

Making Pronunciation Visible: Gesture In Teaching Pronunciation

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The study examines the teacher and student gesture employed in teaching and learning suprasegmental features of second language (L2) pronunciation such as syllabification, word stress, and rhythm. It presents microanalysis of video-recorded classroom interactions occurring in a beginner-level reading class in an intensive English program at a U.S. university. Results indicate that the teacher employed gesture as an instructional tool to facilitate the students' identification and production of syllables, word stress, and the rhythm of speech. This was accomplished through reiterative gestures, or *catchments*, which enabled the students to visualize and experience the intangible pronunciation phenomena. The students appropriated the teacher's gestures through creative imitation and employed them as a learning tool in the process of gaining control over the suprasegmental features of L2 pronunciation. The study has implications for L2 pedagogy, suggesting that teachers need to be made aware of the pedagogical uses of gesture as a mediational tool for teaching L2 pronunciation and be sensitized to attending to student gestures.

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As an aspect of language teaching, pronunciation has received relatively little attention since the decline of the audiolingual era. Despite the important role that pronunciation plays in the intelligibility of speech (Murphy, 2004) and in accomplishing successful communication as a whole (Derwing, Munro, & Wiebe, 1998), this aspect of language teaching largely remains on the margins of second language acquisition (SLA) research, particularly in comparison with studies in teaching grammar and vocabulary (Derwing & Munro, 2005; Munro & Derwing, 2011). Despite a more positive tendency following 2005, when second language (L2) pronunciation instruction began to generate more research as an important area of investigation (Thomson & Derwing, 2014; see also Lee, Jang, & Plonsky, 2014), teaching pronunciation in the contexts of English as a second language (ESL) and

English as a foreign language (EFL) “has remained largely unexplored, indicating that research into current pronunciation-oriented teaching practices of L2 instructors is long overdue” (Baker, 2014, p. 139). Teachers themselves are reported to often feel reluctant or unconfident teaching pronunciation either for the lack of training, available resources, or clear criteria/procedure for assessing pronunciation (Baker, 2014; Macdonald, 2002).

Within the limited number of studies considering pronunciation instruction, the role of body movement as a pedagogical tool has generally been overlooked. Meanwhile, gesture research unambiguously points to the intrinsic link between verbal sounds and bodily movement produced while speaking (e.g., Bolinger, 1983; Kendon, 1972; Loehr, 2007). These studies suggest that speech and gesture production are coordinated in terms of rhythm, where boundaries of verbal and kinesic units often coincide. In Brown’s (1977) view, this correlation is particularly salient in the English language to the extent that one can identify English speakers by the rhythmical movement of the body as they are speaking. This can be related to the stress-timed nature of English where the length of an utterance depends on the number of stresses rather than the number of syllables, which creates a clear identifiable rhythm (Celce-Murcia, Brinton, & Goodwin, 2010).

Despite the inherent connection between sound production and body movement identified in gesture research, gesture as an instructional tool employed for teaching L2 pronunciation has not received its due attention in current SLA research. The few studies in this area report on the teacher’s use of body movement, such as clapping or stretching a rubber band, in teaching word stress (Baker, 2014; Gilbert, 1978, 2008; Murphy, 2004); the pedagogical strategy of self-monitoring conducted through body movement in learning suprasegmentals (Acton, 1984; Hudson, 2011; McCafferty, 2006); mirroring the teacher’s prosody, body movement, and facial expression as a means of appropriating L2 pronunciation (Acton, 1984, 2013; Haught & McCafferty, 2008; Smotrova, 2014); and instructional gesture-based strategies employed in teaching segmental features of pronunciation (Hudson, 2011; Rosborough, 2011). These studies suggest that the teacher and student use of nonverbal resources, including hand gestures and other body movement, can be beneficial in teaching and learning L2 pronunciation.

What is missing from the studies discussed above is an in-depth analysis of how teachers employ body movement in teaching L2 pronunciation and how students respond to such instruction in the flow of naturally occurring classroom interaction. Examining pronunciation instruction from a dialogical perspective may provide a holistic picture of teaching and learning as a two-way process defined by Vygotsky as

obuchenie (Cole, 2009). This concept involves teaching and learning as a single, integrated activity rather than as separate, independent processes. Considering *obuchenie* of pronunciation in its dialogicity will allow for identifying student responsivity to the teacher's gesture-based instruction, offering insights into which pedagogical strategies are most beneficial for student learning. The purpose of the present study is to examine the ways the teacher and students employ body movement in an ESL classroom in order to identify its instructional functions and implications for pedagogy. The study aims to accomplish this goal by answering the following research questions:

1. What are the instructional and learning functions of teacher and student gesturing in *obuchenie* of L2 pronunciation?
2. What are the implications of these functions for L2 pronunciation pedagogy?

GESTURE AND PRONUNCIATION

Sound Production and Gesture

Gesture studies have documented considerable evidence attesting to the systematic coordination of speech production and body movement (e.g., Bolinger, 1983; Kendon, 1980; Loehr, 2007). According to Kendon (1980), gesture and speech are so intertwined that "it is as if the speech production process is manifested in two forms of activity simultaneously: in the vocal organs and also in bodily movement" (p. 211). In such rhythmical coordination, the boundaries of lower level speech units such as phones and syllables coincide with the boundaries of subtler body movements, while larger speech units such as words or utterances are coordinated with slower body movement (Condon, 1976; Kendon, 1972).¹ Such coordination of speech and gesture hierarchies creates alignment between kinesic and linguistic stress, resulting in rhythmical cycles of body movement and verbal stress referred to by Condon (1976) as *self-synchrony*. This phenomenon is paralleled by "interactional synchrony" observed across speakers in the form of "entrainment," where "listeners move in precise synchrony with the articulatory structure of the speaker's speech" (Condon, 1976, p. 305). In other words, the speaker's segmentation of speech into

¹ Condon (1976) provides an example of a speaker's utterance, *Sam*, which involved the following body movement: head moves down and eyes close at *s*, head moves right with eyes closed at *a*, and head moves upward while the eyes open at *m*.

sound, word, and phrasal units is coordinated with the changes in the listener's body movement.

The views discussed above were elaborated by McNeill (2005), who theorized speech and gesture as originating from the same cognitive source. In his perspective, the highest physical effort of gesture coincides not only with the *phonological peak* but also with the highest point in meaning, which is conveyed by speech and gesture co-expressively. At the phonological level, a particularly important role in marking the rhythm of speech is played by *beats*—"flicks of the hand(s) up and down or back and forth that seem to beat time along with the rhythm of speech" (McNeill, 2005, p. 40). Due to this function, beat gestures co-occur with stressed syllables and, apart from hands, can be produced with head, eyelids, and other body parts (Efron, 1972; Loehr, 2007).

The studies discussed above suggest that the connection between the rhythm of speech and body movement may provide a theoretical basis for creating gesture-based pedagogies for teaching pronunciation. However, the findings in gesture studies relevant to pronunciation instruction have not been applied in L2 pedagogy, with a few exceptions as discussed below.

Gesture in Teaching Pronunciation

The idea of engaging body movement in teaching L2 pronunciation as implemented in systematic gesture-based pedagogies is only beginning to find its way into the language classroom. In dealing with fossilized pronunciation in adult speakers of English, Acton (1984) proposed a pedagogy, which was considered innovative, and involved teacher and student body movement. Students were taught to carry out "kinesthetic monitoring" (p. 76) as a major learning strategy, which involved focusing on "how the sound ought to 'feel'—not on how it ought to sound" (p. 78). They were asked, for example, to feel the vibration of the vocal cords in the throat and jaw areas. In Acton's view, this type of embodied monitoring can be significantly more effective than auditory monitoring because "the ear is often the last to know. Visual and kinesthetic modalities seem more accessible and 'cooperative' in many instances" (p. 77). Similarly, kinesthetic monitoring as a self-regulatory learning tool was employed by a first language (L1) Chinese speaker of English in McCafferty (2006). The participant extensively employed beats to materialize the syllabic structure of L2 words as a means of gaining control over it along with the stress-timed rhythmic pattern of the language. Elements of kinesthetic monitoring in teaching suprasegmentals were also

incorporated by the teacher in an ESL university level classroom in Hudson's (2011) study. The instructor employed beats and clapping to mark stressed syllables, used her fingers to count syllables, and produced downward and upward movements of the hand to visualize the related intonation patterns (similar techniques are often proposed in pronunciation textbooks and manuals, e.g., Gilbert, 2001; Rogerson-Revell, 2011).

Several pedagogy-oriented studies considered mirroring the speakers' intonation, rhythm, and body movement as an effective tool in teaching and learning L2 pronunciation. Acton (1984) suggested that in repeating the speaker's utterances, the students should focus not only on their prosodic features, but also on body movement and facial expressions. In this way, a student is able to achieve "locking in" to the total expressive system of the "other" (Acton, 1984, p. 78). In a similar vein, learning a language as an embodied process of inhabiting a new discursively constructed social identity is considered in Haught and McCafferty (2008). That study found that the students' imitation of the instructor's prosody and body movement in drama activities aimed at improving L2 fluency enabled them to inhabit an identity of a fluent speaker of English.

As for systematic pedagogies built upon the idea of engaging body movement in teaching pronunciation and implemented in the classroom context, one of them has been designed by Acton (2013, 2014). Referred to as the "essential, haptic-integrated English pronunciation (EHIEP) framework" (Acton, Baker, Burri, & Teaman, 2013, p. 234), this approach involves using body movement along with touch to portray such pronunciation phenomena as quality of vowels and consonants, word and phrasal stress, intonation, and rhythm. The *anchoring* of sounds and prosody in body movement is intended to improve student recall of these features and their integration into speech in authentic environments. The major pedagogical tools in EHIEP are *pedagogical movement patterns* (PMPs) consisting of a word or phrase accompanied by a bodily/gestural movement, involving touch. The PMPs are presented in the form of video clips, created by Acton himself, and hence their use by other instructors (it is claimed) does not require extensive training. The students, especially at lower levels of proficiency, should be asked to mimic the PMPs both in class and on their own as they work with the videos at home. However, according to Acton (2014), learners can even benefit from just observing the patterns. Beyond that, student reaction to the EHIEP approach has not yet been documented.

The studies discussed above point to the importance of teachers' body movement in learning L2 pronunciation. What is missing is close analysis of gesture-based teaching practices and student responsivity to

them, which can shed light on the impact of such practices on the process of students' gaining control over L2 pronunciation. This is what the present study is aiming to accomplish.

THEORETICAL FRAMEWORK

Dialogical Process of *Obuchenie*

The study adopts the sociocultural theoretical perspective on learning as appropriating or gaining control over² more effective symbolic tools, such as language, through social interaction with the expert other, such as the teacher (Lantolf & Thorne, 2006). In this collaborative and dialogical process, the learner's goal-directed effort in mastering knowledge is as important as the teacher's guidance. The joint, two-way nature of teaching and learning is encompassed by the Russian term *obuchenie*, employed by Vygotsky in his original text and translated in the English versions as *learning* or *instruction* (e.g., Vygotsky, 1978), which reflects only one side of the process. In fact, what Vygotsky was referring to was "a double-sided process, one side of which does indeed refer to learning," while the other side refers to teaching (Cole, 2009, p. 292).

The primary mechanism of development in *obuchenie*, according to Vygotsky (1987, 1997), is imitation, which is viewed not as mere replicating and copying, but as a selective, creative, and transformative process. Contrary to the assumption that a child is able to imitate anything, Vygotsky (1997) states that "imitation is possible only to the extent and in those forms in which it is accompanied by understanding" (p. 96). Thus, imitation depends on the dynamics of the child's intellectual development and is involved in the movement from what a child was able to accomplish to what he or she is not. In the current study, imitation often occurred through gesture, and its creative nature was expressed in how students modified the nonessential features of the teacher's gestures while retaining the ones that were crucial for tackling the instructional task at hand. According to Arnold (2012), such selective imitation points to students' understanding, which is a

² Appropriation, according to Wertsch (1998), refers to "taking something that belongs to others and making it one's own" (p. 53). He brings in Bakhtin's example where a learner appropriates a new word in a language only when he or she is able to infuse it with his or her own communicative intention. Similarly, gaining control over a language feature involves developing the learner's agency in using the new feature (e.g., vocabulary or pronunciation) to regulate her or his own activity (Lantolf & Thorne, 2006). In the data presented in this article, the students were at an early stage in their pursuit of gaining control over the pronunciation features.

necessary aspect of learning. Through imitation, learners can appropriate³ symbolic artifacts (such as gestures) introduced by the teacher and employ them on their own as “psychological tools” that are able to “increase the capacity to organize and communicate information and knowledge,” that is, enhance their learning process (Lantolf & Thorne, 2006, p. 60).

The neurological basis for imitation has been unveiled in studies on mirror neurons (e.g., Rizzolatti & Craighero, 2004), which serve as the mechanisms for understanding the other’s actions in imitative learning. Thus, “when individuals observe an action done by another individual, their motor cortex becomes active, in the absence of any overt motor activity” (Rizzolatti & Craighero, 2004, p. 174). Importantly, the observer’s motor system is excited only when the observed actions possess some features already present in the observer’s own motor repertoire. The authors conclude that the mirror neuron mechanism plays a crucial role in understanding the other person’s actions and serves as the necessary basis for imitative learning.

Gesture

In everyday conversations, gestures predominantly appear as gesticulations (McNeill, 2005) produced spontaneously and synchronized with speech in co-expressing its meaning. The teacher and student gestures observed in this study are different in that they pertain to an instructional context. Such gestures do synchronize with speech, but they contribute to the meaning of speech in a way different from non-instructional gestures. Similar to conversational gestures, instructional hand movements can complement the aspects of meaning expressed in speech, such as in teaching vocabulary. However, unlike conversational gestures, they can also highlight language forms and mechanisms of speech production pertaining to the instructional purposes at hand. This is the case with gestures used in teaching pronunciation in the data discussed in this article (e.g., a gesture where a teacher touches her chin with her hand to mark syllables). Such gestures, due to their instructional nature, would be unlikely to occur in ordinary conversations. Thus, communication in the classroom is driven by the teacher and students’ *obuchenie* purposes, which shapes the way they employ diverse multimodal resources.

What falls under the umbrella of gesture in this study are hand gestures as the major focus of analysis but also their combinations with

³ Appropriating somebody else’s gesture would mean the ability to use it for one’s own communicative/learning purposes.

motion produced by other body parts, where they become particularly relevant to the instructional or learning purposes at hand.

In analyzing such instructional gestures, the study employs McNeill's (2005) classification of gestural dimensions: (1) *iconic* gesture, the form of which resembles the aspects of the actual event or entity; (2) *metaphoric* gesture, which presents abstract ideas or entities as concrete images (e.g., depicting ideas in the form of containers); (3) *deictic* gesture, which allows for "locating entities in space vis-à-vis a reference point" (p. 40); and (4) beats, described earlier, which constitute hand movements marking the rhythm of speech.

Gestures observed in this study were often used in the form of *catchments*. These are repetitive gestures that emerge in an interaction when, for example, a teacher employs the same gesture multiple times throughout her explanation or a student imitates the teacher's gesture. Such catchments are reiterative gestures that share one or more common features in terms of "handedness, shape, movement, space, orientation, dynamics," and so on (McNeill, 2005, pp. 116–117). Other researchers add that catchments need to share similarity of meaning and correspond to the same referent (Chui, 2014; Holler & Wilkin, 2011; Smotrova, 2014). In the instructional context, catchments also have to pertain to the same instructional function (Arnold, 2012; Smotrova, 2014). They can differ in nonessential elements, but have to retain the feature(s) that reflect the core meaning of the concept in focus. Catchments usually depict a common theme and provide clues to *cohesive linkages* in discourse (McNeill, 2005). They also play an important role in achieving alignment between interlocutors by helping to establish a common ground.

Examined in the classroom context, catchments are reported to serve important instructional and learning functions. They enable teachers to maintain "topical cohesion" in their explanations (Pozzer-Ardenghi & Roth, 2008, p. 390). Employed dialogically, when students imitate the teacher's catchments, they help to maintain coherence of teacher–student discourse and thinking (Smotrova & Lantolf, 2013). They also serve as a means of achieving shared understanding: Student catchments serve as a sign of better understanding, and teacher catchments serve as an acknowledgment of student response (Smotrova, 2014).

THE STUDY

The data for the study were collected in an intensive English program at a large U.S. university in spring 2012 as part of a dissertation project. The program focuses on providing international students with necessary skills in academic English to prepare them for entering a

North American university. The study was conducted in a beginner-level reading class. The instructor was a native speaker of English with 13 years of experience teaching ESL. Twelve nonmatriculated students were enrolled in the course, seven female and five male. Nine of the students were from Saudi Arabia, and the other three came from Brazil, Colombia, and Vietnam. The students were assigned pseudonyms in order to ensure confidentiality. This class was chosen because the instruction covered diverse language aspects; the group involved students of different ages, genders, and language backgrounds; and the instructor was more expressive in her nonverbal moves than the other teachers observed. The data analyzed in this study are a subset of the dissertation data, which include 33 hours of video recordings conducted in the second half (weeks 9 to 14) of the semester, after spring break. The analyzed excerpts come from two 50-minute classes occurring in weeks 12 and 14 of the semester. The video recordings were conducted using two digital cameras placed in the opposite ends of the room: One of them captured the teacher and the other focused on the students. The data also included a semistructured follow-up interview with the instructor, which was conducted after the classroom videos had been analyzed by the researcher. None of the participants was aware of gesture as the focus of the research during the period of classroom video recordings. They were informed that the study focused on the ways the teacher and students use multiple resources in the classroom and how these influence learning.

The video-recorded classroom interactions were first viewed and annotated. Then, excerpts of interest were identified and transcribed in detail using conventions adopted from conversation analysis (ten Have, 2007) and McNeill's (2005) gesture notation. Both types of conventions were modified to fit the purposes of this study (see Appendix). For more precision in identifying gesture-speech synchronization, the video excerpts of interest were viewed in slow motion using QuickTime Player. To minimize subjectivity, the selected excerpts were viewed and discussed by the researcher and six members of the dissertation group in the Applied Linguistics Department at the Pennsylvania State University, including graduate students and faculty, several of whom are experienced in gesture analysis.

Analysis

Due to the nature of the class, which centered on reading, the instruction predominantly focused on reading strategies and vocabulary. Such language aspects as grammar and pronunciation were dealt with only when they became particularly relevant. Thus, pronunciation

was brought into focus when working with new vocabulary, which occurred at the beginning of each new unit, that is, during four classes at different points in the semester, prior to the data collection. The instructor also employed gesture for teaching different language aspects in different ways. In vocabulary and grammar explanations, the teacher predominantly used nonplanned, spontaneous gestures, as she later shared in her interview. However, in teaching pronunciation, she often employed *intentional instructional gestures* (IIGs) that were preplanned. They were also intended as learning tools because the teacher encouraged students to use them in working on pronunciation, without providing extensive training in employing IIGs. The IIGs introduced by the teacher were more a collection of gesture-based techniques rather than a consistent gestural system for teaching pronunciation. For example, when the teacher was guiding students in appropriating the rhythm of an English poem, she did not instruct them to use gestures to beat out the rhythm, which might have significantly impeded the students' gaining control over this suprasegmental feature. In the excerpts presented below, the teacher employed a mixture of preplanned and spontaneous gestures in teaching the following suprasegmental features of L2 pronunciation: (1) syllabification, (2) word stress, and (3) rhythm. These aspects of pronunciation were made visible through the teacher's body movement, which facilitated the students' identifying and producing these features, accomplished through their imitation of the teacher's gestures.

Gesture in *Obuchenie* of Syllabification

This section presents an example of how the teacher employed instructional gesture in resolving the students' confusion about the number of syllables in an L2 item. She accomplished this by using two gestures purposefully designed by her as instructional tools for teaching pronunciation. One of the students employed the teacher's gesture as a learning tool through synchronous imitation.

Excerpt 1 occurred during a review of vocabulary from a textbook unit. The teacher initiated the review by reading the list of items and asking the students to repeat them, mimicking her pronunciation. She then organized the students into groups of three and asked them to identify the number of syllables in each of the words. Trying to accomplish the task, one of the groups (consisting of Buthayna and Salim, female and male speakers of Arabic) experienced difficulties in identifying the number of syllables in the word *specialized*. As Salim attempted to count the syllables using his fingers, the teacher approached the group and offered her help.

Excerpt 1: *Specialized* (Part 1)⁴

1	T, B:	{spe (0.2) <u>cial</u> (0.2) lized}
2	T:	{shifts gaze to hands, RH shaped as finger bunch,
3		touches LH fingers, nods head at each syllable;
4		shifts gaze to B}
5	S:	{holds BH in front of himself, palms half-cupped, facing inward,
6		fingers brought into contact at their tips, gazes at T}
7	B:	therez <u>four</u>
8		{(1.0)}
9	T:	{gazes at B, holds gesture}
10	B:	> <u>three</u> <
11	T:	{spe}
12		{shifts gaze to hands; RH, shaped as finger bunch,
13		touches LH little finger}

The excerpt begins as the teacher slowly pronounces the word *specialized*, accentuating each syllable and separating them with brief pauses. She also marks the syllables with her body by slightly nodding her head and tapping the fingers of her left hand with her right hand (lines 1–3). This metaphorical gesture treats abstract entities—syllables—as concrete objects, making them visible and countable (Cienki & Müller, 2008). The teacher’s gaze is directed at her gesturing hands, indicating that she may be aware of the communicative or rather instructional intent behind her hand movement (Streeck, 2013). The students co-participate in the teacher’s enactment of the syllables. Thus, Buthayna pronounces them concurrently with the teacher while Salim, who had already attempted to count the syllables with his fingers before the teacher joined the group, is still holding his hands as if prepared to continue the counting (lines 5–6).

Following the teacher’s embodied mediation, Buthayna offers a candidate response by identifying the number of syllables as four (line 7), which fails to receive the teacher’s acknowledgment. Buthayna then offers a second conjecture, *three*, produced somewhat hurriedly (lines 8–10). The teacher probably orients to this as a guess rather than a definite response, since she continues to mediate. She gazes back to her hands and pronounces the first syllable, *spe*, using her fingers to mark the syllables (lines 11–13, Figure 1).

Excerpt 1: *Specialized* (Part 2)

14		{(0.4)}
15	T:	{shifts gaze to S; moves LH toward chin;
16		places LH below chin, touching the chin, palm facing downward,
17		fingers extended and drawn together}
18	T:	{{spe (0.1) cial (0.1)}}
19		{holds LH below chin, nods head slightly}

Syllable Catchment

⁴ T = the teacher; S and B = Salim and Buthayna. See the other abbreviations and symbols in the Appendix.

Excerpt 1: *Specialized* (Part 2) (Continued)

20		at each syllable, gazes at S}	
21	S:	{[°spe°] {°cial°}}	
22		{nods head twice,	Syllable Catchment
23		moves LH, palm half-cupped, towards body}	
24	T:	{[lized]}	
25		{repeats actions from lines 19–20}	Syllable Catchment
26	S:	{[°lized°]}	
27		{raises head, moves LH, palm half-cupped, away from body}	Syllable Catchment
28	T:	{holds LH below chin}	
29	S:	{[three]}	
30	B:	{[three]}	
31	T:	{retracts}	

The teacher next pauses and redirects her gaze to Salim. At this point, she shifts her instructional strategy and moves her left hand upward, placing it under her chin as if supporting it from below (lines 15–17). By doing this, the teacher directs the students’ attention to the visible body part, the chin, involved in producing the vowels, which are at the core of each syllable. Thus, when repeating the word *specialized* slowly, separating each syllable with a pause, and accentuating them, the teacher continues to “support” her chin with her hand (Figure 2). In this way, she makes the downward movements of the chin more visible and distinct, visually “underlining” them. In her thinking-for-teaching,⁵ these chin movements mark each vowel, which forms a syllable and helps to show them as separate entities.

Salim, in turn, synchronizes his actions with the teacher as they pronounce the word and produce gesture simultaneously. Salim marks the first two syllables by moving his left hand slightly toward his body and making head nods (lines 21–23, Figures 3–4). Shaped differently from the teacher’s chin gesture, Salim’s hand movement serves the same instructional purpose of visualizing the syllables. It also retains the crucial feature—the rhythm synchronized with the syllables. In this sense, he creatively imitates the teacher’s chin gesture and turns it into a catchment referred to as the *syllable catchment*.

On pronouncing the third syllable, the teacher inadvertently lays stronger emphasis on it (line 24), which may confuse the students. In fact, Salim sensitively orients to this by changing the directionality of his gestures as he utters *lized*. Instead of nodding, he slightly raises his head

⁵ The term is analogous to Slobin’s (1996) *thinking for speaking* (TFS), which refers to the fact that the language choices we make in our speaking (and thinking intended for speaking) are guided by the grammatical categories existing in a certain language. Similarly, in constructing their utterances in the classroom, teachers are “guided by the instructional purposes at hand and the students’ level of understanding. These factors direct teachers to attend to the dimensions of worldly experiences that are most relevant to instruction and learner needs” (Smotrova, 2014, p. 405). An important pedagogical question in relation to thinking-for-teaching is which aspects of the concept being taught have to be highlighted to make instruction most effective.



FIGURE 1. Excerpt 1, lines 11–13: *spe.*
[Color figure can be viewed at
wileyonlinelibrary.com].



FIGURE 2. Excerpt 1, lines 18–19: *spe.*
[Color figure can be viewed at
wileyonlinelibrary.com].



FIGURE 3. Excerpt 1, lines 21–23: *spe.*
[Color figure can be viewed at
wileyonlinelibrary.com].

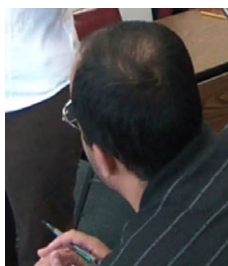


FIGURE 4. Excerpt 1, lines 21–23: *spe.*
[Color figure can be viewed at
wileyonlinelibrary.com].

and moves his left hand away from, instead of toward, his body as he had done previously (line 27). In this way, Salim mistakenly marks the third syllable as the one that carries stress, which exhibits his confusion about the word stress, originating from the teacher's misleading stress change. The excerpt concludes as both Buthayna and Salim generate the correct response produced in unison, *three* (lines 29–30). It is only at this point that the teacher retracts her syllable catchment.

To summarize, in this excerpt the teacher employed two instructional gestures as pedagogical tools to facilitate the students' accomplishing the task of identifying syllables. They made the syllables concrete and visible by either depicting them as objects (the counting gesture) or foregrounding the body movement involved in producing vowels (the syllable catchment). Unlike gestures produced by speakers spontaneously (and in most cases unconsciously) in ordinary conversation, the teacher's gestures were specifically designed by her for teaching pronunciation, as she acknowledged in her follow-up interview. The teacher shared that in teaching pronunciation she attempts to provide the students with a range of embodied tools for mastering syllables and stress, from which they can choose to suit their individual learning needs. In teaching syllabification, apart from the counting and chin gestures, the teacher encouraged the students to use clapping and rubber bands. In these data, students were often observed using counting, clapping, and chin gestures for identifying the number of syllables in their group work. As proposed by Smotrova (2014), such gestures, purposefully designed to serve specific instructional functions, can be labeled as IIGs.

As for the students' reaction to the teacher's IIGs, the excerpt shows that the syllable catchment helped to resolve the students' confusion and facilitated their identifying the correct number of syllables. In Salim's case, this was achieved through his creative imitation of the teacher's syllable catchment. Salim also moved his body simultaneously with the teacher in fine-tuned interactional synchrony, which may serve as an important tool in *obuchenie* of syllabic structure. Salim also externalized his erroneous understanding of word stress placement exclusively through gesture. His confusion could have been resolved if the teacher had attended to Salim's gesture.

Gesture in *Obuchenie* of Word Stress

The excerpt discussed in this section demonstrates how the teacher and a student employed body movement to visualize and embody word stress. The teacher made the stress visible through a repetitive gesture—upward body movement—employed by her as an instructional tool. The student synchronized her actions with the teacher in imitating her gesture and appropriating it as a learning tool.

Excerpt 2 occurred in the same class as the discussion of *specialized*. The interaction involved the teacher and Ester, a female L1 speaker of Portuguese. Having just concluded the group activity, the teacher and students began discussing the meaning and pronunciation of some of the vocabulary items worked on in groups. The teacher begins with the word *experiment* and pronounces it twice, marking the stress in an

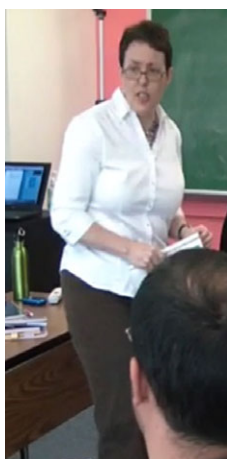


FIGURE 5. Excerpt 2, lines 1–2: *per*. [Color figure can be viewed at wileyonlinelibrary.com].

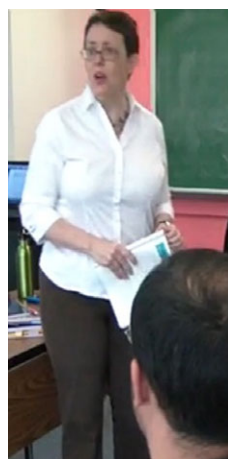


FIGURE 6. Excerpt 2, lines 1–2: *per*. [Color figure can be viewed at wileyonlinelibrary.com].

embodied way. When the teacher pronounces the stressed syllable *per*, she increases the voice volume and straightens up, raising her entire body upward (lines 1–2, Figures 5–6). By repeating this body movement, the teacher turns it into a catchment referred to as the *stress catchment*. Its distinguishing feature is the upward motion of her body synchronized with the stressed syllable.

Excerpt 2: *Experiment* (Part 1)

1	T:	ex{PER}iment ex{PER}iment	
2		{raises head and body twice}	Stress Catchment
3		scientists lo:ve to <u>ex</u> periment	
4	E:	{e ex?}	
5		{gazes at T}	
6	T:	{gazes at class, away from E}	
7	T:	[scientists	
8	E:	[{ex?}	
9		{gazes at T, raises body and RH bent at elbow, opens palm}	Stress Catchment
10	T:	{gazes at E}	
11	T:	{ <u>ex</u> }	
12		{raises body}	Stress Catchment
13		no	
14		ex{↑PER}iment=	
15		{raises head and body higher than in lines 2 and 12,	Stress Catchment
16		widens eyes, raises eyebrows}	
17	E:	{raises head and torso, gazes at T, smiles}	Stress Catchment
18		=a:h {yeah}	
19		{nods head; marks stress in textbook}	

Ester reacts to the teacher's demonstration with a request for clarification related to the stressed syllable (line 4). She repeats the syllable *ex* and raises her body along with the right hand, spreading her fingers (line 9, Figure 7). In reproducing the teacher's upward movement of the body for marking the stressed syllable, Ester creatively imitates the stress catchment. Synchronizing the catchment with the first syllable *ex*, Ester indicates that she erroneously treats it as the stressed syllable.

The teacher reacts by contrasting Ester's response with the correct stress placement. She first mimics the student's utterance, laying emphasis on *ex* and accompanying it with the stress catchment as she moves her body upward (lines 11–12). The teacher next rejects Ester's conjecture with *no* and demonstrates the correct stress placement. She pronounces the word *experiment* and marks the stressed syllable *per* with higher volume and the stress catchment (lines 14–16, Figures 8–9). The teacher embodies the stress in a more dramatic manner. Not only does she raise her pitch and her body even higher than before, she adds some theatrical effects by widening her eyes and raising her eyebrows. Thus, we can see how the teacher aligns a range of multimodal resources in materializing and foregrounding the stress. Ester moves her head and torso upward synchronously with the teacher, smiling and gazing at her (line 17). By doing so, Ester imitates the teacher's stress catchment and shares her positive emotion. The student follows with signs of new understanding, *ah*, *yeah*, and makes a note (most likely, marks the stress) in her textbook (lines 18–19).

During the untranscribed portion of the interaction following Part 1, the teacher helps Buthayna identify the correct number of syllables by visualizing them through the chin gesture (the syllable catchment). The teacher next walks back towards Ester's desk and reiterates *experi-*



FIGURE 7. Excerpt 2, lines 8–9: *ex*?. [Color figure can be viewed at wileyonlinelibrary.com].



FIGURE 8. Excerpt 2, lines 14–16: *per*.
[Color figure can be viewed at
wileyonlinelibrary.com].



FIGURE 9. Excerpt 2, lines 14–16: *per*.
[Color figure can be viewed at
wileyonlinelibrary.com].

ment, marking the word stress with a more moderate version of the stress catchment (lines 26–28).

Excerpt 2: *Experiment* (Part 2)

26	T:	{ <i>experiment</i> }	
27		{ <i>walks toward E, slightly raises body,</i>	
28		<i>moves LH slightly upward @chest</i> }	Stress Catchment
29	E:	{ <i>raises head, makes eyebrow flash</i> }	Stress Catchment
30	T:	[<i>ex{per}iment</i>]	
31	E:	[<i>ex{pe}</i>]	
32		{ <i>raises head, raises RH, extends fingers</i> }	Stress Catchment

Ester, in turn, imitates the teacher's movement by raising her head and producing an eyebrow flash to mark the stressed syllable (line 29). When the teacher pronounces *experiment* one more time, she does not use the upward body movement, marking stress only prosodically (line 30). Ester, however, continues to mediate herself with the stress catchment as she synchronizes the second syllable with the upward movement of her head and right hand, extending her fingers (line 32, Figures 10–11). Thus, Ester appropriated the teacher's catchment as a mediational tool in the process of gaining control over the correct placement of word stress.

To summarize, in this excerpt the teacher consistently employed the stress catchment, involving the upward body movement, to visualize the word stress. This body movement might straightforwardly be interpreted as an iconic depiction of the upward movement of the voice. The gesture, however, is metaphorical. According to Zbikowsky (2009), it is based on a highly conventionalized metaphor, which is related to “the common construal of musical pitches as situated in ver-



FIGURE 10. Excerpt 2, lines 31–32: *pe*. [Color figure can be viewed at wileyonlinelibrary.com].



FIGURE 11. Excerpt 2, lines 31–32: *pe*. [Color figure can be viewed at wileyonlinelibrary.com].

tical space, a construal that follows from the characterization of pitches as ‘high’ or ‘low’ with respect to one another. Although this characterization seems quite natural, it is actually rather arbitrary” (pp. 360–361). In full accordance with this metaphor, the teacher portrayed the higher voice pitch by moving her body upward. The gesture made the invisible “movement” of prosody visible. The student creatively imitated the teacher’s catchment by changing nonessential and retaining essential features of the gesture. She also employed it as a learning tool in the process of gaining control over the word stress placement. Similar to the discussion of *specialize*, the excerpt shows the importance of synchronization between the teacher and student in the *obuchenie* of L2 pronunciation.

Gesture in *Obuchenie of Rhythm*

This excerpt is an example of how the teacher and students employed body movement in the form of catchments in appropriating the rhythm of a proverb. Their actions became synchronized as the students creatively imitated the teacher’s gestures, while the teacher appropriated the features of students’ gestures in response. The reciprocal use of nonverbal resources helped the teacher and students to construct affective alignment.

The interaction involves students Ahmed and Khaled, L1 speakers of Arabic, as well as Ester and Claudia, L1 speakers of Portuguese and Spanish, respectively. Following the explanation of the meaning of the proverb *An apple a day keeps the doctor away*, the teacher draws the students’ attention to the rhyming words, which give the proverb a “nice sound” (line 1). She makes the rhythm of the proverb visible by moving her hands upward and downward in a rotating motion. The teacher complements it with a slight movement of her whole body in rhythm with the stressed syllables, creating an impression of dancing on the spot (lines 2–3). She repeats the proverb and reiterates the dancing movement (Figures 12–13) in a more active way by adding distinct head tilts to mark the stressed syllables (lines 5–6). The repeated dancing movement turns into a catchment referred to as the *rhythm catchment*. It serves the instructional function of visualizing and embodying the rhythmical contour of the proverb.

Excerpt 3: <i>Nice Sound</i> (Part 1)			
1	T:	{and <u>that's the reason</u> that <u>has</u> a nice <u>sou</u> nd,	
2		{ <u>raises BH to chest; moves them alternately upward and downward</u>	Rhythm Catchment
3		{ <u>in rotating motion as in dancing, slightly moves body</u> }	
4		{an <u>apple</u> a <u>day</u> , keeps the <u>doctor</u> [away.]	
5		{ <u>produces the same movements as in lines 2–3,</u>	Rhythm Catchment
6		<u>moves body more actively, tilts head</u> }	
7	A:	{ <u>slightly nods head in the rhythm</u> } [°away°]	Rhythm Catchment
8	K:	{ <u>smiles</u> }	
9	Ss:	{ <u>make notes in notebooks</u> }	
10	C:	{>an <u>apple</u> a <u>day</u> keeps the { <u>doctor away</u> ,<}	
11		{ <u>tilts head to the right and left at stressed syllables</u> }	Rhythm Catchment
12	T:	{ <u>makes two beats with RHF</u> }	Rhythm Catchment
13	T:	see?	

Several students react by expressing alignment with the teacher. Thus, Khaled responds with smiling while Ahmed marks the rhythm of the teacher’s utterance with slight head nods, repeating softly *away* (lines 7–8). He embodies the rhythmic pattern in a way different from the teacher’s. However, his gesture serves the same instructional function as the teacher’s catchment—marking the rhythm and retaining

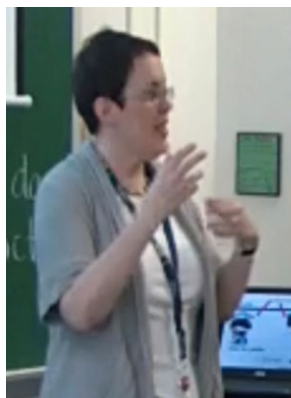


FIGURE 12. Excerpt 3, lines 4–6: *an apple a day*. [Color figure can be viewed at wileyonlinelibrary.com].

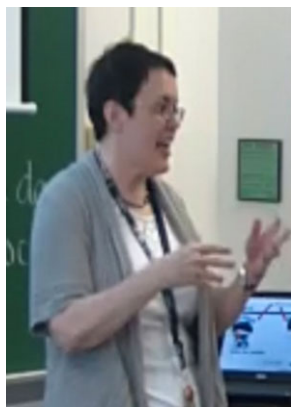


FIGURE 13. Excerpt 3, lines 4–6: *an apple a day*. [Color figure can be viewed at wileyonlinelibrary.com].

the crucial feature—the rhythmic movement of the body. Therefore, Ahmed’s gesture constitutes the same rhythm catchment as the one employed by the teacher.

Claudia also imitates the teacher’s performance by repeating the proverb and tilting her head from side to side (lines 10–11, Figure 14). In her actions, Claudia employs a different way of highlighting the rhythmic pattern as she creatively imitates the rhythm catchment employed by the teacher and Ahmed. The teacher in turn aligns with Claudia by making two beats in rhythm with the last stressed syllables in Claudia’s utterance (line 12). The teacher’s hand moves in the same direction as Claudia’s head tilts—from right to left—and the two produce the rhythm catchment simultaneously.

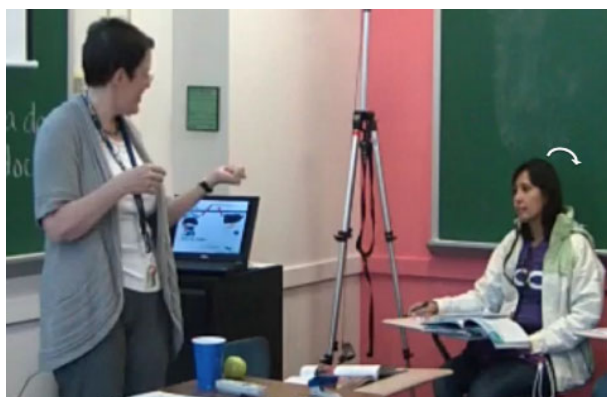


FIGURE 14. Excerpt 3, lines 10–12: *doctor away*. [Color figure can be viewed at wileyonlinelibrary.com].

Excerpt 3: *Nice Sound* (Part 2)

14	T:	{so <u>now</u> you can <u>walk</u> around <u>saying</u> that (0.2) <u>all</u> day}	
15		{smiles, gazes upward, tilts head to the right and left,	Rhythm Catchment
16		moves BH at chest, fists clenched, to the right and left	
17		in synch with head tilts}	
18	C:	{makes beats with her RH tapping on desk}	Rhythm Catchment
19	Ss:	{smile, laugh}	
20	T:	{an <u>apple</u> a <u>day</u> , keeps the <u>doctor</u> a[way].	
21		{shifts gaze to class, smiles, continues the movements}	Rhythm Catchment
22	C:	{moves RH slightly to the right and left in synch with T, smiles}	Rhythm Catchment
23	E:	{[way]}	
24		{tilts head from left to right}	Rhythm Catchment
25		{ha!}	
26		{raises eyebrows, smiles}	

The teacher continues with a humorous suggestion that the students can now “walk around saying that all day” (line 14). She animates the described action with the dancing movement, produced in a humorous manner, as she smiles and shifts her gaze upward. The teacher also tilts her head from right to left, moving her hands in the same direction, with her fists clenched (lines 15–17, Figures 15–16). This version of the teacher’s rhythm catchment incorporates the feature of Claudia’s catchment—the head tilts. Thus, the initial rhythm catchment is modified through the process of mutual imitation. The students affiliate with the teacher’s humor by smiling and laughing while Claudia taps out the rhythm of the teacher’s utterance on the desk (lines 18–19). As the teacher concludes by pronouncing the proverb, accompanied with the dancing movements, Claudia starts to move her right hand to the right and left synchronously with the teacher, imitating her hand movement (lines 21–22). They produce the rhythm catchment co-temporally and express affective alignment



FIGURE 15. Excerpt 3, lines 14–19. [Color figure can be viewed at wileyonlinelibrary.com].



FIGURE 16. Excerpt 3, lines 14–19. [Color figure can be viewed at wileyonlinelibrary.com].

with shared smiling. Ester joins in by imitating the catchment as she tilts her head from left to right and affiliates with the teacher's humor by exclaiming *ha* and raising her eyebrows (lines 24–26).

To summarize, in this excerpt the teacher employed body movement to visualize and embody the rhythmical pattern of the proverb. It was consistently enacted as the rhythm catchment, embracing diverse multimodal resources: hand movements, head tilts, and the movement of the whole body, complemented by a happy facial expres-

sion. The students imitated, creatively reworked, and appropriated the teacher's catchment as a learning tool in the process of gaining control over the rhythm of the proverb. The teacher, in turn, imitated the elements of students' gestures. In this way, the rhythm catchment initially introduced by the teacher was transformed through reciprocal teacher-student imitation. These reflective imitations of catchments helped to maintain the teacher and students' cognitive and affective alignment⁶ in the process of *obuchenie*. The teacher's nonverbal behavior was crucial in creating humor and building affective engagement with the students, who reacted with mirroring the teacher's embodied affective displays. In their mutual imitations, the teacher and students consistently synchronized their actions, which points to the important role of interactional synchrony in the students' appropriating the rhythm of L2 speech.

DISCUSSION

This article examined the use of teacher and student gesture in *obuchenie* of L2 pronunciation. It aimed to identify the instructional and learning functions of gestures employed by the teacher and students and reveal their implications for L2 pedagogy, as discussed below. Findings show that the teacher's instructional gestures served the purpose of facilitating the students' identification and production of syllables, placement of word stress, and appropriation of rhythm. Student gestures served the learning functions of facilitating their gaining control over the features of pronunciation listed above. The study provides evidence for the beneficial role of the teacher and student gesture in *obuchenie* of suprasegmental features of L2 pronunciation, which has important implications for L2 pedagogy.

With regard to the first research question, the teacher's gestures served a range of instructional functions. Her metaphorical, haptic, deictic, and beat gestures along with other body movement were employed to make such intangible phenomena as syllables, stress, and rhythm visible and "graspable." The teacher used these embodied instructional tools in a consistent and patterned manner, as expressed in her reiterative gestures, catchments. Each of her instructional catchments, the syllable, stress, and rhythm catchments, served specific instructional functions. The syllable catchment (the chin gesture) was

⁶ *Alignment* is used here in its common meaning: *to align*, "to change (something) so that it agrees with or matches something else" (Align, n.d.). It also corresponds to the term introduced by Atkinson, Churchill, Nishino, and Okada (2007), where alignment involves complex ways in which humans coordinate and adapt multiple resources in the process of interaction.

aimed at facilitating the students' identification of syllables by making them visible and directing the students' attention to the place of their articulation. The stress catchment was employed to facilitate the students' correct word stress placement. This was accomplished through the teacher's upward movement of the body, which visualized the voice pitch by mapping it onto space. Finally, the rhythm catchment served the purpose of facilitating the students' appropriation of rhythm, visualized and enacted through a range of embodied tools. The three instructional catchments were employed by the teacher consistently, maintaining coherence of her pedagogical discourse (McNeill, 2005) and continuity in her teaching techniques.

Coherence of classroom interaction maintained through catchments extended across speakers as students imitated the teacher's catchments in their pursuit of *obuchenie*. In full agreement with Vygotsky's (1987, 1997) view of imitation, the students creatively imitated the teacher's gesture by retaining the aspects that reflected the crux of the instructional task and modifying less relevant features. Through such imitation, the students appropriated the teacher's gestures and employed them as learning tools, which facilitated their identification and production of syllables, word stress, and rhythm. The students' gestures also served as a medium of expressing their understandings of pronunciation phenomena, which were not always evident in their verbal expression.

The teacher and student actions were often synchronized as they employed the catchments in the joint process of *obuchenie*. Such interactional synchrony acquires particular importance in the light of the intrinsic relationship between verbal sounds and body movement (e.g., Kendon, 1972; Loehr, 2007). The students attempted to achieve the self-synchrony of linguistic and kinesic stress and coordinate the rhythm hierarchies of speech and gesture in English through interactional synchrony. They mirrored the teacher's actions by *locking in* (Acton, 1984) to her verbal and nonverbal expressive system through the process of *entrainment* (Condon, 1976), whereby listeners synchronize their body movement with the rhythm of the interlocutors' speech. Such co-temporal mirroring can help students appropriate L2 pronunciation by embodying and inhabiting it (Haught & McCafferty, 2008). A high level of interactional synchrony also serves as a powerful sign of alignment, which can be viewed as an important means of learning (Atkinson et al., 2007).

The findings discussed above have important implications for L2 pedagogy, which was the focus of the second research question. The ability of gesture to make pronunciation visible and tangible through body movement, which played a facilitative role in students' identification and production of suprasegmental features of pronunciation, suggests that language teachers should be made aware of the pedagogical

functions of gesture and embrace it as a potent instructional tool. From observing actual teaching practices, we know that teachers often use body movement in pronunciation instruction, including techniques suggested in teacher manuals (e.g., Gilbert, 2008; Rogerson-Revell, 2011). However, due to the lack of explicit focus on and detailed analysis of such practices in L2 research, teachers are often in need of theoretically grounded and empirically substantiated knowledge of gesture–speech interface that can make their use of gesture more consistent and systematic, turning it into a powerful instructional tool. One might still ask whether it is possible for teachers to turn gestures into an intentionally designed and consciously employed instructional tool, given that in everyday conversation they are produced spontaneously and, most of the time, unconsciously. This study shows that the teacher was able to employ gesture consciously and purposefully, as was the case with the counting and chin gestures, designed to serve specific instructional functions. Categorized in this study as intentional instructional gestures, whose nature is different from gestures produced in ordinary conversation, IIGs are intrinsically tied to instructional context and are unlikely to occur in everyday communication.

The way the teacher shaped her instructional gestures raises an intriguing question related to thinking-for-teaching, defined in Smotrva (2014) as selective foregrounding of the aspects of the concept in question that are most relevant to the current instructional purposes. The question arises: Which elements of sound production have to be foregrounded in the teacher's gesture to make it beneficial for learning? Thus, for example, in visualizing syllables, the teacher chose to highlight the downward movement of the chin engaged in producing vowels. One can imagine other ways of visualizing the production of syllables. A possible way to identify which gesture is more effective as a teaching tool is to consider the students' subsequent development, especially in terms of long-term effects of instructional gestures on student learning—an important direction for future research.

The study's other implication for pedagogy is related to the way students employed gesture in *obuchenie* of L2 pronunciation. The important role of student gesturing in their pursuit of appropriating aspects of L2 pronunciation suggests that encouraging students to use gesture as a learning tool can be beneficial for their learning. This aligns with studies in math education that demonstrate that students encouraged to gesture during instruction had higher rates of retention (Cook, Mitchell, & Goldin-Meadow, 2008). Similarly, findings in the language teaching context (Allen, 1995; Tellier, 2008) indicate that when students are instructed to mimic their instructor's gestures during vocabulary instruction, it increases their rates of retention. The students' gesture observed in this study was also important as expressing their understandings of

pronunciation phenomena that were not evident in students' verbal expression. Such gestures can serve as diagnostic tools allowing the teacher to gain access to the students' current levels of L2 knowledge and use this information for shaping teaching strategies.

The study also raises an important issue about the role of emotion in teaching pronunciation. It provides evidence for the teacher's body movement as a means of generating humor and positive affect. Such instructional actions contribute to creating a positive atmosphere and *attaching positive value* (Frisby & Martin, 2010) to learning L2 pronunciation, which is an important prerequisite for improvement. This is due to the

relationship between internal, emotional, or affective states and pronunciation. Whether or not a speaker is at ease and relaxed will be evident in that speaker's oral production; it will have a significant effect on pronunciation accuracy and will, furthermore, affect overall ability to change pronunciation. (Acton, 1984, p. 74)

The pedagogical merits of gesture in *obuchenie* of pronunciation discussed above have important implications for language teacher training and education. Alibali et al. (2013) show that math students' learning outcomes improved after their teacher was trained to gesture effectively. Language teachers should follow suit by incorporating body movement into teacher development. Effectiveness of gesture-based techniques in *obuchenie* of pronunciation needs to be attested to by experimental studies; however, some recommendations for teacher educators can be suggested. Findings presented in this article indicate that teacher preparation needs to include explicit focus on the following embodied pedagogical strategies:

- using instructional gestures for visualizing and enacting pronunciation phenomena
- maintaining consistency in teachers' instructional techniques by employing repetitive gestures—catchments
- instructing students to imitate the teacher's gestures employed for specific instructional tasks and use them synchronously with the teacher when needed
- attending to student gestures expressing their understandings that are obscured in the verbal expression

Although its findings have a number of implications for L2 pedagogy and teacher education, the study also has certain limitations. It points to the beneficial role of teacher and student gesture within the analyzed interactions, but does not focus on students' long-term learning and development, which is an important direction for future

research. Notwithstanding its limitations, this study points to the significant role of teacher and student body movement in *obuchenie* of L2 pronunciation. It reveals that the teacher studied here employed gesture for a range of instructional purposes and that students appropriated it as a learning tool. These findings send an important message to teachers and teacher educators: Gesture needs to be treated as a potent instructional tool, which should be incorporated into systematic gesture-based pedagogies and included in teacher preparation.

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APPENDIX

TRANSCRIPTION CONVENTIONS

[] – overlapping talk
{ } – synchronized vocal and nonvocal action
= – latching
() – pause
. – falling intonation
, – listing intonation
? – rising intonation
↑ – shift into higher pitch
↓ – shift into lower pitch
: – elongation
°speech° – quiet speech
> < – speeded up speech
underline – emphasis
LOUD – loud speech
italics – nonvocal action
@chest – at chest
RH – right hand
LH – left hand
BH – both hands