

## THE PERCEPTION AND PRODUCTION OF ENGLISH INTONATION BY SERBIAN EFL LEARNERS: THE EFFECT OF AUDIO-VISUAL TRAINING AND EXPLICIT INSTRUCTION

*Abstract: Contemporary EFL studies underscore the importance of successful acquisition of both segmental and suprasegmental features of L2, since they are essential in improving learners' perceptual and productive skills, further contributing to the enhancement of a speaker's intelligibility and the overall favourable impression they make on an interlocutor. Appropriate phonetic training, even at earlier stages of learning has been recognized as fundamental in increasing students' awareness and developing the necessary knowledge for mastery of the structure of English tone-units. The present study thus sought to gain possible insight into the effectiveness of providing learners with appropriate visual cues as well as auditory training regarding English intonation and to investigate the effect of explicit instruction and consistent corrective feedback on the development of perception and production of English intonation. A total of 28 secondary school English learners from a private school in Jagodina participated in the study, out of which 16 underwent a two-month long intonation training. The data for analysis were obtained via pre-test and post-test examinations of their overall proficiency as well as questionnaire distributed after the completion of the experimental period.*

*Key words: audio-visual training, perception, production, intonation, EFL*

### *1. Introduction*

Recent studies in L2 acquisition have emphasized the significance of mastering prosodic aspects of a target language, since they contribute to overall intelligibility and benefit the impression of higher proficiency with both native and non-native listeners (Zhang et al. 2010). Intonation may provide significant clues not only regarding the actual information conveyed by an utterance, but can likewise depict the emotions and attitudes of the speaker, negotiate meaning, organize turn-taking or demonstrate awareness of the conversation topic (Vassière, De Mareüil 2004). Hence, the necessity of an adequate acquisition of L2 intonation contours seems to be a logical and indispensable step in successful target language attainment of both phonological and pragmatic competence, since miscomprehensions in cross-cultural communication are claimed to have been caused

---

<sup>1</sup> danicajerotijevic@gmail.com

often by misinterpretation of prosodic features (Jenkins 2004). Additionally, intonation provides clues related to speakers' intentions, social status, and personality; thus a non-native speaker, failing to understand the meanings of pitch variations, may mislead the listener to diverge from the original speaker's intended meaning (Spaii, Hermes 1993). Besides misrepresenting oneself using erroneous intonation patterns by giving a wrong impression about speaker's overall target language proficiency, an L2 speaker risks conveying unintended meaning and disconcerting a native speaker by the impoliteness of the wrongful production, since some authors suggest that while inaccurate pronunciation of segments may be acceptable to native speakers, incorrect production of intonation is regarded with reprimand (Wells 2006). Furthermore, intentional development of L2 intonation perception and production may be beneficial for the ultimate distribution of segments, as well (Abberton, Fourcin 1978).

Similarly to segmental features, suprasegmental features may be considerably affected by L1 transfer. Hence instructors frequently focus on overcoming the errors in perception and production caused predominantly by mother tongue prosodic features. Although the need for adequate intonation instruction has been recognized among scholars, the problem arises concerning the appropriate treatment of intonation in EFL textbooks. Namely, there is a widespread notion that textbooks dealing with intonation are outdated and lack activities with real-life language use and genuine communicative purpose (Levis 1999). Moreover, some authors claim that the descriptions of the use of intonation are unnatural and inadequate instances of intonation practice in a natural linguistic setting (Cauldwell, Hewings 1996). The goal of learning L2 intonation should be the ultimate ability to apply appropriate pitch variation in different communicative situations. However, it most frequently becomes disregarded in favour of the structure of an actual tone unit. The result is students' confusion and perplexity at the number of various complex combinations of pitch variation, such as rise-fall or fall-rise, or segmentations of tone units into pre-head, head or tail (Atoye 2005). Intonation is acquired in the principal stages of mother tongue acquisition and it is automatic for the speaker, which explains the language transfer of prosodic features from L1 to the target language (Ramirez Verdugo 2006).

Recent research dealing with the acquisition of prosodic characteristics of English seems fairly scarce in the Serbian scientific context, especially papers concerning the effect of adequate training on the improvement of perceptive and productive skills of EFL learners. Marković (2011) stressed the predominant influence of transfer on the differences in speech tempo and syllable duration between native and non-native speakers. She also concluded that the reduction of functional words by English speakers represented special difficulty for L2 learners, as well as speech rhythm. Paunović and Savić (2008) investigated problematic areas in L2 intonation acquisition, such as sentence stress, nuclear tone placement, or

terminal contour, and demonstrated that Serbian EFL learners were able to signal familiar discourse functions such as question tags that they had encountered during the regular classes, but had greater difficulties with other discourse aspects for which they had lacked formal practice. Paunović (2013) further explored the issue by comparing the results of Serbian and English speakers' prosodic cues by means of which they signaled different parts of discourse organization, pointing out that prosodic transfer might not be the only factor causing the problems for Serbian EFL learners, even though it remained one of the most significant ones.

Having in mind the deficiency of research related to L2 intonation perception and production in the Serbian EFL context, and inspired by similar research on Mandarin Chinese learners (Hardison 2005), the present study aims to investigate the effects of audio-visual training that includes explicit instruction and corrective feedback on the perception and production of English intonation by Serbian secondary school EFL learners. To our knowledge, typically, Serbian EFL learners encounter instruction regarding English prosody later, at the tertiary level of education, and it is usually reserved for English major students only. Seldom do primary or secondary learners receive in-depth information about the structure of English tone-units, let alone listen to them via explicit instruction or attempt at producing them at earlier stages of learning. In both perception and production tasks we concentrated on investigating nuclear tone, i.e., the combination of pitch accent, which can be high or low and relates to syllables marking emphasis, and edge tones, divided into phrase accent and boundary tones, occurring at the ends of intonational phrases signaling continuation, question or statement (Cruttenden 1986). Nuclear tones are essential for intonational meaning recognition and are typically most problematic for EFL learners.

## *2. Background and Rationale*

The significance of L2 rhythm and intonation patterns and its influence on overall intelligibility have been recognized by researchers and underscored as an integral part of successful pronunciation training (Morley 1994; Gilbert 1995). Navarro Tomás (1948) believed that the phenomenon of foreign accent fundamentally derived from acquisition problems concerning the aspect of intonation. Furthermore, studies focusing on the effect of segmental and suprasegmental aspects of foreign language phonology on the perception of foreign accent demonstrated that it is precisely mispronunciations related to suprasegmental features that predominantly contribute to the perceived accentedness of an L2 speaker (Trofimovitch, Baker 2006), which additionally underlines the importance of prosody in the interlanguage system. Once again, language transfer of both phonetic and phonological characteristics from L1 seems to be the number one factor influencing the

acquisition of a target language prosody and some studies made further claims that there might be a universal pattern in L2 suprasegmental features acquisition since learners usually repeat similar errors regardless of their mother tongue. So similarly to the acquisition of segments, L1 transfer and factors of universal development exhibit prevalent contribution to the SLA of rhythm, stress and intonation (Mennen 2006).

Regarding the errors learners frequently make in terms of the perception and production of suprasegmentals, studies have reported on wrong phonetic realizations of rhythm, accent, and intonation (Mennen 2004), or an inadequate application of pauses, stress, rhythm, and intonation, as well as their use in an inappropriate context (Flege, Bohn 1989; Wennerstrom 1998), and most importantly for the present study, perception or production of meaning using intonation cues (Pickering 2001).

Previous research in L2 prosody acquisition demonstrated the importance of adequate intonation instruction and training. Studies report that production represents a greater problem for L2 learners than perception, and the prevailing reason for such a state of affairs is the fact that learners lack prior knowledge about any aspects of prosody of the target language (Anderson-Hsieh et al. 1992). An L2 learner should acquire the target language intonation contours formally, but one must successfully learn to recognize the meaning underlying these contours, as well. A study on Cantonese learners (Pennington, Ellis 2000) pointed to the detrimental effect of learners' explicit exposure through a special task to ambiguous intonation patterns on the overall perception of the patterns in question. Another investigation of perception of L2 intonation among Nigerian students showed a lack of ability to identify the meaning of pitch variation, even though the subjects correctly recognized the form of pitch changes in sentences (Atoye 2005). Furthermore, Chinese speakers fail to recognize the falling intonation of *wh*-questions, as opposed to generally satisfactorily accurate perception of the rising intonation of *yes-no* questions and the falling intonation in declaratives (Zhang et al. 2010). Zhang (2012) concluded that students perceived the falling tone better than the rising one, whereas the worst score was achieved with the fall-rise. German L2 learners of Dutch, in an experiment on the perception of prosodic contrast, exhibited a high degree of intonation meaning transfer, and they relied more heavily on phonology, i.e., native language sound to form matching, than on phonetics, i.e., prosodic salience (Braun 2004). A significant study of L2 intonation demonstrated a high degree of L1 influence on the perception of L2 sentential intonation whenever listeners associate the F0 contour of a phrase in isolation and a pragmatic interpretation, e.g., surprise, statement, or question (Grabe et al. 2003). Cruz-Ferreira (1989) showed a considerable effect of transfer on the association of form to meaning in a target language, i.e., sentence meaning to a sentence level F0 contour. Kimura et al. (2010) investigated Japanese learners of L2 Spanish and their

perception of target intonation, and once again proved that the participants in the study had significant difficulty in perceiving the stressed syllables of words with rising pitch accents, and less difficulty with the falling ones. In a study on both intermediate and advanced learners, Nibert (2005) pointed to both intermediate and advanced learners' ability to perceive phrase accents in examples with simple syntax, whereas solely advanced learners were able to perceive the phrasing within more complex sentences similarly to native speakers.

### *3. Methodology*

#### *3.1 The aim of the study*

The present study aimed at investigating the effects of the application of auditory and visual cues during the explicit phonetic training of suprasegmental features on Serbian secondary school EFL learners' perception and production, specifically focusing on intonation of contemporary spoken English. We particularly endeavored to explore whether it was possible to introduce intonational training earlier than at the tertiary level of education (which, to the best of our knowledge, is currently the case in Serbian EFL context) and whether it would lead to significant improvement both in terms of production and perception of the problematic, yet considerably disregarded, suprasegmental part of the target language phonology.

#### *3.2 Research questions*

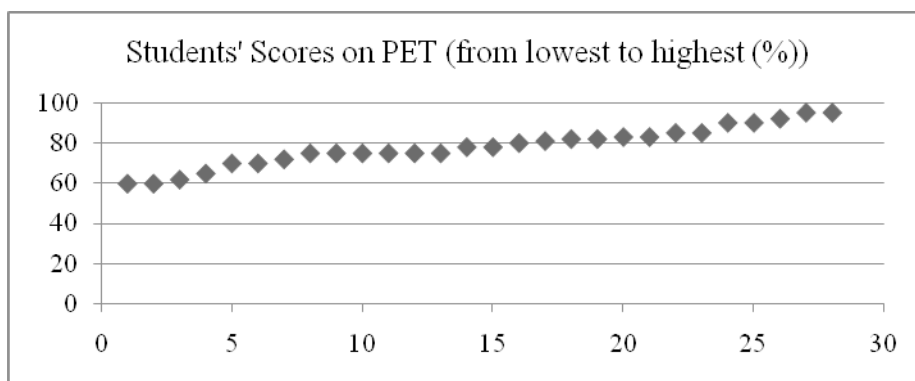
The experiment in the study was guided by the following research questions:

- What is the effect of audio-visual phonetic training on Serbian secondary school EFL learners' perception of English intonation?
- What is the effect of audio-visual phonetic training on Serbian secondary school EFL learners' production of English intonation?
- Can explicit instruction regarding English intonation be successfully implemented at the secondary level of education?
- What are student's attitudes regarding the conducted experiment, i.e. devoting special time to explicitly learning features of English intonation?

### 3.3 Participants

The participants in the study were first-andsecond-year students of a private secondary school in Jagodina. The total of 28 students participated in the study (17 female, 11 male participants, mean age 15.4), 16 of them forming the experimental group and 12 representing the control group. The sample of participants was chosen based on their performance on the Cambridge Proficiency Test done prior to the examination, the renowned paper-based *PET*<sup>2</sup> to be more precise, corresponding to the B1 level (CEFR)<sup>3</sup>. All the participants passed the test, with the different scores shown in Graph 1, but with the majority falling inside the range of 70-90%. We have taken the total performance into consideration, without extracting specific segments of the test, since it would exceed the scope of the research questions of the present paper. Furthermore, the participants underwent separate vocabulary testing, and their scores pointed to the vocabulary range of up to 2000 words, according to the chosen vocabulary test (Laufer, Nation 1999).

Graph 1. Students' Performance on PET



#### 1.1 Instruments and Data Collection

The empirical part of the research was performed by means of several instruments, i.e., by perception and production tests, as well as the questionnaire, done after the conclusion of the very experiment.

The perception test consisted of listening to recordings and then answering multiple choice questions in four parts of the test. In part one, students were supposed to recognize the nucleus of the tone unit, without stating its type (5 ex-

<sup>2</sup> Preliminary English Test, available on <http://www.cambridgeenglish.org/exams/preliminary/>

<sup>3</sup> Common European Framework of Reference, available on [http://www.coe.int/t/dg4/linguistic/cadre1\\_en.asp](http://www.coe.int/t/dg4/linguistic/cadre1_en.asp)

amples). The second part revolved around determining the correct type of nuclear tone, whether it is level, falling, rising or the combination of the two (9 examples). In the third part, the students heard the same utterance pronounced with different intonation patterns and they were supposed to decide on the speech act, i.e., whether the utterance was supposed to be a question, suggestion, or command, judging by the intonation understandably (2 examples). Finally, the fourth part of the perception experiment consisted of determining the possible speaker's attitude based on the intonation pattern used (6 examples). The options were chosen according to the suggestions in the literature (Roach 1990; O'Connor, Arnold 1974). The recordings consisted of native speakers' utterances gathered from the Internet archives mostly in British English, or teacher material (O'Connor, Arnold 1974).

The participants were recorded uttering given examples using an *Olympus digital voice recorder VN-8600PC* and the samples were later transcribed and analyzed using *Praat*. The production test contained three sections. The first part included different sentence types, especially focusing on yes/no and wh-questions, and the students' task was to pronounce them using correct intonation pattern. However, it is important to note that complex nuclear tones were excluded as well as the intonation marking (7 examples). Nevertheless, the students had the task to produce accurately nuclear tones in the second part where they were presented with random examples with falling, rising and fall-rise/rise-fall intonation (8 examples) and the focus was on the correct production of the pattern that was properly marked. In the third part students were supposed to pronounce a given utterance according to the description given in parentheses, attempting to depict the speaker's emotions or attitude, e.g., surprise, anger, hesitation etc. (4 examples).

The format of both the perception and the production test was preserved, yet the examples were altered for the post-test examination.

The questionnaire included five-point Likert scale statements regarding the realization of the experimental process and was, logically, distributed to the experimental group only.

## 1.2 Procedure

The participants were divided into an experimental and a control group, and the experimental group underwent a two-month long phonetic training. The training included explicit explanations regarding the fundamentals of English suprasegmental features, especially focusing on the tone unit as well as perception and production exercises followed by the teacher's feedback. The participants had two one-hour classes per week, during the winter term in 2011 (November-December 2011, to be exact). Furthermore, the training included native speakers'

recordings and teacher's explanations accompanied by demonstration, i.e. previously prepared visual cues. Every intonation contour was depicted by a spectrographic image done in Praat. Occasionally, the contours were recorded in Praat on the spot, to facilitate visualization in real time. The control group did not receive any explicit training, except for the regular school classes where their teacher introduced some of the basics of English intonation contours. Both groups were tested before and after the experiment to elicit information regarding their potential progress in the perception and production of English intonation.

### *1.3 Statistical Data Processing*

Percentage counts were used to quantify participants' accuracy as well as the answers in the survey. Moreover, a paired t-test was used to determine the statistical significance between the scores in the pre- and post-test performance of the experimental and control group.

## *2. Results and Discussion*

### *4.1 Perception Testing*

To test the validity and eligibility of both groups participating in the study, we performed a statistical analysis on the pre-test results of the groups which exhibited no statistical significance whatsoever, which means that both groups were at a similar level of performance in terms of target language intonation perception before the experiment. Pre-testing likewise demonstrated scarcity of knowledge about English tone units and the most problematic areas for perception were complex nuclear tones as well as the falling intonation in several instances. Such a state of affairs points to the lack of adequate training in perception, i.e., the deficiency of appropriate input by the native speakers and accompanying explanations. For the sake of clarity, the results of pre- and post-tests for both groups are given in Table 1.



Table 1. Perception Testing Results with Statistical Significance Calculation

Task no.	Task Description	Experimental Group Results (%)		Control Group Results (%)	
		Pre-Test	Post-Test	Pre-Test	Post-Test
1.	Recognizing the nucleus (without the type specification):				
	<i>Low-Rise</i>	12.5	37.5	25	33.33
	<i>High-Rise</i>	12.5	43.75	8.33	16.67
	<i>Fall-Rise</i>	25	50	25	33.33
	<i>Rise-Fall</i>	25	37.5	41.67	33.33
	<i>High-Fall</i>	0	18.75	8.33	16.67
2.	Recognizing the intonation pattern (focus on the nucleus only)				
	<i>High-Head + High-Fall</i>	6.25	37.5	0	0
	<i>Low-Head + Low-Fall</i>	0	25	0	0
	<i>Low-Head + Low-Rise</i>	12.5	50	25	16.67
	<i>High-Head + High-Rise</i>	12.5	62.5	16.67	33.33
	<i>High-Head + Fall-Rise</i>	0	25	8.33	8.33
	(two examples)	0	18.75	0	0
	<i>High-Head + Rise-Fall</i> (two examples)	18.75	100	16.67	33.33
<i>Level tone</i>					
3.	Speech act type (2 sentences read in three different ways)				
	Question	43.75	68.75	50	41.67
	Suggestion	25	43.75	25	41.67
	Command	18.75	31.25	33.33	16.67

4.	Speaker's Attitude Recognition	12.5	25	0	16.67
	Surprise <i>High-Head + Fall-Rise</i>	0	25	0	16.67
	Hesitation <i>Low-Head + Low-Fall</i>	6.25	0	16.67	0
	Protesting <i>Low-Head + High-Fall</i>	6.25	12.5	16.67	8.33
	Disapproval <i>High-Head + High-Rise</i>	0	12.5	0	0
	Concern <i>High-Head + Fall-Rise</i>				
	Hostility <i>High-Head + Rise- Fall</i>				

**Statistical Significance**

*Pre-Test*

The two-tailed P value equals 1.0000. By conventional criteria, this difference is not considered to be statistically significant.

**Confidence interval:**

The mean of Group One minus Group Two equals 0.00

95% confidence interval of this difference: From -0.72 to 0.72

**Intermediate values used in calculations:**

t = 0.0000 df = 20 standard error of difference = 0.345

SD

1.86

1.78

SEM

0.41

0.39

*Post-Test*

**P value and statistical significance:**

The two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be statistically significant.

**Confidence interval:**

The mean of Group One minus Group Two equals 3.71. 95% confidence interval of this difference: From 2.49 to 4.94.

**Intermediate values used in calculations:**

t = 6.3371 df = 20 standard error of difference = 0.586

SD

3.56

1.79

SEM

0.78

0.39

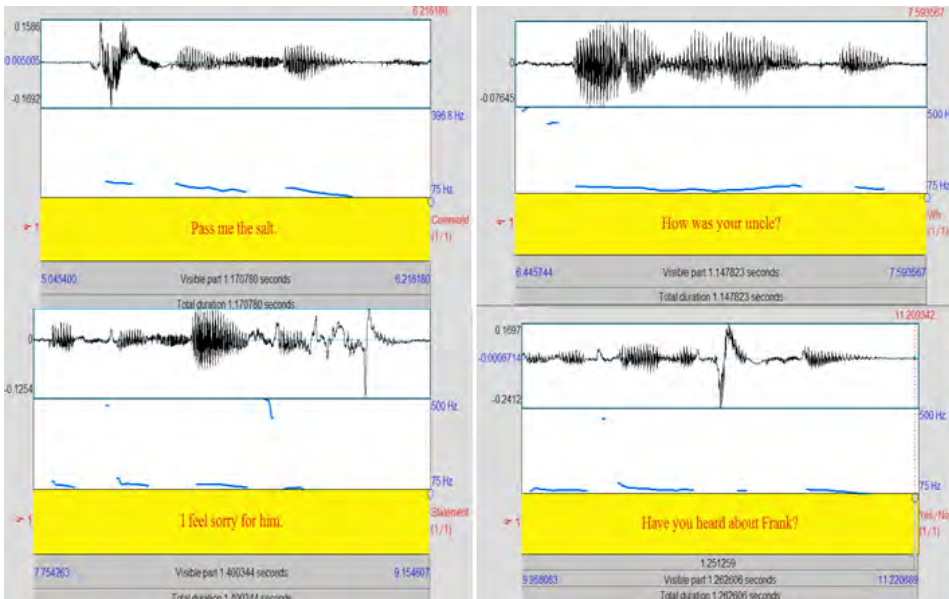
A post-test examination was performed after the experimental period and significant improvement was noticed in the group undergoing phonetic training. Comparing the results of both groups, we found extreme statistical difference in the performance, which means that the enhancement in perception was not due to chance but to the beneficial effect of the systematic audio-visual intonational training. The smallest improvement was found in the fourth task, i.e., speaker's attitude recognition based on intonation, which may be explained by insufficient time devoted to the particular aspect of intonation, inadequate duration of the very training period, and students' proficiency level. The greatest improvement, however, was seen in the perception of the rising nucleus and considerable enhancement was observed in the perception of complex tones, which is surprising considering the fact that the nuclear tones in question are traditionally regarded as the most perplexing. The situation does not entirely go in line with previous research by Zhang (2012), yet the fact that students demonstrated better performance in the perception of the rising intonation matches the results of the mentioned study. The afore mentioned results related to the rising intonation likewise contradict the results of Kimura et al. (2010), probably due to different suprasegmental features of the native languages of the participants.

#### *4.2 Production Testing*

Before the experimental period we performed pre-test analysis of the students' performance in both groups to measure the validity and eligibility of the chosen sample. There was no significant statistical difference in the performance, which means that the two groups were at a similar level of knowledge regarding the target language intonation production. For the sake of conciseness, the results of pre- and post-tests for both groups are given in Table 2.

Before the experimental period and even after, we noticed that a considerable number of students produced utterances with the same level-tone intonation regardless of the speech act type, which could be explained by lack of motivation, or lack of knowledge or interest in the activity. Thus, utterances depicted in Figure 1 are produced. In a real-life situation such intonation may lead to negative stereotypes about the speaker, i.e. it may point to their unwillingness to cooperate or even show disrespect. Hence, special attention should be paid to avoid future unfavourable consequences. The most problematic area in production before the experiment (besides the lack of knowledge of tone-unit structure and intonation contours) was depicting speakers' attitude by means of intonation, which goes in line with the results in perception.

Figure 1. Different Sentences Realized Using the Same Intonation



After the experimental period, both groups were tested again, and the results of statistical analysis demonstrate statistical difference in the production of intonation between the tested groups, which means that the improvement of the performance was not accidental, but was caused by the benefits of the phonetic training applied. The greatest improvement was with the production of rising intonation which can be explained by special attention devoted to it during the training or the prominence of the tone regarding its perception. The experimental group showed remarkable improvement in conveying speakers' attitudes via intonation, which was unexpected, especially if we take previous research into consideration (Pennington, Ellis 2000). The least progress was observed with complex tones and falling intonation. Moreover, it seems necessary to state that the results of the perception test match the results in the production test to an appreciable extent, pointing to the interrelatedness of the two.

The beneficial effects of the audio-visual phonetic training confirm certain conclusions proposed in Hardison (2005).

Table 2. Production Testing Results with Statistical Significance Calculation

Task no.	Task Description	Experimental Group Results (%)		Control Group Results (%)	
		Pre-Test	Post-Test	Pre-Test	Post-Test
1.	Utterance Production (intonation not marked) Yes/No question:				
	a) <i>High-Head + Low-Rise</i> expected, but any rising tone was accepted	12.5	43.75	25	16.67
	b) <i>Low-Head + Low-Rise</i> expected but any rising was accepted	25	62.5	33.33	41.67
	Wh-question:				
	c) <i>Low-Head + High-Fall</i> expected but any rising was accepted	43.75	62.5	66.67	58.33
	d) <i>High-Head + Low-Fall</i> expected but any rising was accepted	56.25	62.5	83.33	91.67
	Statement: <i>Low-Head + High-Fall</i> expected <i>High-Head + Low-Fall</i> expected	12.5 25	31.25 25	25 16.67	16.67 33.33
	Command: <i>Low-Head + Low-Rise</i> expected	31.25	56.25	50	33.33
2.	Intonation Pattern Production				
	<i>High-Head + High-Rise</i>	0	37.5	8.33	0
	<i>High-Head + High-Fall</i>	6.25	18.75	8.33	0
	<i>Low-Head + Low-Rise</i>	18.75	50	33.33	16.67
	<i>Low-Head + High-Fall</i>	0	25	0	8.33
	<i>High-Head + Rise-Fall</i> (two examples)	0	25	0	0
	<i>High-Head + Fall-Rise</i> (two examples)	0	43.75	0	0
3.	Production Based on Speaker's Attitude Description				
	Surprise <i>High-Head + Fall-Rise</i>	0	18.75	0	0
	Anger <i>High-Head + Rise-Fall</i>	0	12.5	0	8.33
	Hesitation <i>Low-Head + Low-Fall</i>	0	43.75	0	0
	Questioning <i>High-Head + High-Rise</i>	0	62.5	0	8.33

**Statistical Significance**

*Pre-Test*

**P value and statistical significance:**

The two-tailed P value equals 0.1357. By conventional criteria, this difference is not considered to be statistically significant.

**Confidence interval:**

The mean of Group One minus Group Two equals -0.29. 95% confidence interval of this difference: From -0.69 to 0.10

**Intermediate values used in calculations:**

$t = 1.5713$   $df = 16$  standard error of difference = 0.187

SD

2.79

3.08

SEM

0.68

0.75

*Post-Test*

**P value and statistical significance:**

The two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be statistically significant.

**Confidence interval:**

The mean of Group One minus Group Two equals 4.18. 95% confidence interval of this difference: From 2.80 to 5.55

**Intermediate values used in calculations:**

$t = 6.4379$   $df = 16$  standard error of difference = 0.649

SD

2.79

3.11

SEM

0.68

0.76

An interesting segment in utterance production (task 1) was noticed. Namely, the control group showed more successful performance with falling intonation in wh-questions in the pre-test and had even improved performance in the post-test, even without the training, and scored higher than the experimental group. The situation may be ascribed to the detrimental effect of training on certain aspects of students' performance, which was also recognized in previous studies (Pennington, Ellis 2000). Due to hypercorrection, after the students went through the training period, yet their knowledge was still insufficient, they started "overarticulating" utterances, hence wh-questions were realized with unnatural rising intonation, which can be seen from one example in Figure 2.

Figure 2. Realization of Wh-question Using Rising Intonation

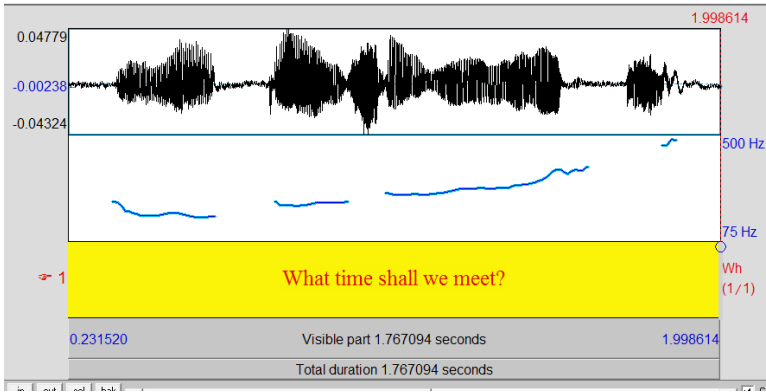
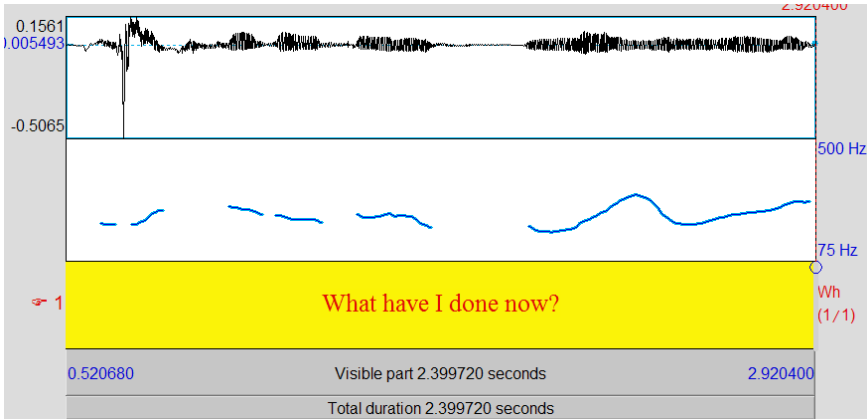


Figure 3 further exemplifies hyperarticulation, since the rise-fall intonation was realized with an additional rising segment in the end, creating an impression of a singsong intonation of a sort.

Figure 3. Hyperarticulation of Rise-Fall Intonation



#### 4.3 Questionnaire results

To elicit students' attitudes regarding the appropriateness and benefits of the training period, we conducted a survey with the experimental group after the post-test. Students' answers confirm the initial presupposition that no prior instruction regarding target language suprasegmentals was introduced systematically during the regular school lessons. Hence the poor results were achieved in the pre-tests in both perception and production. Complex nuclear tones seem to be the most problematic, according to students' views, and, interestingly, they believe perceiving them is more demanding than producing them. Moreover, they

find intonation not so easy to learn in general. Nevertheless, it seems encouraging that the majority of the participants found the training beneficial, teacher feedback as well as explanations helpful and would like to repeat the experiment again. A more detailed account of the results of the questionnaire can be seen in Table 3.

**Table 3. Results of the Questionnaire with the Experimental Group**

No.	Statement	I completely agree	I agree	Don't know	I disagree	I completely disagree
1.	Using proper English intonation is important for understanding others and being understood.	31.25%	50%	6.25%	12.5%	
2.	I learnt about English intonation before the training.			25%	31.25%	43.75%
3.	I find English intonation patterns easy to learn.	12.5%	18.75%	31.25%	25%	12.5%
4.	Listening to native speakers' intonation helps me remember the patterns.	31.25%	31.25%	6.25%	18.75%	12.5%
5.	I remember patterns more easily if I see them drawn on a piece of paper or computer screen.	18.75%	31.25%	12.5%	25%	12.5%
6.	The activities in the training were interesting and useful.	25%	37.5%	6.25%	12.5%	18.75%
7.	I learnt important things about English intonation.	37.5%	31.25%	12.5%	12.5%	6.25%
8.	Teacher's explanations were clear and useful.	37.5%	31.25%	6.25%	18.75%	6.25%
9.	Teacher's feedback was helpful.	31.25%	37.5%	12.5%	18.75%	
10.	I am able to hear the difference between rising and falling intonation.	18.75%	31.25%	18.75%	12.5%	6.25%
11.	I am able to recognize complex intonation patterns.	18.75%	25%	31.25%	18.75%	6.25%



12.	I am able to produce falling and rising intonation.	43.75%	25%	12.5%	18.75%	
13.	I am able to produce complex intonation patterns.	25%	31.25%	18.75%	18.75%	6.25%
14.	I can use the knowledge I acquired for improving my English.	25%	37.5%	12.5%	25%	
15.	I would like to repeat the training outside the classroom.	12.5%	37.5%	18.75%	18.75%	12.5%
16.	I think we should have more activities related to English intonation in class.	25%	43.75%	12.5%	18.75%	

### *3. Conclusion*

The aim of the current paper was to determine the effect of a two-month long phonetic training, focused on English intonation, on the overall perception and production of intonation by Serbian EFL secondary school students. To answer the proposed research questions, the participants in our study, divided into an experimental and a control group, underwent pre- and post-test examinations before and after the training period. The experimental group likewise received a questionnaire containing five-point Likert statements related to the very training after the conclusion of the experiment.

The results of the testing demonstrate a positive effect of phonetic training including audio-visual cues, explicit instruction and teacher feedback on both perception and production of English intonation by Serbian EFL secondary school students despite certain limitations that we shall underscore in the final section of the paper. Such favourable effect of the training may point to the potential beneficial outcomes of introducing instruction regarding suprasegmentals earlier than tertiary level of studies, i.e. at secondary or even primary level of education with adequate alterations in terms of the design and structuring of the project appropriate for the students' proficiency level.

Even though the study successfully answered the intended research questions, there are several shortcomings that need to be underlined. The obvious limitations of the present study were training duration, as well as the number of participants. A larger sample is a prerequisite for more reliable results, as well as longer systematic application of audio-visual cues and explanations for greater

progress especially for understanding and conveying various meanings based on intonation, as well as perceiving and producing complex intonation patterns. Another limitation important to report is the task design, which was perhaps too demanding for the control group and, thus, hindered their performance, or even too demanding for the overall proficiency level of all the participants. Future research may focus on diverse activities during the training period and alternate the testing task design to elicit different scores by both groups.

## References

- Абертон, Форсан 1978: Abberton, E., Fourcin, A. Intonation and speaker identification. *Language and Speech*, 21: 305-318.
- Алага-Гарсиа, Мора 2008: Aliaga-García, C., Mora, J. C. Assessing the effects of phonetic training on L2 sound perception and production. *New Sounds 2007: Proceedings of the Fifth International Symposium on the Acquisition of Second Language Speech*. Florianópolis, Brazil: Federal University of Santa Catarina. 10-27.
- Андерсон-Хси и др. 1992: Anderson-Hsieh, J., Johnson, R., Koehler, K. The relationship between native speaker judgments of nonnative pronunciation and deviance in segmentals, prosody and syllable structure, *Language Learning*, vol 42, no. 4, 529-555.
- Атој 2005: Atoye, R. Non-native perception and interpretation of English intonation. *Nordic Journal of African Studies*, 14(1): 26-42
- Браун 2004: Braun, B. Answers to the perception of thematic contrast and questions regarding the perception of thematic “non-contrast”. In *Proceedings of the 2nd International Conferences on Speech Prosody*. Nara, Japan. 685-688.
- Бурсма, Вининк 2014: Boersma, Paul, Weenink, David (2014) Praat: Doing Phonetics by Computer. Version 5.4.02. Доступнона [http://www.fon.hum.uva.nl/praat/download\\_win.html](http://www.fon.hum.uva.nl/praat/download_win.html).
- Велс 2006: Wells, J.C. *English intonation: an introduction*. Cambridge University Press.
- Венерстром 1998: Wennerstrom, A. Intonation and second language acquisition: a study of Chinese speakers. *Studies in second language acquisition* 20-1, 1-25.
- Висије, Маруј 2004: Vaissière, J., De Mareüil, P. B. Identifying a language or an accent: from segments to prosody. *Identification des langues et des varieties dialectales par les humains et par les machines*, 1-4.

- Гилберт 1995: Gilbert, J. B. Pronunciation practice as an aid to listening comprehension. In: Mendelsohn, D. J., Rubin J. (Eds.), *A guide for the teaching of second language listening*. San Diego, CA Dominic Press, Inc., San Diego, CA, 97 - 112.
- Грабе и др. 2003: Grabe, E., Rosner, B. S., García-Albea, J. E., Zhou , X. Perception of English intonation by English, Spanish, and Chinese listeners. *Language and Speech* ,46, 375 – 401.
- Ектон 1984: Acton, W. Changing Fossilized Pronunciation. *TESOL Quarterly*, Vol. 18, No. 1, 71-85.
- Зенг 2012: Zhang, J. Study on the English Learners' Perception of English Tone Patterns. *Journal of Huanggang Normal University*, 2, 134-136.
- Зенг и др. 2010: Zhang, S., Li, K., Lo, W. K., Meng, H. Perception of English suprasegmental features by non-native Chinese learners. In *Speech Prosody 2010-Fifth International Conference*, Chicago, USA.
- Кимура и др. 2010Ч: Kimura, Takuya, Sensui, Hirotaka, Takasawa, Miyuki, Toyomaru, Atsuko, Atria, José J. *A pilot study on perception of Spanish stress by Japanese learners of Spanish*. Papers presented at the Interspeech 2010 satellite workshop on “Second language studies: Acquisition, learning, education and technology”, Tokyo, Japan.
- Колдвел, Хјуингс 1996: Cauldwell, R., Hewings, M. Intonation Rules in ELT textbooks. *ELT Journal* 50 (4): 327–334.
- Кратенден 1986: Cruttenden, A. *Intonation*. Cambridge University Press.
- Круз-Фереира 1989: Cruz-Ferreira, M. Perception and interpretation of non-native intonation patterns In M. P. R. van der Broecke & A. Cohen (Eds.), *Proceedings of the 10th International Congress of Phonetic Sciences*, 565 –569. Dordrecht, the Netherlands: Foris.
- Левис 1999: Levis, J. M. Intonation in Theory and Practice. *TESOL Quarterly*, Vol. 33, 1999: 37- 63.
- Лофер, Нејшн 1999: Laufer, B., Nation, P. A vocabulary size test of controlled productive ability. *Language Testing* 16 (1), 33-51.
- Марковић 2011: Marković, M. Prozodijski transfer u učenju stranog jezika: Temporalne karakteristike. *Zbornik Matice srpske za filologiju i lingvistiku* LIV/2: 135–146.
- Менен 2004: Mennen, I. Bi-directional interference in the intonation of Dutch speakers of Greek. *Journal of phonetics* 32, 543-563.
- Менен 2006: Mennen, I. Phonetic and phonological influences in non-native intonation: an overview for language teachers. *Working Papers Queen Margaret University College* 9.

- Морли 1994: Morley, J. *Pronunciation, pedagogy and theory: New views, new directions*. Alexandria, Virginia: TESOL Inc.
- НавароТомас 1994: Navarro Tomás, T. *Manual de entonación española*. New York: Hispanic Institute I the United States. (Reprinted: Navarro Tomás, T. (1948). *Manual de entonación española*. New York: Hispanic Institute in the United States.
- Ниберт 2005: Nibert, H. J. The acquisition of the phrase accent by intermediate and advanced adult learners of Spanish as a second language. In D. Eddington (Ed.), *Selected proceedings of the 6th conference on the acquisition of Spanish and Portuguese as first and second languages*, 108-122. Somerville, MA: Cascadilla Proceedings Project.
- О'Конор, Арнолд 1973: O'Connor, J.D., Arnold, G.F. *Intonation of Colloquial English*, Longman.
- Пауновић 2013: Paunović, T. Beginnings, Endings and the In-betweens. Prosodic signals of discourse topic in English and Serbian. In Čubrović, B. & T. Paunović, Eds. *Focus on English Phonetics*, 191-214. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Пауновић, Савић 2008: Paunović, T., Savić, M. Discourse Intonation - Making it Work. In Komar, S. & U. Mozetic (Eds.) *ELOPE*, V, 1-2, Issue As You Write It: Issues in Literature, Language, and Translation in the Context of Europe in the 21<sup>st</sup> Century, 57-75. Ljubljana: Slovene Association for the Study of English and Department of English, Faculty of Arts, University of Ljubljana.
- Пенингтон, Елис 2001: Pennington, M. C., Ellis, N. C. Cantonese speakers' memory for English sentences with prosodic cues. *The Modern Language Journal*, 84 (3), 372-389.
- Пикеринг 2001: Pickering, L. The role of tone choice in improving ITA communication in the classroom. *TESOL Quarterly* 35, 233-255.
- Рамирез Вердуго 2006: Ramirez Verdugo, D. A study of intonation awareness and learning in non-native speakers of English. *Language Awareness*, v. 15, n. 3, 141-159.
- Роуч 1990: Roach, P. *English phonetics and phonology - A practical course*. Cambridge: Cambridge University Press.
- Спејл, Хермес 1993: Spail, G., Hermes, D. A visual display for the teaching of intonation. *CALICO Journal*, v. 10, n. 3.
- Трофимович, Бејкер 2006: Tofimovitch, P., Baker, W. Learning second language suprasegmentals. Effects of L2 experience on prosody and fluency characteristics of L2 speech", *Studies in second language acquisition* 28-1, 1-30.

- Флеги, Бон 1989: Flege, J.E., Bohn, O.S. An instrumental study of vowel reduction and stress placement in Spanish accented English. *Studies in second language acquisition* 11, 35-62.
- Хардисон 2005: Hardison, D.M. Contextualized Computer-based L2 Prosody Training: Evaluating the Effects of Discourse Context and Video Input. *CALICO Journal* 22(2).175-190.
- Џенкинс 2004: Jenkins, J. Research in teaching pronunciation and intonation. *Annual Review of Applied Linguistics*, 24, 109-125.

Danica M. Jerotijević Tišma

## PERCEPCIJA I PRODUKCIJA ENGLLESKE INTONACIJE KOD SRPSKIH UČENIKA: UTICAJ AUDIO-VIZUELNOG TRENINGA I EKSPPLICITNE INSTRUKCIJE

### *Rezime*

Savremena metodička literature ukazuje na neophodnost savladavanja kako segmentnih tako i suprasegmentnih karakteristika fonologije stranog jezika, jer su prozodijska obeležja važna za razvoj i percepcije i produkcije. Značaj fonetskog treninga čak i na najranijem uzrastu dokazan je u brojnim istraživanjima naročito za razvoj i unapređenje znanja o intonaciji stranog jezika. Cilj našeg rada jeste da ispitamo uticaj fonetskog treninga, koji se fokusira na objašnjenja karakteristika engleske intonacije, povratnu informaciju nastavnika i audio-vizuelne demonstracije, na poboljšanje percepcije i produkcije intonacije kod srpskih učenika engleskog kao stranog jezika. U sprovedenom eksperimentu u trajanju od dva meseca učestvovalo je 16 učenika, dok je 12 učenika činilo kontrolnu grupu, dakle, ukupno 28 učenika prve i druge godine jedne private srednje škole u Jagodini. Obe grupe prošle su kroz ispitivanja pre i posle eksperimenta, a rezultati ukazuju na neophodnost uvođenja, ili bar učestalijeg sprovođenja, eksplicitne nastave vezane za suprasegmenta obeležja pre tercijarnog nivoa obrazovanja.

*Ključne reči:* fonetski trening, intonacija, međujezička percepcija i produkcija