THE INTELLIGIBILITY OF EFL SPEAKERS USING STRESS-TIMED RHYTHM AND MORA-TIMED RHYTHM

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Background

✦ It is understood that almost every native English speaker speaks with a Stress-Timed Rhythm.

✦ Most African and Asian languages are spoken with a Syllable-Timed Rhythm.

Nationalities using Stress-Timed Rhythm and Syllable-Timed Rhythm

Stress-Timed Rhythm

• A rhythm of language that follows a Consonant - Vowel - Consonant (C-V-C) structure

• Tends to reduce unstressed vowels compared to vowels in stressed syllables

Syllable-Timed Rhythm

• A rhythm of language that follows a Consonant - Vowel (C-V) structure

• There is no reduction of unstressed vowels

Mora-Timed Rhythm

• Basically the same as Syllable-Timed Rhythm, but moras involves smaller units than syllables (e.g.,

Honda = Two syllables (Hon-da)

Honda = Three moras (Ho-n-da)

Japanese is spoken with a Mora-Timed Rhythm.

Japanese

Nani wo shite imasu ka

(Three moras)

English

What are you doing?

(Three syllables)

Japanese

su - to - ra - i - ku

(Five moras)

English

[ straik ]

Strike

(One stress / syllable)
**This Study**

**Research Question**

- Is the Mora-Timed Rhythm of English spoken by Japanese native speakers intelligible to native speakers of English?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

**Method**

1. Online experiment advertised through various SNS and Linguistlist.org
2. Participants listened to 30 sentences and fill in the blanks in a Cloze Test style.
3. Analysis of results:

**Participants**

- America 126
- Australia 14
- Canada 1
- England 13
- Japan 46
- Other 1

**Results 1**

**Native speakers vs Near-native speakers vs Mora-Rhythm speakers**

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Intelligibility</th>
<th>SD</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS</td>
<td>1.90</td>
<td>0.20</td>
<td>[1.86, 1.93]</td>
</tr>
<tr>
<td>NNS</td>
<td>1.82</td>
<td>0.21</td>
<td>[1.80, 1.85]</td>
</tr>
<tr>
<td>MRS</td>
<td>1.72</td>
<td>0.20</td>
<td>[1.70, 1.83]</td>
</tr>
</tbody>
</table>

**Note:** NS: Native Speaker; NNS: Near-native Speaker; MRS: Mora-Rhythm Speaker; n = 222; Max: 2; Min: 1; F (2, 663) = 44.61, p < .001, $\eta^2 = .12$.

- The English spoken by native speakers is significantly more intelligible than that of non-native speakers.
- The English spoken by near-native speakers is significantly more intelligible than that of those using Mora-Timed Rhythm in their speech.

**Results 2**

**Native speakers vs Non-native speakers as listeners**

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Listener</th>
<th>Intelligibility</th>
<th>SD</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS</td>
<td>L1 Group</td>
<td>1.96</td>
<td>0.09</td>
<td>[1.95, 1.97]</td>
</tr>
<tr>
<td></td>
<td>L2 Group</td>
<td>1.74*</td>
<td>0.31</td>
<td>[1.66, 1.82]</td>
</tr>
<tr>
<td>NNS</td>
<td>L1 Group</td>
<td>1.88</td>
<td>0.13</td>
<td>[1.86, 1.90]</td>
</tr>
<tr>
<td></td>
<td>L2 Group</td>
<td>1.67**</td>
<td>0.29</td>
<td>[1.60, 1.75]</td>
</tr>
<tr>
<td>MRS</td>
<td>L1 Group</td>
<td>1.76</td>
<td>0.17</td>
<td>[1.74, 1.79]</td>
</tr>
<tr>
<td></td>
<td>L2 Group</td>
<td>1.61***</td>
<td>0.20</td>
<td>[1.55, 1.67]</td>
</tr>
</tbody>
</table>

**Note:** Max: 2; Min: 1; F (1, 220) = 58; * F (1, 220) = 65.96, p < .001, $\eta^2 = .25$; ** F (1, 220) = 52.32, p < .001, $\eta^2 = .21$; *** F (1, 220) = 29.15, p < .001, $\eta^2 = .17$.

- Native speakers have a higher ability to understand the English spoken by others, regardless of whether it is spoken by another native speaker, a near-native speaker, or a Mora-timed rhythm speaker.
The intelligibility of EFL speakers using stress-timed rhythm and mora-timed rhythm

**Sentences**

List of the sentences used in the present study:

1. I heard a (splash) outside.
2. We will go on (strike) from this Thursday.
3. The teacher was angry at the boys’ (prank).
4. The fog (draped) around the lake.
5. We think that Mr. Johnson was a very (cruel) teacher.
6. We were surprised to see so many (squirrels) in the park.
7. We (trained) from nine o’clock every day.
8. I’ll buy some (milk) from the shops today.
9. We cannot demand that people (trust) our viewpoint.
10. If we don’t get it, the ball will (drift) in the water for days.

**Speakers**

- Two native speakers of English (1xAustralian, 1 x English)
- Two Near-native Japanese speakers of English (2x 5 years living abroad) using Stress-Timed Rhythm
- Two Japanese speakers of English using Mora-Timed Rhythm

**Results 3**

*Listeners with experience living in Japan vs Listeners with no experience living in Japan*

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Listener Experience</th>
<th>Intelligibility</th>
<th>SD</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS</td>
<td>No</td>
<td>1.94</td>
<td>0.11</td>
<td>[1.93, 1.96]</td>
</tr>
<tr>
<td>Yes</td>
<td>1.77*</td>
<td>0.33</td>
<td>[1.68, 1.86]</td>
<td></td>
</tr>
<tr>
<td>NNS</td>
<td>No</td>
<td>1.86</td>
<td>0.14</td>
<td>[1.84, 1.88]</td>
</tr>
<tr>
<td>Yes</td>
<td>1.70**</td>
<td>0.31</td>
<td>[1.61, 1.78]</td>
<td></td>
</tr>
<tr>
<td>MRS</td>
<td>No</td>
<td>1.72</td>
<td>0.17</td>
<td>[1.70, 1.75]</td>
</tr>
<tr>
<td>Yes</td>
<td>1.84*</td>
<td>0.18</td>
<td>[1.78, 1.90]</td>
<td></td>
</tr>
</tbody>
</table>

Note. Max:2; Min:1; n (No experience) = 169; n (Experience) = 53; *F (1, 220) = 14.82, p < .001, η² = .17; **F (1, 220) = 14.82, p < .001, η² = .17.

**Listeners with experience living in Japan (minus Japanese) vs Listeners with no experience living in Japan**

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Listener Experience</th>
<th>Intelligibility</th>
<th>SD</th>
<th>95%CI</th>
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</thead>
<tbody>
<tr>
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<td>0.11</td>
<td>[1.93, 1.96]</td>
</tr>
<tr>
<td>Yes</td>
<td>1.94</td>
<td>0.13</td>
<td>[1.90, 1.98]</td>
<td></td>
</tr>
<tr>
<td>NNS</td>
<td>No</td>
<td>1.86</td>
<td>0.14</td>
<td>[1.84, 1.88]</td>
</tr>
<tr>
<td>Yes</td>
<td>1.85</td>
<td>0.15</td>
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<tr>
<td>MRS</td>
<td>No</td>
<td>1.72</td>
<td>0.17</td>
<td>[1.70, 1.75]</td>
</tr>
<tr>
<td>Yes</td>
<td>1.84*</td>
<td>0.18</td>
<td>[1.78, 1.90]</td>
<td></td>
</tr>
</tbody>
</table>

Note. Max:2; Min:1; n (No experience) = 169; n (Experience) = 40; * F (1, 207) = 29.24, p < .001, η² = .16.

- Mora-Timed Rhythm speech was significantly more intelligible for those who have had experience living in Japan for longer than six months than those who had not.
- Although it was not asked, we guess that many of these participants were language teachers.
Are we accepting pronunciation from our students that in fact is not intelligible?

Pedagogical Implications

Use speech-to-text applications to help students check the intelligibility of their English on a more regular basis.

Be precise in our pronunciation instruction and strict with students’ pronunciation. Don’t accept Mora-Timed Rhythm as comprehensible language.

Make students aware that Mora-Timed Rhythm in their speech will decrease their chances of having successful communication with native speakers of English who have not lived in Japan.

References


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