



# Commentary: “Vowel Quality and Direction of Stress Shift in a Predictive Model Explaining the Varying Impact of Misplaced Word Stress: Evidence From English” and “Exploring the Complexity of the L2 Intonation System: An Acoustic and Eye-Tracking Study”

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## A Commentary on

### Vowel Quality and Direction of Stress Shift in a Predictive Model Explaining the Varying Impact of Misplaced Word Stress: Evidence From English

by Monica Ghosh and John M. Levis (2021). *Front. Commun.* 6:56. doi: 10.3389/fcomm.2021.628780

### Exploring the Complexity of the L2 Intonation System: An Acoustic and Eye-Tracking Study

by Di Liu and Marnie Reed (2021). *Front. Commun.* 6:627316. doi: 10.3389/fcomm.2021.627316

The aim of this commentary is to propose word prosody training as scaffolding for learning the English intonation system. Drawing on Ghosh and Levis (2021), I discuss the pedagogical implications of research on vowel quality in relation to word stress instruction and the nested nature of vowels within syllables, which make up prosodic words. In light of Liu and Reed, (2021) findings on the structural complexity of intonation (i.e., interrelated and interacting components), I hope to demonstrate the applicability of L2 phonology research to improve prosodic structure pedagogy in the context of L2 English pronunciation.

According to Ghosh and Levis (2021), word stress errors that introduce concomitant vowel errors highlight a critical role played by vowel quality in listener processing of multi-syllabic words. Pedagogically, how should these findings inform classroom practices? First, does the finding on vowel quality establish a stronger case for prerequisite vowel training in order to promote word-level intelligibility? If so, would increased emphasis on vowel quality entail spending more time on the perception of clear versus reduced English vowels and/or the production mechanisms often missing in students' articulatory settings to make English vowels, especially the reduced vowel (i.e., the schwa)? And what about the need to address relative length—by which I mean English vowel lengths contrasted with the learners' L1 vowel lengths? Based on my own teaching experience, it is quite apparent that without explicit instruction on similarities/differences and the relative nature of vowel length, L2 learners are often ill-equipped to recognize these subtleties.

**TABLE 1 |** Proposed Prosodic Structure Pathway.

Prosodic Structure	Description	Rationale
<b>Prosodic Structure Prerequisites</b>		
Articulatory settings	Provide instruction on the default mouth position for English; contrast L1 versus English settings; practice perception and production of the schwa	The settings enable the production of the schwa, thus supporting word-level rhythm, which underlies overall English rhythm
Vowels	Highlight length and relative length (L1 versus English vowel length); practice perception and production of vowel quality	According to L1 listener data, word-level intelligibility is influenced by central/reduced vowels
<b>Prosodic Structure Scaffolding</b>		
Word prosody	For one-syllable words, practice perception and production of: <ul style="list-style-type: none"> <li>• segmentals with an emphasis on vowel quality</li> </ul> For two-syllable words, focus perception and production on: <ul style="list-style-type: none"> <li>• vowel quality (clear versus reduced)</li> <li>• word-level prosody (including pitch range, pitch level, and duration)</li> </ul> For three or more syllable words, target: <ul style="list-style-type: none"> <li>• words as the unit of analysis (as a prerequisite for thought groups)</li> <li>• vowel quality (clear versus reduced)</li> <li>• word-level prosody (including pitch range, pitch level, duration, and pitch contours across syllables)</li> </ul>	Structural complexity of English intonation is problematic for L2 Mandarin-English speakers; use word prosody to scaffold structural complexity of intonation learning
Phrase and sentence stress	Focus on: <ul style="list-style-type: none"> <li>• thought groups as unit of analysis</li> <li>• primary sentence stress (pitch range, pitch level, and duration)</li> <li>• rhythm (clear versus reduced vowels)</li> <li>• pitch contour(s)</li> </ul>	Evidence shows primary sentence stress contributes to the degree of intelligibility
Utterance-level prosody	Practice: <ul style="list-style-type: none"> <li>• thought groups (or paragraph) as unit of analysis</li> <li>• primary sentence stress (pitch range, pitch level, and duration)</li> <li>• rhythm (clear versus reduced vowels)</li> <li>• pitch contours</li> </ul>	Prosody plays a significant role in encoding meaning

Second, from a phonetics/phonology crossroad perspective, what is the relationship between vowel length inherent in vowel quality and the prosodic cue of duration created by a vowel nested within a stressed syllable of a multi-syllabic word or in a sentence? This relationship does highlight the importance of vowel quality training; however, it only addresses length/duration, omitting features related to pitch. In order for learners to develop word-level prosody as a foundation for utterance-level prosody, some traditionally taught stress characteristics such as pitch range/level/change are required. I would like to argue, therefore, that word-level prosody training (as opposed to just vowel quality or just stress characteristics) provides an opportunity for students to begin intonation skill development as part of English prosody learning.

This brings me to Liu and Reed (2021). As they indicate, the signaling of contrastive and implicational information by Mandarin-English L2 speakers relies more on the acoustic feature of intensity, while L1 English speakers use pitch range, pitch level, and duration. From an assessment perspective, these findings are not surprising, since speech rater comments on L2 Mandarin-English speakers' speech often include descriptions such as "plodding", "choppy", or "tone-like". This is certainly in part due to the use of intensity more than duration and pitch movement for signaling stress. From a classroom research perspective, however, I am curious about the training of the Mandarin-English L2 speaking participants. Had they ever had perception or production instruction on either word- or

sentence-level stress in which the difference between tone and English stress was made explicit? Did they receive feedback on their use of intensity versus the use of pitch (range and level) and duration for word stress or primary sentence stress? Anecdotally, a majority of my L1 Mandarin speaking graduate students in the past 15 years have mostly lacked explicit instruction on word- or sentence-level stress. Similarly, there is typically a lack of structural or functional complexity awareness on their part. Yet, most make considerable progress in their production with explicit instruction, supportive feedback, and scaffolded practice.

Let us turn now to the broader implications of L2 phonology research for L2 pronunciation pedagogy. If we accept language as a complex system (Larsen-Freeman, 2017) and specifically, the interconnectedness of components or parts, then the nested nature of prosodic structure presents itself as a pedagogical pathway. In other words, by embracing interconnectedness—vowels are nested in syllables, which are nested in words, then nested in intonation units and ultimately, utterances (Fox, 2000)—instruction can move beyond the segmental versus suprasegmental debate (Zielinski, 2015). This would also address the Liu and Reed finding that their L1 Mandarin English learners largely failed at producing contrastive/implicational intonation. Accordingly, word prosody training during vocabulary instruction can be used to scaffold the structural complexity of intonation required as learners' proficiency levels advance. This approach paves the

way for phrase- and sentence-level practice before moving on to contextualized utterance- and discourse-level practice. With structural complexity integrated in such a way, more time would be available for addressing the functions of intonation.

Initially inspired by readings on prosodic hierarchy (Nespor and Vogel, 1986) and decades of grappling with learner needs, as well as in light of the research findings mentioned above, I set forth in **Table 1** a proposed prosodic structure pathway for teaching and learning English prosody. For prerequisite skills, the pathway starts with articulatory settings and vowels. Essentially, the process includes an emphasis on vowel quality, but continues to integrate word stress characteristics with the rationale that word-level prosody is a training ground for the structural complexity of English intonation. Although empirical research is needed to test the efficacy of this approach, further study is warranted based on successful classroom outcomes with high intermediate to low advanced L2 Mandarin-English speakers.

Both Ghosh and Levis (2021) and Liu and Reed (2021) found L1 and L2 differences. The former identified a lower baseline and greater variation related to lexical stress errors in L2 listeners compared to L1 listeners. The latter found feature differences for

encoding contrastive and implicational information. These findings reinforce the value in and need for cross-linguistic comparison studies investigating the perception and production of target features. Pedagogically, there remains an opportunity to improve the efficacy of pronunciation pedagogy through strategic application of the L2 phonology knowledgebase. May the future foster both.

## AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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## REFERENCES

- Fox, A. (2000). *Prosodic Features and Prosodic Structures*. Oxford: Oxford University Press.
- Ghosh, M., and Levis, J. M. (2021). Vowel Quality and Direction of Stress Shift in a Predictive Model Explaining the Varying Impact of Misplaced Word Stress: Evidence from English. *Front. Commun.* 6, 628780. doi:10.3389/fcomm.2021.628780
- Larsen-Freeman, D. (2017). "Chapter 1. Complexity Theory," in *Complexity Theory and Language Development: In Celebration of Diane Larsen-Freeman*. Editors L. Ortega and Z. Han (Amsterdam, Netherlands: John Benjamins), 11–50. doi:10.1075/llt.48.02lar
- Liu, D., and Reed, M. (2021). Exploring the Complexity of the L2 Intonation System: An Acoustic and Eye-Tracking Study. *Front. Commun.* 6, 627316. doi:10.3389/fcomm.2021.627316
- Nespor, M., and Vogel, I. (1986). *Prosodic Phonology*. Dordrecht: Foris Publications.
- Zielinski, B. (2015). "The Segmental/suprasegmental Debate," in *The Handbook of English Pronunciation*. Editors M. Reed and J. Levis (Hoboken, NJ, USA: Wiley), 397–412. doi:10.1002/9781118346952.ch22