speakers attend to phonological and temporal qualities of L2 speech primarily (40-50% of variance), as well as vocabulary and grammar qualities secondarily (10-20% of variance). The findings were first confirmed with 40 French learners of English in with varied proficiency (Isaacs & Trofimovich, 2012; Saito et al., forthcoming; Trofimovich & Isaacs,

2012), and replicated with 60 intermediate ESL learners (Crowther et al., 2015, in press) as well as +100 Japanese learners of English with varied proficiency (Saito et al., in press; Saito & Shintani, in press).

Notably, much research attention has been given to examining optimal vocabulary (e.g., Schmitt, 2008) and grammar (Ellis, 2010) teaching, which has as a result made a substantial amount of positive impact on the development of research-based textbooks for vocabulary teachers (Nation, 2008) and grammar teachers (Nassaji & Fotos, 2012). However, much fewer studies have been conducted in the context of pronunciation and fluency teaching to date (Saito, 2012). Indeed, researchers have noted the lack of adequate teaching/learning materials for improved pronunciation and fluency (Foote, Holtby, & Derwing, 2011). In the case of Japanese English-as-a-Foreign-Language context, for example, Saito (2014) and Saito and van Poeteren (2012) found that very few teachers (including even teacher trainers) have received specific training on pronunciation. The question has now become, how non-native speakers themselves view the relative importance of pronunciation, vocabulary and grammar in order to improve their overall comprehensibility in L2 speech? Do they view pronunciation more important than (or as important as) vocabulary and grammar?

Several studies have examined the role of various types of linguistic errors in non-native speakers' perceptions of comprehensibility, indicating that non-native speakers are likely more sensitive to *L2 pronunciation* over *L2 lexicogrammar* errors. On one hand, Mackey, Gass and McDonough (2000) asked non-native learners to watch a video of their native and non-native interactions and report their perceptions about the feedback they received (i.e., stimulated-recall sessions), finding that non-native speakers tended to identify the corrective force of phonological feedback more accurately than morphosyntactic feedback. They argued that these learners' sensitivity to phonological errors might be attributable to the fact that pronunciation errors have "more potential to seriously interfere with understanding" whereas morphosyntactic focus "can be relatively unimportant in the goal of

understanding” (p. 493) (see also Carpenter, Jeon, MacGregor, & Mackey, 2006). Similarly, several observational studies also noted that learners are more likely to show successful uptake such as self-correction in response to teachers’ feedback on their pronunciation errors rather than on their grammatical errors in various classroom contexts (i.e., teacher-student interaction); adult ESL classrooms in New Zealand (Ellis, Bastukmen, & Loewen, 2001), child French immersion classrooms in Canada (Lyster, 1998) and adult EFL classrooms in Korea (Sheen, 2006). Taken together, these veins of SLA research suggest that non-native speakers might consider phonological aspects of language more crucial than grammatical elements in order to attain successful comprehensibility. Further research is necessary in order to pursue this question.

## **Method**

This paper carefully examines the complex issue of how non-native speakers consider the relative importance of four different linguistic skills (pronunciation, listening, lexis, and grammar) in order to attain successful comprehensibility in L2 communication. Whereas various kinds of introspective analyses have been established and adopted as trustworthy methodologies to analyze non-native speakers’ inner perceptions during SLA processes, such as a stimulated recall session (see Mackey et al., 2000) and a think-aloud protocol (e.g., Leow, 1997), the current study conducts the questionnaire analysis by directly asking Japanese learners to rate their perceptions about the relative importance of four linguistic skills (i.e., grammar, lexis, listening, and pronunciation) to attain successful comprehensibility in L2 communication. Subsequently, a principle component analysis was performed on the results of the questionnaire to find any possible patterns in tandem with other post-hoc analyses.

## **Participants**

Seventy-one Japanese ESL students who were studying abroad in Mon-

treil (18 males; 53 females) participated for the questionnaire. At the time of the questionnaire, while some studied at university-level schools, most of them belonged to private language schools. Their ESL backgrounds were, however, widely varied. The mean of all the participants' age was 29.40 years old ranging from 21 to 53 years old ( $SD = 6.43$ ), and their length of residence (LOR) in Canada was 14.40 months, ranging from one month to 13 years ( $SD = 27.95$  months). Out of seventy-one participants, twenty nine reported their scores of English proficiency tests (i.e., TOEIC); the mean was 596.72 ranging from 350 to 925 ( $SD = 161.32$ )<sup>(1)</sup>. Considering the demographic profile of the seventy-one participants for the current questionnaire (summarized in Table 1), it is possible that their ESL experience was heterogeneous enough to provide a general pattern of non-native speakers' perceptions of comprehensibility in L2 communication.

**Table 1.** *Participant Information*

71 Japanese ESL students in Montreal	
Age	$M = 29.40$ years old ( $SD = 6.43$ )
Gender	18 male / 53 female
LOR	$M = 14.40$ months ( $SD = 27.95$ )
TOEIC scores ( $n = 29$ )	$M = 596.72$ ( $SD = 161.32$ )

## Questionnaire

Each of the participants visited the researcher's office individually, and the questionnaire was carefully implemented by the researcher in order to

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(1) This proficiency test consists of listening, reading, and metalinguistic judgment tasks, but without any speaking tasks. So, the test scores can indicate the learners' proficiency levels in listening skills as well as the amount of lexicogrammar knowledge, but they don't reflect their L2 pronunciation skills. Note that those who had taken a TOEIC test represented the upper range of proficiency. In fact, the remaining participants who did not report TOEIC scores confessed that they did not feel ready to take exams due to their lack of explicit grammatical knowledge and sufficient listening skills.

make sure that all of the participants fully understood the intention of the study and that they followed the rating procedure in a consistent manner. For this reason, all conversation was done in their L1, Japanese. The participants were asked to rate the relative importance of four linguistic skills (i.e., grammar, lexis, listening, and pronunciation abilities) for successful comprehensibility in L2 communication by using a 5-point scale (1. very important – 5. not very important). The researcher asked the two questions described below before the participants started rating.

1. How important do you think these four language skills are to achieve successful understanding in L2 communication?
2. Which aspects of language do you now feel the need to improve to avoid communication breakdown in L2 communication?

Although these two questions sound slightly different, both of them presumably and essentially asked the same thing: To which linguistic elements are non-native speakers sensitive? Most importantly, the researcher always tried to explain the procedures as clearly as possible whenever the participants had questions. He also encouraged them to (a) determine their subjective judgments based only on their actual and real experiences of study-abroad rather than any common sense or prior personal belief; (b) use the 5-point scale as much as they could; and (c) focus only on linguistic areas without taking into account any non-linguistic factors (e.g., gestures and cultural norms) or listeners' factors (i.e., how much native speaking interlocutors are familiar to particular accents and topics).

## Results

Table 2 presents the means and standard deviations for each of the four linguistic domains rated by Japanese ESL learners. It appears that these learners rated and prioritized the four linguistic domains in the following manner: listening ( $M = 1.5633$ ) > pronunciation ( $M = 1.8873$ ) > vocabulary ( $M$

= 2.5492) > grammar ( $M = 2.9859$ ). In order to see whether these four categories can be reduced into smaller units of groups, a principle component analysis was performed by employing varimax rotation with Kaiser normalization. Because two factors of eigenvalues were found above 1 (as seen in Table 3), a decision was made to specify a two-factor solution: Factor 1 (listening and pronunciation) and Factor 2 (vocabulary and grammar). Considering the nature of these linguistic areas in each factor, Factor 1 was labeled as “the phonological component of language” which accounted for 40.295 % of the total variance whereas Factor 2 named as “the lexicogrammar component of language” which accounted for 27.584 % of the total variance (see Table 4). The mean of Factor 1 (phonological aspect) is 1.7253 ( $SD = 0.9526$ ) and that of Factor 2 (lexicogrammatical aspect) is 2.7676 ( $SD = 1.0372$ ), with substantially large effect sizes ( $d = 1.01$ )<sup>(2)</sup>. In sum, the result demonstrated that Japanese ESL learners perceived the phonological aspect of language (listening and pronunciation) more crucial to comprehensibility than the lexicogrammar aspect of language (vocabulary and grammar), and the difference between these two factors was relatively large.

Subsequently, follow-up regression analyses were performed on Factor 1 and Factor2 respectively, in order to see whether any factors such as the participants’ age, LOR, and TOEIC scores were interrelated with their perceptions of the phonological and lexicogrammar aspects of language.

**Table 2.** *Descriptive statistics for the four domains*

Linguistic domains	Rating	
	<i>M</i>	<i>SD</i>
Grammar	2.9859	0.9485
Vocabulary	2.5492	1.0795
Listening	1.5633	0.8901
Pronunciation	1.8873	0.9790

(2) According to Cohen (1988) effect sizes are roughly classified as small ( $0.20 \leq d < 0.50$ ), medium ( $0.50 \leq d < 0.80$ ), or large ( $0.80 \leq d$ ).

**Table 3.** *Principle component analysis*

Component	<i>M</i>	<i>SD</i>	Eigenvalue	Variance	Cumulative
Phonological Factor	1.7253	0.9526	1.612	40.295	40.295
Lexicogrammar Factor	2.7676	1.0372	1.103	27.584	67.879

**Table 4.** *Loadings for principle component analysis*

Linguistic domain	Factor 1 (Phonological Factor)	Factor 2 (Lexicogrammar Factor)
Grammar	-.201	<b>.857</b>
Vocabulary	.457	<b>.606</b>
Listening	<b>.748</b>	-.032
Pronunciation	<b>.896</b>	.023

## Phonological Factor

A simple regression analysis was performed by comparing (a) their LOR<sup>(3)</sup> as a predictable variable and (b) the principle component scores of Factor 1 (phonological aspect) as an outcome variable. The  $\alpha$  was set at a  $p < .05$  level. The results illustrated a significant positive linear relationship between these two variables,  $F(1, 69) = 4.106$ ,  $p = .047$ . This model showed that the LOR factor explains 5.6 % of the total variance of Factor 1 (phonological aspect), indicating that the longer they stayed in the target language country (Canada), the more likely they perceived the phonological aspect of language important. Next, based on the 29 participants who reported their TOEIC scores, which measure the participants' existing listening skills and lexicogrammar knowledge, a simple regression analysis was also performed, finding no significant relationship between TOEIC scores and the learners' perceptions of the phonological aspect of language,  $F(1, 27) = 0.56$ ,  $p = .789$ ; their TOEIC scores did not predict their perceptions about the phonological

(3) Due to the multicollinearity problems between learners' age and LOR (i.e., these two variables are significantly correlated,  $r = .36$ ,  $p = .002$ ; the fact that the older the learners were, the longer they likely resided in Canada), only LOR factor was taken in account here.

factor.

## **Lexicogrammar Factor**

Similarly, two simple regression analyses were conducted to investigate in detail contributing variables (LOR and TOEIC scores) to Factor 2 (lexicogrammar aspect), but it was uncovered that neither their LOR ( $F(1, 69) = 0.13, p = .908$ ) nor their TOEIC scores ( $F(1, 27) = 1.24, p = .865$ ) were related to their perceptions about lexicogrammar factors.

## **Discussion**

The current study asked how one particular group of non-native speakers, Japanese learners of English, consider the roles of different linguistic factors in comprehensibility. A principle component analysis on the results of the questionnaires by 71 Japanese learners in Canada demonstrated that they tended to perceive the relative importance of the phonological aspect of language compared to the lexicogrammatical aspect of language, and this difference proved to be substantially large. Despite the methodological difference, our results are in line with the previous literature regarding L2 learners' overall sensitivity to their phonological errors over morphosyntactic mistakes in the context of English learners of Italian (Mackey et al., 2000) as well as advanced ESL learners with various L1 backgrounds (Mackey et al., 2000; Carpentner et al., 2006).

It is probably more important to mention that the results of the study further revealed that such learner awareness towards the phonological factor was closely related to their LOR but not with their TOEIC scores. Taken together, their sensitivity to the phonological aspect of language was salient, especially when learners had a great deal of relevant L2 experience via processing much input and interaction with native and other non-native speakers in an L2 speaking environment. That is, the longer they stay in the target language country, the more likely they consider the phonological factor as highly vital to successful communication.

The results presented here (i.e., non-native speakers' awareness towards phonology relative to lexicogrammar) echoed with the way how native speakers actually judge comprehensibility in foreign accented speech (i.e., phonology as primary cues, lexicogrammar as secondary cues) (e.g., Saito et al., in press). Thus, it is possible to speculate that both non-native talkers and native listeners agree with each other in terms of their perception of linguistic correlates of successful communication. Having said, however, we need to revisit the important practical question: Whether and to what degree do Japanese learners of English receive adequate pronunciation training? As reviewed earlier, the paucity of relevant L2 pronunciation research has resulted in the significant lack of teacher training on this topic (Saito, 2014).

Importantly, the Japanese learners of English tend to have noticeable transfer pronunciation errors due to a great phonetic distance between their first language (Japanese) and the target language (English). For example, according to Trujimura (1996), the Japanese phonetic inventory has relatively fewer phonemes than that of English both in the domain of vowel sounds (English: 12, Japanese: 5) and consonant sounds (English: 24, Japanese: 14). It is also important to note that much crosslinguistic difference exists at a prosodic level (e.g., stress-timed for English vs. mora-timed for Japanese) (for a comprehensive review, see Saito, 2014).

Given the communicative importance as well as the tremendous difficulty in L2 phonology, it is highly timely and crucial to elaborate, validate and establish research-based pronunciation and fluency training (Thomson & Derwing, 2015). Though few in number, some empirical studies have tested the pedagogical value of not only form-focused approaches (e.g., Kissling, 2013; Saito, 2013a), but also meaning-oriented approaches (e.g., Baker, 2014; Saito, 2013b). These studies have suggested that L2 learners need a well-balanced syllabus to notice, practice, and automatize their phonological knowledge so that they can transfer what they have learned in classroom to outside of the classroom (Saito, 2012; Trofimovich & Gatbonton, 2006).

## Conclusion

The present study surveyed which linguistic skills Japanese learners of English feel the need to learn and enhance in order to acquire successful communicative abilities. The results showed that (a) these learners demonstrated relatively high awareness and interest in phonological aspects of language (oral and aural skills) rather than lexicogrammatical aspects of language (vocabulary and grammar); and (b) their sensitivity to phonology was positively correlated to their length of residence profiles (1 month to 13 years). Taken together, non-native speakers seem to perceive the role of phonology in successful communication more strongly, as they process more input and interaction with other native and non-native speakers in a second language speaking environment.

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