

THE SYLLABLE KNOWLEDGE VACUUM: ESTABLISHING BASELINE SYLLABLE AWARENESS AMONG JAPANESE UNIVERSITY EFL LEARNERS

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Abstract

Despite years of English instruction, Japanese university English as a foreign language (EFL) learners demonstrate persistent difficulties with English syllable structures. This difficulty is often attributed to mora-based first language (L1) interference. However, research documenting these learners' baseline syllable knowledge is lacking. A study was conducted that examined pre-instructional syllable awareness among 511 Japanese university students across four proficiency levels using open-ended definitions and a syllable counting task. Results revealed a striking though unsurprising knowledge vacuum: more than two-thirds of the participants could not define "syllable" at all, and most definitions showed vague or incorrect understanding. The syllable counting task yielded similarly high non-response rates for both English (22.3%) and Japanese words (22.9%), with no statistically significant difference between word origins. Uniform difficulty across proficiency levels suggests an absence of fundamental syllable concept knowledge rather than mora interference, thereby indicating that effective instruction and interventions would likely benefit from including initial explicit concept introductions and explanations.

Keywords: *Baseline assessment, Japanese EFL learners, mora interference, phonological knowledge, syllable awareness.*

1. Introduction

Having syllable awareness means that one understands that words can be divided into syllables (Gillon, 2018). The ability to perceive, identify, and manipulate syllables is a fundamental component of phonological knowledge, as syllables occupy an important middle position between larger word units and smaller phonemic units like phonemes. Syllable knowledge is essential for accurate English pronunciation. Errors in syllable structure by English as a second or foreign language (ESL/EFL) learners contribute more strongly to perceptions of foreign accent than segmental errors (Gao & Weinberger, 2018; Magen, 1998) and can reduce intelligibility (Munro, Derwing, & Morton, 2006).

Despite their importance, syllables receive limited attention in Japanese EFL teaching and learning contexts. Explicit syllable instruction is rare, as pronunciation is routinely overlooked in both mainstream conversation textbooks (Andrade, 2005; Rubrecht, 2016) and government-approved pre-tertiary-level textbooks (He & Fec, 2023). University entrance examination washback is one reason for this, but it does not stand alone (Rubrecht, 2024). Even as Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) pushes for the fostering of communicative competence in English education, which should ostensibly include intelligible pronunciation and accurate syllable production, pre-tertiary syllable instruction remains wholly inadequate (He & Fec, 2023). Students are therefore routinely matriculating to university without having acquired this fundamental phonological knowledge.

Systematic phonological differences between Japanese and English may compound learners' difficulties. The so-called "katakana effect," or the introducing of unnecessary vowel epenthesis, reflects one aspect of L1 interference (Martin, 2004; Stokes, 2023). Because Japanese kana represent moras rather than syllables, moras are more perceptually salient to native Japanese speakers (Seki, Kassai, Uchiyama, & Koeda, 2008). This lends further support for justifying explicit syllable structure instruction inclusion.

Although Japanese learners' syllable-related English pronunciation errors have been well explored (see Andrade, 2005), little research has examined what learners actually know about syllables or how they conceptualize them. In other words, as an insufficient or mistaken understanding of syllables could potentially be an additional source of pronunciation errors, research investigating learners' understanding of syllables has important pedagogical implications. If pronunciation (and, by extension, syllable)

instruction is to truly be effective, it must begin with and be based on an understanding of what learners already know and where any specific difficulties lie. What follows here¹ are the explanations about and findings from a study that investigated Japanese university EFL learners' baseline syllable knowledge. Conclusions, implications, and future research directions are also discussed.

2. Literature review

2.1. Syllable awareness and phonological challenges

Syllables are fundamental organizing units in spoken language, serving as the smallest speech units that can be articulated in isolation (Adams, 1990). Syllable awareness, which is the ability to identify, break down, and manipulate syllables within words, is essential for pronunciation accuracy, vocabulary development, and literacy acquisition (Allen-Tamai, 2010; Anthony & Francis, 2005). As an intermediate unit in the phonological awareness hierarchy (i.e., from words down to syllables, then onset-rime, then phonemes), syllables function as natural perceptual boundaries more readily identifiable than individual phonemes (Savin & Bever, 1970).

Pronunciation accuracy depends heavily on learners' ability to perceive and produce appropriate syllable structures. Syllable structure errors create stronger perceptions of foreign accent than many segmental errors (Magen, 1998), with vowel epenthesis in consonant clusters resulting in particularly strong accentedness ratings (Gao & Weinberger, 2018). Explicit syllable instruction has been found to be effective. For instance, interventions with young Japanese learners resulted in improved syllable perception and counting abilities post-instruction (Murakami & Cheang, 2017; Shizuka, 2014).

2.2. Japanese-English phonological differences

There are substantial phonological differences between Japanese and English, and some of these can be challenging for Japanese EFL learners. While English's primary phonological unit is the syllable, Japanese uses the mora, which is a rhythmic timing unit that does not correspond one-to-one with syllables (Otake, Hatano, Cutler, & Mehler, 1993). Japanese learners process English sounds through their L1's moraic system (Allen-Tamai, 2010), with Japanese listeners naturally segmenting speech mora-by-mora rather than by syllables (Otake et al., 1993), as native English speakers would do.

As Knight (2013) explains, Japanese only permits highly restricted syllable types (i.e., V, CV, CVV, CVN, CVQ). Approximately 90% of syllables end with a vowel, but 85% of English syllables end with a consonant (Kubozono, 1995, as cited in Shizuka, 2014). When English words enter Japanese as loanwords, they undergo systematic modification, typically through vowel epenthesis. This modification is necessary because such words must conform to Japanese phonological patterns. An often-given example is the one-syllable word "strike" becoming /sutoraikuu/, which has five syllables (and, incidentally, also five moras) in Japanese (Knight, 2013; Martin, 2004).

Loanwords are represented in katakana, which is one Japanese writing system. As seen from the "strike" example above, utilizing katakana for loanwords produces what Martin (2004) termed the "katakana effect." This effect fosters systematic pronunciation patterns that diverge from English phonology and limit comprehension of authentic English (Stokes, 2023). Japanese EFL learners consistently insert vowels into English consonant clusters and after final consonants, increasing syllable counts and disrupting English rhythm (Ohata, 2004). Research has revealed that prior to syllable instruction, Japanese elementary school students segment monosyllabic English words into multiple syllables at rates exceeding 75% (Murakami & Cheang, 2017).

While MEXT's pre-tertiary-level English education directives acknowledge Japanese-English pronunciation differences, syllable instruction and phonetic notation remain merely optional components (MEXT, n.d.-a; n.d.-b). This may be attributed in large part to university entrance examination washback, as the exams focus on testing English grammar and vocabulary knowledge rather than on elements related directly to communicative competence (Ishii, 2022). There is minimal English pronunciation instruction in Japanese EFL classrooms (He & Fec, 2023; Rubrecht, 2016), particularly (but not exclusively) at pre-tertiary levels. Given this nearly pervasive neglect of English pronunciation in Japan, barring explicit instruction, students advancing to university will almost assuredly lack syllable awareness and perpetuate their incorrect pronunciation patterns, both at university and long after graduation, contrary to MEXT's directives and instructors' desires and pedagogical objectives.

2.3. The knowledge gap

Despite documented challenges with English syllable structures, surprisingly little research has examined Japanese EFL learners' baseline understanding of the syllable concept itself. Existing literature focuses predominantly on production errors. Many simply assume that learners possess implicit syllable knowledge and understanding (Gao & Weinberger, 2018), but this assumption seems unwarranted. For

Japanese learners whose native phonological system centers on the mora, the syllable as a discrete, countable unit may be fundamentally unfamiliar. Historical confusion regarding the Japanese term *onsetsu* (syllable), its being likened to mora, and other reasons compound the issue (Inaba, 1998).

As mentioned previously, studies with young Japanese learners have shown that interventions have aided in their syllable perception and syllable counting tasks (Murakami & Cheang, 2017; Shizuka, 2014). However, surprisingly little intervention research has been conducted with Japanese university EFL students, even when they have been found to perform poorly in pre-intervention syllable-counting tasks (He & Takaki, 2025; Ishikawa, 2002) and with investigations revealing that they have almost no sense of English syllables despite years of English study (Nishihara, 2008, as cited in Shizuka, 2014). To date there have been no systematic investigations designed to probe the specifics of these learners' pre-instructional syllable knowledge, including syllable definitions, boundaries, and counting abilities.

The current study investigated Japanese university EFL learners' baseline syllable knowledge through four research questions. Establishing this baseline understanding is deemed essential prior to the conducting of subsequent investigations into intervention effectiveness, potential L1 interference patterns, or differences based on learners' English proficiency levels. It is also necessary for the assessing of future pedagogical directions.

3. Methodology

A Japanese-language questionnaire was administered to 511 Japanese university EFL learners across four universities in the Tokyo metropolitan area. Participants were non-English majors from varied disciplines (e.g., commerce, law, management). Instructions clarified that participation was voluntary, participants' identities would not be revealed, and answers would not affect their grades.

Students were grouped by university, with each university representing a distinct proficiency level based on institutional rankings and class placement: Group A: high-intermediate (172 participants); Group B: intermediate (69); Group C: low-intermediate (130); and Group D: high-beginner (140). Grouping by university was considered appropriate given that (a) all participants were Japanese nationals with Japanese as their L1, (b) 96% were freshmen or sophomores with minimal-to-no study abroad experience, and (c) all had received similar English education through Japan's standardized pre-tertiary curriculum, making prior syllable instruction unlikely for all participants, regardless of group.

The instructor/researcher explicitly explained in both Japanese and English that the study concerned English syllables, not Japanese moras, as these units technically differ. Students were instructed to apply whatever knowledge and understanding that they had of English syllables to the questions, including those involving Japanese words in the syllable counting task, as their understanding was still transferable.

The questionnaire included three sections assessing syllable knowledge:

[Q1] Have you ever heard of the word "syllable" before?

[Q2] If you answered "Yes" to [Q1], why (i.e., when and where) have you heard of this word?

[Q3] Give a definition or explanation of the word "syllable."

[Q4] How many syllables are there in the following words? (22 words: 11 Japanese, 11 English)

The words used in the [Q4] syllable counting task were familiar words with varying syllable counts. The Japanese words included both mora-syllable matches and mismatches (i.e., some words contained long vowels, geminate consonants, or moraic nasals). Also, some English words contained features that might lead to miscounting for those not knowledgeable (e.g., silent letters).

4. Results

For [Q1], overall, 352 students (68.9%) reported having heard the term "syllable," while 158 (30.9%) had not. Familiarity varied significantly by proficiency level: Group A: 83.7% (n=172); Group B: 74.0% (n=69); Group C: 76.2% (n=130); Group D: 41.4% (n=140). High-proficiency students (Group A) showed a familiarity rate more than twice that of low-proficiency students (Group D), while Groups B and C exhibited similar awareness levels.

For [Q2], among the 352 students familiar with "syllable," responses revealed inconsistent exposure across educational level, subject area, and learning context. Overall, students most often encountered the term during pre-tertiary education (159, 31.1%). While 187 of these students (36.6%) expressed high certainty about where they learned the term, 101 (19.8%) hedged their recall or were unsure. Because exposure occurred across varied times and settings, syllables appear peripheral-to-non-existent in the English language instruction that the participants had received.

For [Q3], when asked to define "syllable," 242 students (47.4%) provided no response, either leaving the space blank (203, 39.7%) or writing some variation of "I don't know" (39, 7.6%). This included

all 158 students unfamiliar with the term plus 84 students (23.8% of those claiming familiarity) who had encountered it but could not define it. Non-response (NR) rates by group were generally high: Group A: 34.9%; Group B: 36.2%; Group C: 44.6%; and Group D: 74.3%.

Among the 269 students (52.6%) attempting definitions, responses revealed widespread conceptual confusion. The most common response pattern involved “sound breaking/cutting” (53.2%). The various responses in this category suggest some intuition about segmentation but lack precision about what constitutes syllable boundaries. The second most common pattern centered on vowels (32.3%). While vowel counting works for many English words, as does the “sound breaking” category above, this simplistic pattern is insufficient, as it clearly fails for common features like diphthongs and syllabic consonants, as well as for other complex structures. These vowel-based definitions, while reflecting important intuition, could reinforce rather than correct production errors for learners who systematically insert epenthetic vowels due to the katakana effect. It is also of note that many students provided multiple, even sometimes contradictory, concepts, suggesting confusion rather than clear understanding.

For [Q4], students were asked to count syllables in 22 words (11 Japanese, 11 English). Participants’ NR rates alone revealed substantial difficulty: Group A: 9.2% overall (9.3% Japanese words, 9.2% English words); Group B: 9.4% (7.6%, 11.2%); Group C: 19.9% (20.0%, 20.1%); Group D: 48.1% (50.1%, 46.0%).² Overall NR rates were 22.9% for Japanese words and 22.3% for English words. Chi-squared analysis revealed no significant difference between word origins ($\chi^2 = 0.458$, $p = .499$, Cramer’s $V = .006$), indicating students were equally unable to count syllables regardless of word origin, length, or syllable number. The negligible effect size suggests the fundamental obstacle was not specific word difficulty but rather the lack of the conceptual understanding needed for basic syllable counting.

5. Conclusion and discussion

This study established Japanese university EFL students’ baseline knowledge of English syllables prior to intervention. The findings revealed a pervasive gap in syllable understanding through missing or poor syllable definitions and high NR rates for a syllable counting task, as many students could not or would not attempt the task regardless of their English proficiency level.

Students’ definitional confusion and inability to count syllables suggest two interrelated conclusions. First, years of English study were insufficient for establishing clear understanding of syllables and related concepts (e.g., syllable boundaries, common consonant clusters in English, syllable-mora distinctions). Second, systematic syllable instruction appears absent or highly peripheral in the pre-tertiary-level EFL curriculum, as such instruction would presumably have led to students developing some (i.e., a higher) degree of syllable awareness.

The syllable counting data reveal that L1 interference is not the primary source of difficulty. If mora-based processing were the main obstacle, students should have shown differential performance by word origin. The chi-squared analysis revealed no significant difference between Japanese and English words, indicating uniform difficulty. Students struggled because they fundamentally lacked understanding of what syllables are. It may be concluded that in general they had not received instruction about what syllables are in any language context, rendering L1-L2 contrasts largely irrelevant at this baseline stage.

This instructional gap is particularly concerning given MEXT’s stated emphasis on communicative competence in its various Courses of Study and the importance of syllables in general for pronunciation (and for learners’ pronunciation development). Addressing this gap through explicit syllable instruction at the tertiary level, while “late” in terms of instructional timing (Shizuka, 2014), could meaningfully support learners’ syllable awareness development. Such instruction should move beyond metaphorical explanations and vowel-counting heuristics and deepen students’ understanding by introducing additional concepts (e.g., sonority principles, phonotactic constraints, various relationships extant between syllables and suprasegmental features). With entrance examinations no longer constraining university curricula, educators can flexibly include pronunciation instruction that meets students’ needs, based on their level of proficiency.

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Notes:

1. The current paper is purposefully brief due to space limitations. Readers are encouraged to read the more comprehensive forthcoming publication regarding this research and the planned follow-up studies for more details and further results.
2. Some calculations evince rounding error.