Learning in-progress
On the role of gesture in microgenetic development of L2 grammar

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Though gesture is a growing area in second language research, its role in the teaching and learning of grammar remains on the margins. Drawing from Sociocultural Theory, the present case study addresses this gap by offering a microgenetic analysis of an ESL learner’s developing understanding of the progressive aspect. Our analysis is threefold. First, we observe how the learner’s gesture reveals her initial understanding of the progressive aspect. This is followed by study of the learner’s appropriation of the teacher’s gesture for the progressive aspect. Finally, we examine the crucial ways in which the learner’s gesture differs from the teacher’s, arguing that the learner merged her initial understanding and the teacher’s gesture, instead of merely copying the teacher. We contend that gesture should not be regarded as supplementary to speech but as an indispensable window into the learning process that may not be accessible through the verbal channel alone.

Keywords: Second Language Acquisition (SLA), gesture, classroom, grammar instruction, Sociocultural Theory (SCT)

Introduction

Traditionally, research in the fields of second language (L2) teaching and second language acquisition (SLA) has been preoccupied with analysis of verbal interaction between learners and teachers. It is only in recent years that scholars have begun to systematically investigate the role of gesture in L2 learning and teaching, emphasizing that its analysis provides richer insights into the process of language learning and teaching (Gullberg & McCafferty, 2008; Lantolf & Thorne, 2006, McCafferty, 2004; McCafferty & Stam, 2008). These leading scholars have called for further exploration of the interrelationship between gestures produced...
by learners and teachers. Following these groundbreaking studies, this past decade has seen a steady increase in the number of studies offering insights into the crucial functions of gesture in the learning and teaching of L2, particularly with regard to pronunciation (Hudson, 2011; Smotrova, in press), vocabulary (Lazaraton, 2004; Smotorova & Lantolf, 2013; Waring, Creider, & Box, 2013), and corrective feedback (Wang & Loewen, 2016). While more and more scholars attend to the embodied nature of language learning and teaching, the role of gesture in grammar instruction still remains under-researched at best (Smotrova, 2014). Furthermore, genetic (or developmental) accounts (Vygotsky, 1978) are still scarce in L2 gesture research in general, although the SLA literature, especially as it relates to sociocultural theory (Lantolf & Thorne, 2006), suggests that such perspectives are crucial in understanding situated processes, rather than isolated outcomes, of learning.

In order to address these lacunas in the existing literature on L2 gesture, this case study reports on an ESL learner’s microgenetic development of a grammatical concept over the course of two weeks with a particular focus on gesture. In doing so, it attempts to bring developmental insights into the interplay between the teacher and students’ gesture in L2 grammar instruction. Specifically, the paper will address the following research questions:

1. How does the teacher make use of gesture in her teaching of a grammatical concept (i.e., progressive aspect)?
2. How does the learner appropriate the teacher’s gesture over time?
3. What insights does the learner’s gesture provide into her learning process?

Our analysis will involve three stages. First, we will observe how a student’s gestures reveal her initial understanding of the progressive aspect. This analysis will be followed by examination of the teacher’s use catchments (i.e., recurring gestural features) and their influence on the student’s unfolding understanding, as revealed through gesture and private speech. In the final stage, we will observe the student’s internalization of the progressive aspect, which will be evident both in her speech and gesture.

**Key concepts in gesture research**

The study adopts McNeill’s (2005, 2012) theory of gesture, which characterizes gesture as an integral part of language, equally important as speech. For McNeill, gesture and speech share the same cognitive origin, and it is the interaction between the imagistic (i.e., gesture) and the verbal modes of thinking that “propels thought and language” (2005, p. 4). Because gesture is less conventionalized and more flexible in form than speech, it has the capacity to “provide imagery for the non-imageable” (McNeill, 2005, p. 45). That is, gesture allows one to represent
abstract information in a tangible manner. This unique capacity is called *metaphoricty* of gesture (McNeill, 2005). Gesture and speech are *co-expressive* in externalizing one’s thoughts in that they depict different, though often overlapping, dimensions of the same underlying idea. Hence, from the observer’s perspective, it is the combination of speech and gesture that provides the richest insights into the speaker’s mind.

On the basis of their functions, McNeill (2005) classified gesture into four major groups: *iconics*, which are imagistic representations of concrete objects; *metaphorics*, which give concrete forms to abstract ideas; *deictics*, which convey the idea of pointing; and *beats*, which concern the rhythmical hand movements coinciding with prosodic features of speech. Importantly, McNeill noted that a gesture could simultaneously exhibit multiple dimensions rather than belonging to only one category.

Often times, individuals use the same gestural feature repeatedly across a stretch of interaction. McNeill (2005) referred to such recurring gestural features as *catchments*, which is described as follows: “A catchment is recognized when one or more gesture features occur in at least two (not necessarily consecutive) gestures” (p. 116). He theorized that a catchment makes observable a theme running across a stretch of discourse, and thereby provides a sense of cohesion that parallels cohesive markers in spoken and written language. Building on McNeill’s work, other researchers have clarified that catchments must share similar meanings and address the same referent while they do not have to be exactly identical in form (Chui, 2014; Holler & Wilkin, 2011; Smotrova, 2014).

**Gesture in teaching and learning**

Concerned with human cognition, McNeill’s research mostly took place in laboratory-based monologic situations where participants were asked to narrate a scene from a cartoon story. In contrast, recent research shows the utility of gesture in dialogic contexts, especially as it relates to learning and teaching, because gesture serves both intra-personal (facilitating and externalizing thoughts) and inter-personal (communicative) functions (Gullberg, 2010; Kendon, 2004; Goldin-Meadow, 2003). For teachers, this means that gesture can enhance pedagogical practices by adding further information to speech (Churchill, Okada, Nishino, & Atkinson, 2010; Lazaraton, 2004; Pozzer-Ardenghi & Roth, 2008; Smotrova & Lantolf, 2013; Wang & Loewen, 2015). And for researchers, gesture affords means for visually observing the learner’s conceptual development (Goldin-Meadow, 2003; Gullberg, 2010; Smotrova & Lantolf, 2013) that may not be accessible through speech.

In the context of L1 math education, for example, Goldin-Meadow and her colleagues conducted a number of experimental studies, suggesting the facilitative
roles of gesture in the learning of mathematical concepts (see Goldin-Meadow (2003) for an overview of these studies). Of particular interest to the present study, Goldin-Meadow and Alibali (1995) found that learners at times reveal knowledge through gesture that is not present in speech. In other words, gesture can provide an arena for experimentation where learners can test out their hypothesis that they are unable to verbalize. By implication, it can be argued that gesture, with its metaphoricity, can serve as a diagnostic device for educators and researchers, revealing the cognitive process taking place in the learner’s mind.

Another important area of research concerns the role of catchments in instructional contexts. One of the first studies in this direction was conducted by Pozzer-Ardenghi and Roth (2008). Looking at a biology teacher’s gesture depicting the contraction of the cardiac muscle, they examined how the teacher recurrently used a catchment – *contraction gesture* – alongside various speech contents. The authors claimed that not only did the teacher’s use of catchments provide cohesion through the imagistic channel, but also helped him introduce related yet novel information to the class. However, as innovative as it was, the study did not attend to the interaction between the teacher and students, and in this sense, maintained a monologic perspective, similar to McNeill’s original formulation of the concept of catchment.

More recently, Smotrova and Lantolf (2013) has added a dialogic perspective to the study of gesture in instructional contexts. Their microanalytic study illuminated the function of dialogic catchments in revealing learners’ developing conceptual understanding of lexical items *in situ*. The authors showed that catchments provided not just cohesion in instructional discourse but also a means for rendering learners’ developing understandings visually observable. Apart from Smotrova and Lantolf (2013) and Smotrova (2014), there have been no studies that investigated the role of catchments in the classroom from a dialogic viewpoint. Thus, the present study aims to contribute to this emerging and promising line of research on dialogic catchments by exploring a hitherto under-investigated topic of grammatical tenses and aspects.

Relevance of sociocultural theory to L2 gesture research

To complement the theory of gesture (McNeill, 2005), which does not account for the process of learning, the present study adopts several concepts from Sociocultural Theory (SCT) (Vygotsky, 1978, 1986). Concerned with the socially mediated and ongoing nature of teaching and learning, SCT research employs genetic (or developmental) analysis which focuses “not on the product of development but on the very process by which higher forms are established” (Vygotsky, 1978, p. 64). Of the four domains of development Vygotsky proposed
(i.e., phylogenetic, sociocultural, ontogenetic, and microgenetic), the current paper engages particularly with the microgenetic domain, which concerns the origin and unfolding of development. Microgenetic analysis traces local processes, rather than isolated outcomes, of learning particular objects (e.g., grammar points and lexical items) as they take place in interaction, typically between expert and novice (Lantolf & Thorne, 2006). Given its focus on how development unfolds, microgenetic analysis can be characterized as “a very short-term longitudinal study” (Wertsch, 1985, p. 55).

According to SCT, private speech is a step situated in between inner and social speech, which facilitates internalization – “the process of making what was once external assistance a resource that is internally available to the individual” (Lantolf & Thorne, 2007, p. 200). Through the “ongoing interface between the individual and social settings”, private speech fulfills the function of “mediating thought through the use of social language” (Ohta, 2001, p. 12). In other words, one is better able to self-regulate when engaged in a dialogue with oneself through private speech (Lee, 2008). Private speech can often be heard by a person sitting in close proximity to the individual producing it; however, it can also take the form of mumbling and muttering, which can hardly be understood by an over-hearer (Lantolf & Yáñez, 2003).

Not all private speech plays the same function in learning. According to Ohta (2001), there are three types of private speech: vicarious response, repetition, and manipulation. The notion of vicarious response is of particular relevance to the present study. Vicarious response can take place in a classroom setting where a teacher addresses a question to an individual student or to the entire class. If a response in the form of private speech is produced by a student to whom the question is not directly addressed, it can be characterized as a vicarious response since the student chooses not to reveal his or her answer openly. Rather, such a response is addressed only to the self. According to Ohta (2001), similar to Goldin-Meadow’s (2003) findings discussed above, vicarious response serves as a type of hypothesis testing, i.e. the student privately provides an answer and tests whether it is correct or not by listening to other students’ responses and comparing answers.

Another important process leading towards internalization is imitation, which, according to Vygotsky (1986), differs from mimicry or repetition in that it is a transformative process. Put differently, internalization through imitation is not merely a transportation of the external into the internal; rather it is an “active, nurturing transformation of externals into personally meaningful experience” (Frawley, 1997, p. 94), directing an individual towards learning. What is crucial about imitation is that it involves human “agency and intentionality” (Lantolf & Yáñez, 2003, p. 99). Importantly, according to Lantolf and Thorne (2007), a type of imitation that can be especially conducive to internalization is deferred imitation,
i.e., imitation that takes place after some time has passed since the initial exposure. Its conduciveness resides in the fact that one can store unprocessed information and “analyze language ‘off-line’” (Meltzoff & Gopnik, 1989, p. 38). As a result, deferred imitation constitutes “essential building blocks for spontaneous speech” (Speidel, 1989, p. 163).

Analogous to speech, gesture can serve both social and private functions (Goldin-Meadow, 2003; Gullberg, 2010; Kendon, 2004). On the grounds that gesture and speech share the same cognitive origin, several scholars have theorized gesture as carrying the qualities of private speech (Lantolf, 2010; McCafferty, 1998; Smotreva & Lantolf, 2013). This theoretical perspective has significant bearings on research into language learning because gesture has the capacity to make visible how the learner is conceptualizing information (Goldin-Meadow, 2003; McCafferty, 1998; Smotreva & Lantolf, 2013). In his pioneering study, McCafferty’s (1998) demonstrated the ways in which eight L2 learners used gesture in narration tasks, illuminating the self-regulatory functions of gesture both with and without speech. Similarly, in the dialogic context of classroom, Smotreva and Lantolf (2013) showed that the teacher and students used gesture (especially catchments) in expressing word meanings beyond dictionary definitions, which in turn facilitated the teaching and learning of vocabulary. With the intention to contribute to these scholarly discussions, we will illustrate below the meditational functions of gesture in the learning and teaching of English as a second language in the previously understudied context of grammar instruction.

**Data and method**

The data for this paper are drawn from Corpus of English for Academic and Professional Purposes (CEAPP, 2014) compiled by the Center for Research on English Language Learning and Teaching (CRELLT) at the Pennsylvania State University. Using Conversation Analysis (CA) as the primary method, CRELlT explores how teaching and learning are accomplished in the classroom through multimodal practices and actions. The particular dataset under scrutiny was collected in January 2012 in three class meetings (January 17, 22, and 31; 120 minutes each) of an advanced ESL grammar course at an intensive English program for non-matriculated international students. The recordings were made using two digital video cameras, one capturing the teacher and the other students. All participants were given pseudonyms for reasons of privacy. Twelve adult ESL students were enrolled in the course. The students’ L1 backgrounds included Arabic (10), Portuguese (1), and Chinese (1). Of these participants, we will refer only to Mada (female Arabic speaker; focal individual) and Abdul-aziz (male Arabic speaker) in
the analysis. At the time of data collection, they were both enrolled in the highest level courses in the intensive English program and were about to apply for university admissions. The teacher (referred to as Julie in the analysis) is an L1 speaker of English with substantial experience in ESL instruction. The participants were not aware that the researchers were particularly interested in their gestures. Rather, upon consenting to participate, they were informed more broadly that CRELLT is interested in the constitution of teaching, learning and other multimodal practices and actions found in the classroom.

In accordance with CRELLT’s main objective of exploring how teaching and learning are accomplished through talk and multimodal resources, the current research started as a CA inquiry, and as such the preliminary stage of analysis encompassed *unmotivated looking* (Sacks, 1984). Several viewings of the video clips drew the researchers’ attention to the use of gesture in the classroom. Particularly interesting was the ways in which students’ gestures transformed over time. At this point, the researchers shifted their focus to the teacher’s interventions and the learner’s conceptual development. Since CA does not offer a theory of learning, the researchers decided to draw from SCT, informed by the existing literature on language learning and gesture (Smotrova, 2014, 2015; Smotrova & Lantolf, 2013). The two researchers individually viewed the video recordings and the corresponding transcripts several times and identified the uses of gesture by the teacher and students with respect to the emerging phenomena of interest. After a discussion of these identified segments, the researchers agreed that Mada’s gesture most clearly showed her changing understanding of the progressive aspect over time, and thus decided to focus on her gesture in relation to the teacher’s. Subsequently, the researchers added descriptions of gesture to the CA transcripts (Jefferson, 2004) produced by CRELLT, using McNeill’s (2005) gesture notation conventions (see Appendix for the transcription conventions), where they were needed for the purpose of the present study. As a case study, the present paper does not seek to offer empirical generalization (Yin, 2003). As such, the findings to be presented below should be regarded as unique to the particular context and participants, though the analytic procedures used in the study may be replicated in further research with similar theoretical perspectives.

**Analysis**

As mentioned earlier, the analysis section is divided into three parts. In the first part we explore how the student’s gesture manifests her initial understanding of the progressive aspect. In the second part, we examine how the student’s creative imitation of the teacher’s catchments leads her towards the internalization of the
grammatical concept in focus. Finally, in the third part, we scrutinize the student’s internalized understanding of the progressive aspect, which is revealed through speech and gesture.

**Students’ initial understanding of the progressive aspect**

Prior to the beginning of Excerpt 1, the class has discussed tenses and aspects in English and the different levels of abstractness they entail. To aid her explanation, the teacher (Julie) has drawn a *timeline* (Figure 1) on the blackboard on which she has located the tenses and perfective aspects, with the left end being past perfect and the right end future simple. In Excerpt 1, Julie invites the class to consider the progressive aspect in relation to the timeline.

![Timeline of tenses](image)

*Figure 1. Timeline of tenses*

(1) **What about progressive?** (January 17; video 6; 1:57–2:15)

1  JUL:    {now >what about< (0.9)
2  {brings BH beside torso at chest level,
3  *palms open facing upwards*
4  °progressive.°
5  {lowers BH slightly
6  (0.7)
7  JUL:    where- (0.6) °where does that {go.°
8  {RH closes; LH index finger
9  and thumbs touch each other
10  (0.5)
10  ABD:    in {between
11  {points forward with RH index finger at nose level
12  [{uh-
13  °lowers RH index finger slightly; retracts gesture
14  JUL:    [does that fit our time line?
15  (0.7)
16  MAD:    yes.
17  (0.7)
18  MAD:    {maybe::
19  {raises RH to eye level, index finger extended
20  {there is- (1.1)
21  {moves RH to left and back to right; retracts gesture
Building on the earlier discussion of tenses using the timeline, Julie asks a display question to the class, “what about progressive?” (lines 1–4). In the absence of an immediate response from the students, she goes on to specify the question in lines 6 and 7. As will be seen, this question seems to have caused confusion for the students. Although Abdul-aziz attempts to answer through speech and gesture, he shows difficulty in formulating his response, as indicated by the hesitation marker “uh”, and retracts his gesture halfway through (lines 10–13). In line 14, Julie rephrases the question in the form of a yes-no question. In response, Mada says, “yes” and begins to further elaborate on her response after a brief pause in the absence of an explicit uptake from Julie. In line 21, Mada produces her response in gesture by oscillating her right index finger in front of her face. This seems to indicate her understanding that the progressive aspect covers a range from one point on the timeline to another. It is noteworthy that the accompanying speech (line 20) is markedly incomplete on its own. It is only with the lateral oscillation gesture (line 21) and the timeline that Mada’s answer becomes a complete whole. From line 22 onward, Abdul-aziz makes another attempt to answer, using the same wording as his previous attempt in line 10. He makes his thought clearer by making references to the points on the timeline, “the perfect and simple” (lines 25 and 27). The accompanying deictic gestures reinforce his point (lines 26 and 28). Abdul-aziz’s response appears to convey a similar idea as Mada’s. It appears that the gestural components of the responses by the two students are both built upon the timeline on the blackboard, which serves as the shared point of reference (cf. Nathan, 2008). In sum, the two students’ gesture and speech seem to suggest that at this point into the lesson they conceptualize progressive aspect as situated in between some two points on the timeline.

Introduction of a dialogic catchment – “in-progress” gesture

In the following five excerpts, Julie proposes a conceptualization of the progressive aspect that is different from what the two students indicated in the previous
excerpt. While this is achieved verbally at first, she subsequently employs gesture to elaborate on her explanation. Her gesture, which turns into a catchment (i.e., recurring gesture), is appropriated by Mada in the last excerpt of this section. In so doing, she externalizes her developing understanding of the progressive aspect.

Having unsuccessfully attempted to elicit the expected meaning of the progressive aspect from the students in Excerpt 1, Julie discourages the learners to conceptualize the progressive aspect in relation to the timeline in Excerpt 2.

(2) **How something is happening** (January 17; video 6; 2:46–2:58)

```plaintext
1 JUL:   >but we< think of progressive
2          {{(4.9)
3 {writes “progressive” on board
4 a::s
5          {{(2.8)
6 {writes “how” on board
7 how something is happening.
8 ABD:  °oh (.) okay.°
```

Rather than the locations on the timeline, Julie suggests that students think of the progressive aspect in terms of an answer to the question of “*how something is happening*?” (line 7). In response, Abdul-aziz acknowledges Julie’s explanation by saying “oh okay” (line 8), signaling his understanding has been updated (Seo & Koshik, 2010). Other students appear to be listening and taking notes without overtly externalizing their understandings.

Following up on Excerpt 2, Julie projects a slide on the screen illustrating two lines of tenses and aspects (Figure 2). The line at the top shows tenses in both perfective and simple aspects (e.g., past perfect and past simple), analogous to the timeline introduced earlier (Figure 1). The line at the bottom presents tenses in the progressive aspect (e.g., past progressive and present perfect progressive). Each of the tenses on the top line is linked by an arrow with the corresponding progressive aspect on the bottom line. For instance, past perfect is linked to past perfect progressive, and past simple is linked to past progressive. Julie walks towards the screen while asking the students why there are arrows coming down from each of the tenses. At the same time, she repetitively moves her left hand from the top tenses to the bottom tense, tracing the arrows (Figure 2). One of the students answers her question saying that each tense has its own progressive aspect. Acknowledging the student’s answer, Julie then walks to the timeline drawn on the chalkboard and points with her left hand to the tenses presented on the timeline. Starting with the tense furthest to the left (past perfect) and moving towards the right end of the timeline (future simple), she explains that each of the tenses can be made into progressive.
Interestingly, even though Julie has discouraged the students from conceptualizing the progressive aspect in terms of the timeline (Excerpt 2), she now explains it by referring to the sequential representation of tenses, presented both on the screen and chalkboard. Using gestures, she establishes a link between her verbal explanation of the progressive aspect and a more concrete referent (timeline), and thereby grounds the students’ understanding of the abstract concept of the progressive aspect. According to Nathan (2008, p. 376), this kind of grounding is accomplished through the use of “linking gestures” which “provide conceptual correspondences between the familiar and the unfamiliar entities.” In other words, by using linking gestures, Julie helps students connect the sequence of tenses on the timeline, with which the students are already familiar, and the new concept of the progressive aspect.

In Excerpt 3, Julie further adds to her explanation, saying that the progressive aspect conveys information about the manner in which something is happening and introduces the in-progress catchment.

(3) In progress (January 17; video 6; 3:52–4:07)

1  JUL:     and >what does that<
2     {mea:n,
3     {turns LH to left, palm loosely open facing up
4     >when i make a progressive?<
5     ((0.4)
6     {walks to blackboard
7  JUL:     it mea:ns,
8     (0.4)
9     {i’m showing,
10     {draws circle around “how” on board twice
11     {ho:(h)w it’s happening=
12     {walks to students
13     =>and {how is it< happening?
14     {turns right arm up at elbow, palm facing inward,
15     index finger extended
16
In line 13–19, Julie asks the question “how is it happening?” and gesturally provides an answer by rotating both hands in an alternating manner (Figure 3). As it will become apparent shortly, this gesture metaphorically conveys the idea of progressivity. In line 18 and 19, Julie uses it as an instructional tool to elicit a verbal answer. She uses this hand-rotation gesture recurrently throughout the class and beyond, and as such it constitutes a catchment. Henceforth, we refer to it as the in-progress catchment in the present paper.

Several students respond to Julie’s question by saying “during,” “keeps on,” and “duration” (lines 23, 24, and 25). These student responses attest to the effectiveness of Julie’s gesture in soliciting answers to a certain extent. In response to the students’ utterances, Julie names the gesture by saying “in progress” (line 30). By explicitly naming her gesture, she establishes common ground between herself and the students, ensuring that they all attach the same meaning to the performed gesture. Moreover, as she performs her gesture, she says that she will use it “all the
time” (line 20), signaling to the students that the gesture will be used later in her instruction and they are expected to know how to interpret it.

In the following part of the lesson, Julie performs the in-progress gesture again; yet, its form and the accompanying verbal expressions are different from the previous one.

(4) *Julie drinks coffee* (January 17; video 6; 4:13–4:39)

1 JUL:    so, (0.4) when ↑i:-, (2.5)
2 >when i say< julie drinks coffee,(1.3)
3 right here.
4 {{(2.5)
5 {draws a circle around “simple present” on board
6 and {the:n,
7 {{(0.4) i make it (1.3) progressive,(8.5)
8 {writes “present progressive” below the line
9 i’m saying {no:w, >ho:w is ↑it happening?<
10 {grabs coffee mug with RH
11 (0.8)
12 ???:    {{( )
13 JUL:    {rotates LH quickly in outward circle
14 it’s in progress {right no:w
15 {{raises RH towards mouth,
16 holding coffee mug; takes a sip of coffee,
17 rotates LH at chest

Figure 4. In-progress catchment (left hand)

Firstly, in Excerpt 4, in order to illustrate how tenses can be coupled with the progressive aspect, Julie provides an example, “Julie drinks coffee” (line 2). Corresponding with the sentence in the present tense, Julie enacts its meaning by performing the action of drinking coffee (lines 16 and 17). Her action is
accompanied by a gestural expression; while she is holding a cup of coffee in her right hand and moving it towards her mouth, she rotates her left hand at chest (line 18; Figure 4). As she is performing the two actions concurrently, she explains that the action is “in progress right now” (line 15). Julie’s left hand rotation gesture constitutes a variant of the in-progress catchment used in the previous excerpt where both hands were involved. As the existing research (Chui, 2014; Holler & Wilkin, 2011; Smotrova, 2014) has shown, while its key feature (i.e., the rotating hand movement) remains unchanged, Julie changes the non-essential feature (i.e., the handedness). Despite the difference, the gesture still conveys the meaning of a progressive action. Importantly, using only one hand enables Julie not just to repeat the in-progress catchment, but also to combine it with another gesture performed by the other hand (i.e., coffee drinking) for a richer meaning.

The in-progress catchment takes a yet different form forty seconds later (Excerpt 5), when Julie is asked about the possibility of adding an adverb to the sentence in which a progressive aspect is used in order to specify the feeling with which an action is performed. Julie answers the question by providing an example sentence, “Julie is drinking coffee happily.” Afterwards, she provides a more detailed explanation as shown below.

(5) **Right now and ongoing** (January 17; video 6; 5:05–5:16)

1 JUL: that’s >totally fi:ne.<
2 (0.5)
3 JUL: {because
4 {points at a student with RH
5 >you’re talking about< my {feeling,
6 {turns RH inward
7 {(0.3)
8 {points down repeatedly with RH next to head
9 {(0.3)
10 {rotates RH on sagittal axis repeatedly until line 16
11 JUL: ((gazes at student))
12 (0.5)
13 JUL: right no:w and,
14 (1.5)
15 JUL: it’s (. ) ongoing.

First, while holding a cup of coffee in her left hand, Julie moves her right index finger downwards which seems to indicate the present time (line 8; Figure 3 (a)). After a brief pause, she begins to rotate her right hand (line 10). This hand movement constitutes an in-progress catchment (Figure 3 (b)). Again, the most salient feature of the gesture (i.e., rotating movement) remains the same. As Julie begins
the rotating gesture, she utters the words “right now” (line 13), and after 1.5 seconds she adds “it’s ongoing” (line 15).

By first expressing the tense with her gesture and then expressing the progressive aspect through the rotating movement, Julie creates what can be called a gestural model, the term used by Lozano and Tversky (2006, p. 52) to describe “gestures […] coordinated to portray either structure or action”. In the case of the current study, Julie sequentially produces two gestures: the first illustrating the temporal dimension and the second showing the aspectual dimension. Importantly, when produced in a sequence, they form a grammatical unit and make visible the abstract notions of tenses and aspects (cf. Churchill et al., 2010).

Julie produces a similar gestural model in Excerpt 6, which takes place about 2 minutes and 20 seconds later, when she answers a question related to the use of the progressive aspect in relation to the past tense.

(6) At that point in the past it was in progress (January 17; video 6; 7:35–7:38)

1 JUL: just saying that at that
2 {POINT in the pa:st,
3 {moves RH quickly to right, palm cupped facing down, fingers pointing right
4 {(0.2)
5 {quickly rotates BH repeatedly in outward circle,
6 index fingers extended
7 {°>it was in progress.<°
8 {continues rotation gesture

Several lines prior to the beginning of Excerpt 6, Julie has exemplified the grammatical point with an example sentence, “Julie was drinking coffee in class on Tuesday.” In the excerpt, she produces a sequence of two gestures to unpack the
utterance. The first gesture conveys the information about the tense; Julie moves her cupped right hand towards the right creating an arc and pointing downwards (line 3). The gesture is immediately followed by another one expressing the progressive aspect; similar to Figure 3, Julie rotates both hands in an alternating manner in front of her chest with the index fingers slightly extended (lines 6 and 7). In this case, the gestural model consists of the expression of the past tense and the progressive aspect. While the gestures are accompanied by the comparative verbal explanation, “at that point in the past it was in progress” (lines 1, 2, and 8), they are not merely redundant. That is, using gesture is beneficial because it allows Julie to turn the abstract notions into visible actions.

About three minutes later into the lesson, during the untranscribed part of the interaction, Julie wrote two terms on the board (“developed countries” and “developing countries”) and asked whether students understand their meanings. The students nodded their heads to display their understanding, and one of them provided a verbal explanation of the difference between the two phrases. Julie wrote down the answer “already happened” on the board, and this is where Excerpt 7 begins. This time, one student, Mada, appropriates the in-progress gesture for the first time in externalizing her thoughts.

(7) Developing? (January 17; video 6; 11:00–11:02)

1 JUL: {developing?
2 {moves away from the board, turns body towards students,
3 holds LH, holds RH
4 ???: in pro[gress.
5 ABD: {[still.
6 MAD: {moves RH forward
7 {moves RH upward from chest to shoulder
8 moves RH in a rotating manner, fingers extended,
9 pen between middle finger and index finger, LH rests on desk
10 JUL: {{it’s IN PROGRESS.
11 {moves RH to right, moves LH to left,
12 BH bent, palms facing upward; moves BH away from body
13 MAD: ((retracts gesture, moves RH to mouth))
Julie asks for the meaning of the word *developing* with rising intonation (line 1) after writing the word on the chalkboard. Two students respond verbally “in progress,” whereas Mada responds only using gesture. She moves her right hand from chest to right shoulder in a rotating manner (lines 7–9, Figure 6).

Mada’s gesture constitutes a catchment of Julie’s in-progress gesture, with notable differences. Whereas Julie consistently performed it in one place (Excerpts 3, 4, 5, and 6), Mada conflates the progressive manner with a horizontal movement, which could be interpreted as embodying the process of a country’s development over time. In other words, Mada’s gesture appears to combine the ideas of the timeline and the progressive aspect. Given the differences between two gestures, it can be argued that Mada is creatively *imitating* Julie’s gesture, rather than merely mimicking. As delineated earlier, imitation constitutes an integral step towards internalization since it “involves goal directed cognitive activity that can result in transformations of the original model” (Lantolf & Thorne, 2007, p. 203). As such, Mada’s gesture provides rich insights into her developing understanding of the progressive aspect, which is built on the teacher’s explanation but departs from it in crucial ways.

**Evidence of development over time**

Excerpt 8 occurred two weeks after the previous examples, providing microgenetic insights into Mada’s learning process. The timeline is no longer present on the blackboard or the screen. The class is reviewing the homework assignment, which included a series of fill-in-the-blank questions concerning grammatical tenses and aspects. Before the excerpt begins, Julie has asked a student to read aloud her answer to a question: *what were you doing this time last year?* In the excerpt below, Julie follows up on this response to further explore grammatical tenses and aspects.
(8) During that time (January 31; video 1; 8:50–9:00)

1 JUL: at {this ti::me
2       {point down with LH three times
3       {last year.=
4       {holds gesture
5 =>{so(what/where) is
6       {holds paper in LH
7       the {emphasis-
8       }{point to right with RH, index finger extended,
9                   palm facing forward; holds gesture
10 MAD: }{during that ti:me,
11       {rotates BH outward alternately while moving them
12 to left, palms facing inward, index fingers extended facing
13 each other; moves BH to right, continues rotating movement
14 JUL: }{right.
15       {nods
16       }{something was going o:n,
17       {rotates RH repeatedly, arm extended to right, index finger
18 extended pointing to right
19       {at that point in ti:me.
20       }{points down three times with RH coinciding with speech

Figure 7. Student’s appropriation of catchment with speech

Following up on the student’s response, Julie asks the whole class where the emphasis of the sentence is (lines 1–9), accompanied by two deictic gestures (i.e., pointing down in line 2 and pointing to the right in line 8). In response to Julie’s question, Mada produces her answer in speech and gesture (lines 10–13). Accompanying the speech component, “during that time”, Mada rotates both hands and moves them to the left and back to the right. While the speech component is largely similar to her previous utterance in Excerpt 3 (“during”), Mada’s gesture appears to suggest her conceptual development since it is significantly different from what she performed in Excerpt 3 (lateral movement of right index finger). Importantly, her speech and
gesture simultaneously portray distinct features of the whole meaning she appears to be conveying. In contrast to the previous example of her private gesture in the absence of speech (Excerpt 7), the use of hearable speech here shows that Mada’s response in lines 9 and 10 is intended for the audience (i.e., the teacher and other students). This is confirmed by Julie’s immediate uptake in the subsequent lines. The gestural component of Mada’s response includes the in-progress catchment, as she rotates both hands alternately. As with the previous example, she combines it with a lateral movement to the left and back to the right. Given that Julie has never integrated the in-progress catchment with a lateral movement (see lines 16–20 in Excerpt 8, for example), Mada’s gesture displays her understanding of the progressive aspect that is not a mere copy of what Julie has been demonstrating. Rather, Mada seems to have appropriated Julie’s explanation and merged it with the lateral representation of time. In other words, she conflated the path and manner of the performed action, which is yet another instance of creative imitation of Julie’s gesture alongside the timeline which was physically present on the board at an earlier point.

Discussion

While L2 gesture research has been constantly growing in recent years, grammar instruction and learning is still on the fringe, particularly from a microgenetic perspective. However, as L2 SCT scholars maintain, such a perspective is useful in understanding situated processes, rather than isolated outcomes, of learning in a moment-by-moment fashion, enabling the researcher to examine how the learning of a concept begins and unfolds in interaction (Lantolf & Thorne, 2006, 2007). In order to offer such a process-oriented perspective to gesture research on L2 grammar learning and teaching, the present case study has documented Mada’s microgenetic development of the progressive aspect as it took place in an ESL grammar classroom over the course of two weeks.

Addressing the interplay between the teacher’s pedagogical practices and the learner’s microgenetic development, the study has particularly sought to answer three research questions (see Introduction). As regards the first, the teacher, Julie, consistently used the in-progress catchment as a pedagogical tool to explain the abstract notion of the progressive aspect in English. The catchment manifested itself variably at different times. When Julie first introduced it, she coupled it with an explicit verbal explanation (Excerpt 3), which ensured that students understood what it meant. In contrast, in later Examples (Excerpts 4, 5, and 6), Julie used the catchment more spontaneously to communicate richer meanings. For instance, in Excerpt 3, Julie performed the catchment with one hand, which allowed her to simultaneously perform another action with the other hand (i.e., drinking coffee). In Excerpts 5 and
6, she sequentially produced time expressions and in-progress catchments to gesturally express present progressive and past progressive (i.e., gestural models).

Not only did these catchments provide coherence to the stretch of instructional interaction (McNeill, 2005), but also, in alignment with Pozzer-Ardenghi and Roth’s (2008) conclusion, facilitated the introduction of related yet novel information. Furthermore, as Churchill et al. (2010) have argued, gesture did not merely provide redundant information presented in speech. Rather, by transforming the abstract notion of the progressive aspect into a concrete image, gesture enhanced the pedagogical practices. In this sense, the present study provides further support to Lazaraton’s (2004) claim that “nonverbal behavior is a fundamental aspect of TE’s [teacher’s] pedagogical repertoire” (p. 107).

The second and third research questions address the ways in which learners respond to the teacher’s pedagogical practices, deployment of the in-progress catchment in particular, and thereby show their microgenetic development of the target concept. To provide a detailed account of such “very short-term longitudinal” (Wertsch, 1985, p. 55) development, we focused on one particular student, Mada because her gesture and speech offered the most illuminating case. While Mada’s gesture in Excerpt 1 revealed that her understanding of the progressive aspect was different from the teachers’, our analysis has shown that her understanding transformed as a result of the classroom interaction.

The notion of dialogic catchment (Smotrova & Lantolf, 2013) played a significant role in the process of Mada’s microgenetic development. In Excerpt 7, Mada used the in-progress catchment in what appeared to be a vicarious response (Ohta, 2001) or hypothesis testing (Goldin-Meadow, 2003), which allows one to test whether or not his/her understanding is correct. In comparison, Mada’s use of the in-progress catchment in Excerpt 8 exemplified a more sophisticated and spontaneous externalization of her thoughts, as it was accompanied by hearable speech (i.e., “during that time”) that addressed a related yet distinct dimension of meaning; whilst gesture embodied the progressivity of a country’s development, the verbal component communicated the timeframe within which it happened.

Importantly, Mada’s appropriation of the in-progress catchment in Excerpts 7 and 8 did not constitute a mimicry but a creative and transformative act of imitation (Lantolf & Yáñez, 2003; Vygotsky, 1986), through which Mada combined her initial understanding and the information provided by the teacher. In other words, Mada did not simply accept the teacher’s explanation at the expense of her initial understanding; rather, she appeared to have found a way to reconcile the two different conceptualizations, similar to Smotrova and Lantolf’s (2013) findings from the context of lexical instruction.

Another indication of Mada’s microgenetic development lies in the fact that the imitation of the in-progress catchment did not take place immediately after
it was produced by the teacher (i.e., deferred imitation). Whereas examples of deferred imitation have been observed in speech by numerous researchers (e.g., Meltzoff & Gopnick, 1989; Ohta, 2001), our study provides an example of deferred imitation in gesture. Because speech and gesture share the same cognitive origin (McNeill, 2005, 2012), it is possible that deferred imitation in gesture serves a similar function as deferred imitation in speech, i.e., it leads to internalization and ultimately to spontaneous production. Given that the present study presented only a single case, further research on this topic might prove fruitful.

Conclusion

The present paper was an attempt to respond to the calls for further investigation of classroom gesture from dialogic and developmental perspectives (e.g., Lantolf, 2010; McCafferty & Stam, 2008). In particular, it has explored the teacher (Julie) and learner’s (Mada) gestures in the hitherto understudied context of ESL grammar instruction. Our analysis has illuminated the interplay between the two parties’ gestures and offered insights into Mada’s microgenetic development of the progressive aspect. Findings suggested the utility of instructional gesture, catchments in particular, in communicating abstract information (i.e., progressive aspect) in a tangible manner. Our analysis also showed that gesture played a role in facilitating the learning of the progressive aspect through imitation and hypothesis testing. Overall, the results of the study demonstrated the unique functions of gesture in L2 teaching and learning, which would not have been accessible through speech. Research on the relationship between gesture and L2 learning and teaching is still in its infancy, compared to more traditional approaches to SLA. Thus, further exploration in this direction merits more scholarly attention in order to produce a fuller understanding of L2 learning and pedagogy. While the nature of case study prevents us from making generalizations based solely on the present investigation, methodological replications with similar theoretical perspectives may prove to be a particularly fruitful avenue for future research.

One critical implication of this study for L2 pedagogy is that teachers should not treat gesture as a secondary dimension of communication. Rather, it needs to be perceived as a source of information that might not be accessible through the verbal channel. As Gullberg (2006) observed, gesture “may […] play an important role […] to learners for comprehension as well as for learning” (p. 115). In some cases, gesture can speak more loudly than speech. This point becomes particularly pronounced when the teacher interacts with students who tend to express their thinking via gesture without publically displaying their developing knowledge. The consequences of overlooking gestural responses include missing
the opportunity for mediating students’ learning as well as misconceiving their levels of engagement in the classroom. These negative consequences need to be considered in teacher training. Both teachers and researchers should acknowledge the role of gesture not as merely supplementary to speech, but as affording an indispensable window into the process of learning.

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References


**Appendix. Transcription conventions**

**Speech** (adopted from Jefferson, 2004)

[ ] overlapping talk

= latching

(1.0) pause (number indicates length of pause in seconds)

( . ) micropause (shorter than 0.2 seconds)

. falling intonation

, continuing intonation

↑ sharp rise of pitch

↓ sharp fall of pitch

? rising intonation
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: elongation (number of clones indicates the length of elongation)

underline emphasis
CAPITAL loud volume
> < increased speed
< > reduced speed
( ) unintelligible utterance
(() ) transcriber comment

Gesture (adopted from McNeill, 2005; Smotrova & Lantolf, 2013)

{ synchronized vocal and nonvocal action

italics nonvocal action
,
 simultaneous action
;
 sequential action

RH right hand
LH left hand
BH both hands

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