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Crash modules to help Persians speak more intelligible and comprehensible English, emphasizing either production or perception of either sounds or melodies

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Yenkimaleki and van Heuven (2021) studied the effects of teaching either segmental or suprasegmental (prosodic) aspects of English, in combination with either perception or production-focused practice (four combinations in all) on the speech intelligibility and comprehensibility of Persian L1 learners of English as a foreign language. Generally, production-focused exercises were more effective but there was no overall effect of teaching segmentals versus prosody. However, the specific combination of emphasis on prosody and production-oriented exercises was most beneficial. We summarize the results of the study and present, more systematically and in more detail than in the original article, the materials and teaching methods used.

Keywords: Crash modules, intelligible speech, comprehensible speech, prosody teaching

1. Introduction

When (native and nonnative) talkers speak accented English, i.e., deviate from the way we are used to hear English (the ‘norm’), listeners often experience problems in recognizing the words (degraded intelligibility) or find it hard to grasp the overall meaning intended (degraded comprehensibility) (Yenkimaleki & Van Heuven, 2019). Courses in English as a Foreign Language (EFL) should therefore include explanations and exercises that help the learner reduce their foreign accent. Limited teaching time, however, often forces EFL instructors to make choices as to which aspects of the learner’s spoken English should take priority, i.e., which are the high-value pronunciation values in the EFL curriculum. In a

recent study (Yenkimaleki & Van Heuven, 2021), we compared the effect of four different teaching priorities on the development of intelligibility and comprehensibility of Persian-speaking EFL learners.

2. The study

2.1 Method

The EFL learners were 80 first-year female university students of Industrial Engineering in Iran, with Persian as the mother tongue. The students were divided into 5 groups of 16 matched for overall English language skills. All the students did the 15-hour routine EFL curriculum. Two groups, however, spent 5 hours less on routine activities, and instead were explicitly made aware of differences between the sound segments, i.e., the vowels and consonants, of (American) English and those of Persian. These are the segmental groups. Two more groups spent 5 hours less on the routine curriculum and instead were made aware of differences in stress patterns in words and sentences, in rhythm and in speech melody between English and Persian. One segmental and one prosody group concentrated on the production of the English, i.e., so that the way they spoke English would sound more native-like. The other segmental and prosody group instead concentrated on recognizing the correct pronunciation of the segments and the correct use of prosodic features. This way four experimental groups were formed (1) segments-production, (2) segments-perception, (3) prosody-production and (4) prosody-perception. The fifth group is the control group, which only did the routine curriculum.

Before (pretest) and after (posttest) the 15-hour lecture module, all 80 participants were recorded while talking about a variety of topics that were familiar to them. The recordings were evaluated by three experts, who judged the student's intelligibility, comprehensibility, strength of nonnative accent, correct use of word stress and appropriate use of sentence prosody (sentence stress and melody). The scores for all five scales ran between 0 'poorest' to 10 'best'. The difference in the rating obtained in the posttest and that of the pretest, i.e., the gain, is our measure of success of the intervention used.

2.2 Results

The control group gained least of the five groups, about 0.5 point. All the Experimental groups gained significantly more than the Control group. Figure 1 shows how much more the Experimental groups gained than the controls.

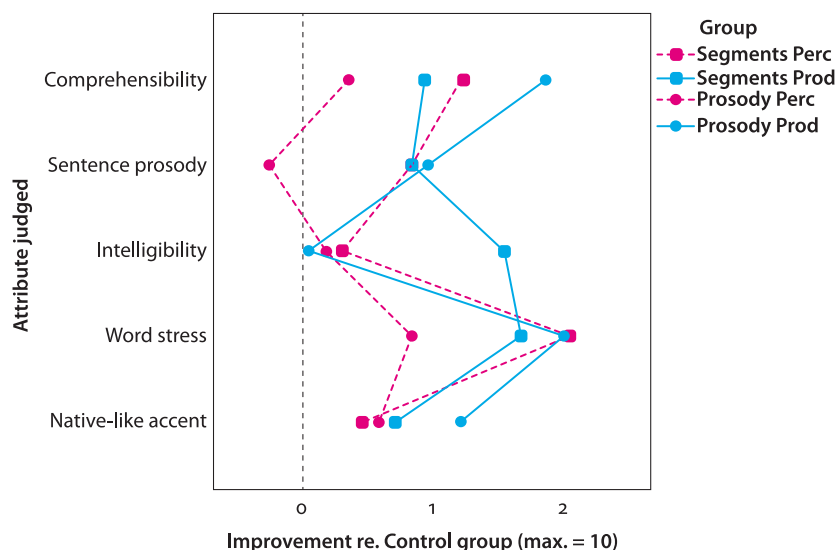


Figure 1. Gain (relative to control group = 0) from pretest to posttest in Judged Intelligibility, Comprehensibility, Nateness of accent, correctness of Word stress and of Sentence prosody for four experimental groups

The prosody-perception group (light/green circles) gained least, with about 0.5 point more gain on average than the control group. Overall, exercising speech production was twice as effective (improvement of 1.18 point) than doing recognition exercises (0.66 more gain than the control group). The most successful treatment was seen for the prosody-production group (dark/red circles). More importantly, the largest gain in comprehensibility, the key scale in the study, was also found for this group. Inspection of Figure 1 reveals that this group also saw the largest gains in native-like accent, word stress and sentence prosody, even though they did not outperform the control group in judged intelligibility. The group that was taught to attend to segmental differences and practiced their acquired knowledge in production tasks (Segments-Production, red squares) gained some 1.5 points more on the intelligibility scale than all other groups (including the Control group). These results show that intelligibility and comprehensibility are not the same thing, and that a gain in intelligibility does not necessarily lead to a gain in comprehensibility.

3. Instruction modules

In the remaining part of this article we will explain in more detail what the dedicated training programs to improve segments and prosody in EFL through production practice looked like.

3.1 Explaining and training segmental features

To make sure that ~~the~~ ~~he~~ ~~instruction~~ would understand the points completely, instruction was partly done in the students' mother tongue (Persian). Contrastive analysis was used in some cases to highlight the differences between the English and Persian sound systems. The book *English Pronunciation in Use, 10th edition* (EPIU, Hancock, 2003) was used as a complementary resource.

The segmental training proceeded in five stages (a-e).

a. *Description and analysis*

The instructor explained the articulatory differences between two sounds (see Figure 2 for details). The students practiced analytic listening to the same sounds in Persian and English. Then they were asked, both in perceptual and production exercises, to sort a random list of English words containing the key sounds into the two categories. They also, as a whole class activity, conducted a treasure hunt to locate classroom items containing the two key sounds in English for two minutes.

1. Consonant sounds: The “th” sound in English as in “think” or “that” does not occur in Persian, and is often replaced by “s” or “z” sound by Persian speakers.
2. Vowel sounds: Persian has a different vowel system than English. For instance, Persian has long and short vowel sounds, while English mainly distinguishes vowels based on their quality rather than length.
3. Syllable structure: Persian has simpler syllable structures than English. Persian syllables tend to be open, (i.e., end in a vowel), while English allows for more complex syllable structures with consonant clusters at the beginning or end of syllables.
4. Pronunciation of certain sounds: Persian speakers may have difficulty pronouncing certain sounds in English, such as the “th” sound or the “r” sound. They may replace these sounds by similar ones from their native language, leading to pronunciation differences between the two languages.

Figure 2. Some articulatory differences between Persian and English

b. *Listening discrimination*

Learners were given the opportunity to tune their ear to sound English differences. Techniques included word- and sentence-level practice with minimal pairs, i.e., words that differ by only one phoneme such as ~~back-pack~~ (consonants) or ~~pick-peck~~ (vowels). Monitored by the instructor, students played minimal pairs on de CD accompanying *EPiU* for themselves and wrote down the words in the order heard, e.g., *cost-coast, boat-boot, woke-walk*.

c. *Monitored practice*

With virtually no use of Persian, the learners' attention was focused on correctly articulating the target sounds (i.e., pronouncing the English sounds as closely as possible to the native speaker form). Examples of monitored practice include the reading aloud of sentences, tongue twisters, or short dialogues (*EPiU*). Especially English sounds which are absent from Persian (/w, θ, ð, ɔ, ɪ/) were practiced. The instructor always monitored the students' performance, and in some cases provided feedback (by articulating the sounds) or feedforward.

d. *Guided practice*

This stage combined a focus on the target sounds with the need for learners to use English to accomplish the task. Typical activities were cued dialogues (see Figure 3). The instructor listened to how students identified challenging sounds in a number of words, e.g., /θ/ (in ~~think, thought, through~~) or /ð/ sounds (~~though, those~~). The instructor wrote some words on the board and explained the contrast that was missed. The instructor moved around the classroom while observing the individual students' performance and answered queries. The instructor provided feedback whenever it was felt needed, e.g., when students made a mistake in guided practice tasks, the instructor provided corrective feedback to them (See Yenkimaleki et al., 2023). At times, the instructor asked students to correct their classmates (when they made a mistake) in guided practice.

e. *Communicative practice*

This practice was less structured and required students to attend to both the target pronunciation features and the content of the message being communicated. Typical activities required the natural production of the target language, such as storytelling, role play, and problem-solving (see Figure 4).

Instructor: Okay class, today we're going to practice the pronunciation of the "th" sound. Repeat after me: "th."

Students: "th."

Instructor: Great! Now, let's move on to some words. I'll say a word and then you repeat it, focusing on the "th" sound. Ready? Here's the first word: "thin."

Students: "thin."

Instructor: Excellent! Now, let's try another word: "thank."

Students: "thank."

Instructor: Perfect! Now, let's challenge ourselves with a longer word: "through."

Students: "through."

Instructor: Well done! Lastly, let's practice the "th" sound in a sentence. Repeat after me: "I think that this is a great exercise."

Students: I think that this is a great exercise.

Instructor: Fantastic job, everyone! Keep practicing and you'll master the "th" sound soon

Figure 3. Cued dialogue

Instructor: Alright class, let's practice some communicative activities to improve our pronunciation skills. Pair up with a partner and take turns asking and answering questions using words with the "th" sound. Remember to focus on correct pronunciation. Ready?

Student A: (to Student B) What's your favorite thing to do on weekends?

Student B: (to Student A) I think that going hiking is a great way to relax.

Student A: (to Student B) Do you have any brothers or sisters?

Student B: (to Student A) Yes, I have three brothers and two sisters. They all live in the same city as me.

Instructor: Great job, everyone! Now switch roles and continue the conversation. Remember to pay attention to your partner's pronunciation and provide corrective feedback if necessary.

Figure 4. Communicative practice

3.2 Explaining and training prosodic features

The students received explicit teaching of prosodic features of English during each training session.

a. *Awareness*

Students acquired procedural knowledge about the prosodic features of English, i.e., intuitive knowledge that cannot be verbalized (e.g., Piske, 2008; Yenkimaleki & Van Heuven, 2018) (e.g., phonetic/phonological sensitivity). Students were made metacognitively aware of rhythm, stress, and intonation patterns in English, and of the differences with their own pronunciation and prosody while engaging in communicative activities. They were actively reflecting on their own pronunciation and prosody, making adjustments as needed to improve their communication skills. This ~~is~~ established through providing explanation of the nature of English prosody and its functions in message perception and production. Later, students listened to authentic dialogues and perceived the crucial role of prosody in message perception. On the third stage, students were involved in communicative tasks so that they themselves practically ~~use~~ English prosodic features in communicative activities with their classmates.

b. *Shadowing*

Students were involved in speech shadowing. Authentic audio files (i.e., materials not produced for teaching purposes in classrooms but for movies, news cast, and for other communication purposes in the real media) were selected with a maximum duration of five minutes; they were based on the speech of a single native English speaker talking about their hobbies or what they do in their free time (copied from zappenglish.com, see Figure 5 for an example). Students chose a topic that they were already familiar with and which would be of interest to them. The students listened to the audio files once quickly just to get used to the speaker. They paid attention to the speaker's rhythm, accentuation, and pace of speaking. The students were asked to shadow the input speech, i.e., to repeat the words immediately after the speaker in an online fashion, for about 30 seconds at a time. Students paused, tried again, and even recorded and listened back to their own versions (when students sing the words of a song they know well, they to optimally match the speaker's pronunciation and pace). The instructor monitored students' performance, and provided corrective feedback whenever felt necessary. This helped the students focus on how English speakers modulated speed, used intonation, and blended words together. By mimicking the speaker, students could begin to improve their own intonation, connected speech, and overall fluency.

c. *Stress*

Students targeted problematic stress patterns. Throughout the lesson, the instructor listened to the students and identified words that reflected pronunciation chal-

A: Hi everyone, welcome to ZappEnglish.com. In this lesson, we're going to talk about hobbies and interests.

B: That's right. Hobbies are activities we do for fun or pleasure, and interests are things we like or enjoy.

A: So, let's start with hobbies. What are some of your hobbies?

B: Well, I love playing football and watching movies.

A: Ah, that's great. I'm more into reading and listening to music.

B: What about interests? Do you have any particular interests?

A: Yes, I'm really interested in learning new languages and cultures.

B: That's fascinating. I'm interested in history and politics.

A: So, how about you guys? What are your hobbies and interests?

C: Hi, I'm John. My hobby is playing guitar and my interest is photography.

D: Hi, I'm Sarah. My hobby is hiking and my interest is environmental issues.

A: Excellent. Now, let's practice some vocabulary related to hobbies and interests. Repeat after me: gardening, cooking, painting, dancing, playing chess...

B: And some common interests could be: science, fashion, sports, travel, music...

A: Great job everyone. Remember to use these words and expressions when talking about your hobbies and interests in English.

Figure 5. Example of materials from Zappenglish.com: Talking about hobbies and interests

lenges. He wrote these words on the board and explained the contrast that was missed, e.g., *steam/esteem*, *prayed/parade* (incorrect vowel epenthesis) or *foreign/for rain* (incorrect stress pattern). The instructor also asked students to write down the words and sentences they were listening to, and drilled new vocabulary (by introducing new vocabulary, students could not answer the exercises from whatever they already practiced—see Figure 6).

Here, the instructor focused on aspects of pronunciation such as word stress, sentence stress and intonation (sentence melody). Following a planned schedule, he showed the students that if they ~~do~~ not observe correct English prosody, they ~~will~~ be misunderstood. By providing real examples in dialogues, the students grasped the important role of prosody in message perception and production of English. Correct sentence stress was based on listening and producing the same stress patterns that the native speakers/instructor had used. New vocabulary items were used for new sentences, not for sentences already practiced by the students. New vocabulary that came up during the training program was written down.

- Students were divided into pairs or small groups. Each group was given a set of sentences or short dialogues in which target words needed to be stressed correctly. The students took turns reading the sentences aloud, paying attention to their own pronunciation and prosody.
- After each student read a sentence, group members provided feedback and discussed whether or not the stress was placed correctly. This feedback and discussion allowed the students to reflect on their own pronunciation and prosody, identifying areas for improvement.
- Throughout the activity, the students were actively thinking about and monitoring their own pronunciation and prosody, making adjustments as necessary to improve their communication skills. They experimented with different stress patterns, listened to their own recordings, and compared them to native speakers' pronunciation (see Yenkimaleki & Van Heuven, 2019) to further refine their skills.
- By doing so, students not only practiced and improved their procedural knowledge of English stress patterns but also developed their metacognitive awareness. They became more self-directed and independent in their learning, as they were able to identify their own problem areas and find ways to address them.

An example of short dialogue:

Instructor: Alright, everyone, let's begin our activity on stress patterns in English. I will give you a short dialogue, and your task is to correctly place stress on certain words. Here's the dialogue:

Student A: Hey, have you seen my new car?

Student B: No, I haven't. Where did you park it?

Student A: I left it in the parking lot near the mall.

Figure 6. Problematic stress patterns

d. *Contextualization*

The instructor asked students to contextualize their tasks (e.g., repetition of key words in a listening passage; see Figure 7 for an example, key words underlined).

e. *Meaningful tasks*

Having done the required practical tasks on contextualization, the students performed meaningful, authentic tasks (e.g., choice of correct word in a sentence or a sentence in a paragraph). For example, the instructor asked students to listen to a dialogue or conversation between two native speakers, identify the emphasized words and analyze how the prosody affected the meaning and tone of the dialogue. This task not only helped students practice their listening skills, but also

Instructor: Let's move on to our next activity. This time, we will focus on repetition of key words in a listening passage to practice prosody. I will play a short audio clip for you. Listen carefully and identify the key words that are stressed in the passage. Afterwards, we will discuss together which stresses were placed correctly. Here's the audio clip:

Narrator: In today's fast-paced world, it's important to find ways to relax and unwind. Many people turn to activities such as yoga, meditation, or simply taking a walk in nature. These practices can help reduce stress and improve overall well-being. So, next time you feel overwhelmed, remember to prioritize self-care and find what works best for you.

Instructor: Now, let's listen to the audio clip again. This time, pay close attention to the emphasized words. Afterward, we will have a discussion.

Figure 7. Repetition of key words

allowed them to understand the importance of prosody in conveying meaning and emotion in spoken language.

f. *Realistic tasks*

Students engaged in a role-play of a situation similar to one that one may face in real life or discussed their real-life situation or concerns (for details see Yenkimaleki, 2017: 50–88). For example, students had to act out a job interview with interviewer and interviewee as possible roles. They were instructed to use appropriate prosody, including stress, intonation, and rhythm, to convey their emotions, intentions, and attitudes during the interview.

During the role-play, students focused on using prosody to emphasize certain words or phrases in ways that show confidence, enthusiasm, or sincerity. They also paid attention to their intonation patterns to indicate questions, statements, or emphasis. After the role-play, the class discussed how the different prosodic features used by each student had affected the overall meaning and tone of the conversation. This activity not only allowed students to practice their prosody skills in a realistic context but also made them more aware of how their speech patterns influence communication and interpretation.

4. Discussion

Our results showed that highlighting differences in structure and use of prosody in combination with production-oriented exercises yielded the greatest improvement in our students' judged comprehensibility in English. Somewhat unexpectedly, combining emphasis on prosodic differences between (native) Persian and (foreign) English with perception-based exercises was the least effective one of the

four teaching method we tried out. These findings suggest that actually engaging EFL students in the production of English sounds and prosody is beneficial for their comprehensibility, while asking them to just listen attentively to sounds and prosody is not enough. Perceptual awareness of the specifics of English sounds and prosody may well be needed to improve the students' spoken English but better perception does not automatically lead to better production. However, if EFL students are trained to improve their spoken English, e.g., through monitored production exercises and imitation tasks such as shadowing, we get two for the price of one: the student first has to listen to authentic English input and then reproduce what they heard in their own EFL speech, while being forced listen to the model and their imitation and compare, while trying to close the gap between model and imitation.

It has often been observed that it is easier for naïve listeners to perceive and label anomalies in the pronunciation of vowels and consonants, while it is difficult to put the finger on differences in rhythm, accentuation and sentence melody. This is quite probably also the reason why dealing with prosodic differences is typically postponed until the end of English pronunciation courses for nonnative learners. However, getting the overall prosodic structure right is an essential requirement for comprehensibility, especially when the pronunciation of the vowels and consonants is defective (e.g., van Heuven, 2008, 2022, and references therein). This is precisely what we did in the optimal condition in our experiment, and this is the condition that our students felt most positive about.

5. Conclusion

Overall, prosody plays a crucial role in speech processing by helping EFL learners to divide the continuous stream of speech into smaller units that can be processed separately (Yenkimaleki & van Heuven, 2019). It provides important boundaries for the listener, allowing them to reduce the number of competing representations in working memory. For native speakers, prosody is a safety catch that they trust more than poorly defined segments, as it is more robust against noise and distortion. However, for non-native speakers with poor-quality segments, getting the prosody right is crucial for successful communication (Yenkimaleki & van Heuven, 2023). The importance of prosody teaching for EFL learners depends on their L1. If English and the L1 are prosodically quite different, then prosody teaching will be crucial. This is particularly true for the Persian-English language pair, with clear differences in word stress and rhythmic structure. Therefore, understanding and mastering prosody is essential for learners to communicate effectively in EFL.

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