SLA: What's language got to do with it?

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You probably know that linguists trace the history of their field to ancient India and usually to Pāṇini, who flourished in the 4th century B.C.E. Although Pāṇini is best known today for inventing Italian sandwiches, linguists remember him for his grammar of Sanskrit. One of Pāṇini's main concerns was the correct pronunciation of the body of oral chants of ancient poems known as the Veda composed in an earlier form of Sanskrit that was already archaic by the 4th century.

About a thousand years earlier in Shang dynasty China, we have the earliest written records of Chinese. Ancient Chinese writing was found inscribed on animal bones and turtle shells used for divination. In those days, when a ruler wanted advice, he would ask the spirits of his ancestors and other supernatural beings a question, which was written by court officials on an oracle bone or turtle shell. This was then the heated, and the pattern of cracks in the bone was interpreted by officials as an answer to the question.

In these two ancient examples, interpreting language written on bones or the correction of the pronunciation of sacred oral chants was traditionally the work of people who today we would call linguists. Linguists today do much the same thing. That is, they take a record in some form and consider (and oftentimes correct) its oral form, just like Pāṇini in ancient India, or they interpret the meaning of a written record that has been responded to in some way, just like the court officials in Shang Dynasty China. Linguists today are bound by the particular physical form (spoken or written) of the records that they consider data. What I want to suggest to you today is that there is another form of data that today we have access to. By studying these different data <u>together</u> with language we can gain a much greater insight

into what language *is*, how language *is learned*, and the ways that *the mind is revealed* by what the body does.

These new data are *gesture*—spontaneous movements of the hands or arms that accompany speech, in particular the movements of the hands and arms. Their relevance to understanding the nature of communication and cognition was first put forward in an anthropology of gesture in Papua New Guinea by Adam Kendon and was then developed into a broad ranging theory of embodied cognition by David McNeill and colleagues and students in his psychology lab at the University of Chicago.

In second language acquisition, too, people are beginning to realize what greater insights we can get into SLA by looking at gesture that accompanies language than by studying learner language alone. The presentations in the panel yesterday on Function and Form in Bilingual Gesture painted a broad picture of how a study of gesture can provide new and insightful answers to many questions that SLA researchers have asked.

If you want to know the kinds of questions that SLA researchers ask, there is no better place to look than a recent textbook in SLA, and I've chosen three topics discussed by Lourdes Ortega (2009) in her recent textbook *Understanding Second Language Acquisition*. Here are titles of three of the chapters: *Crosslinguistic Influences*, *Development of Learner Language*, and *Social Dimensions of L2 Learning*. How does the study of gesture illuminate our understanding of these topics?

Crosslinguistic influences

Chapter 3 is crosslinguistic influence. As Ortega writes, because SLA takes place in people who already possess one language, "the mother tongue (and any other known languages) universally influences the processes and outcomes of L2 learning" (pp. 52-53). This has often been interpreted as transfer from the first to the second language although, when crosslinguistic influence was first defined by Sharwood Smith and Kellerman in 1986, it was defined more broadly as "the interplay between earlier and later acquired languages" (p. 1). Both kinds of influence can be observed in gesture, and the example of the crosslinguistic influence on gesture I take is Amanda Brown's (2008) study of gesture viewpoint in Japanese and English. Gesture viewpoint is the perspective from which a particular gesture is deployed, and there two ways that have been identified. A speaker may take a first person perspective, which means that the speaker gestures a movement as if the speaker him or herself were the actor; alternatively, a speaker may gesture a movement from the perspective of a third-person observer. The perspective of speaker as actor is known as character viewpoint and the more distant third-person perspective is known as observer viewpoint. Believe it or not, there are differences among the linguacultures of the world as to whether speakers gesture motion from a character viewpoint or from an observer viewpoint, and one difference is found between Japanese and English. Brown found, for example that, when gesturing a swinging motion as in the cartoon movie *Canary Row* (Freleng, 1950) in which the cat Sylvester swings from one building to another (Figure 1), native speakers of Japanese prefer a character viewpoint as shown in Figure 2 while native speakers of American English prefer an object view point illustrated in Figure 3.

Figure 1. Three frames from *Canary Row* showing Sylvester's manner of movement

Figure 2. Character viewpoint gesture in a Japanese description of Sylvester's swinging-across movement (Brown, 2008, p. 263)

Figure 3. Object viewpoint gesture in an American English description of Sylvester's swinging-across movement (Brown, 2008, p. 264)

Brown examined the motion gestures of monolingual Japanese speakers and monolingual speakers of English, and she found that the Japanese speakers produced more character-viewpoint gestures than English speakers. When she looked at the gestures made in English by intermediate Japanese learners of English, she found what might be expected; namely, that the Japanese learners of English produced more object-viewpoint gestures than their monolingual countrymen. Some of the Japanese learners had studied English in Japan and had never traveled to an English-speaking country and other learners had spent between one and two years in the United States. Although, presumably the ESL learners had been exposed to much more object-viewpoint gesturing by Americans than the EFL learners in Japan, what was surprising was that there was no statistical difference between the rates of character-viewpoint gestures by the two groups, and the rates of character-viewpoint gestures by *both* groups were statistically lower than their monolingual countrymen. In other words, it's not the new culture but the new language that leads to a change of gesture viewpoint.

Although most SLA research has focused on the influence of the L1 on the L2, as Sharwood Smith and Kellerman defined them, crosslinguistic influences are not in one direction; they are an interplay between two or more languages. And it was an example of this interplay that Brown found in her study. When she examined the gestures of Japanese learners of English—both those who studied English in Japan as well as Japanese students residing in the United States—Brown found that not only had the gesture viewpoint of Japanese learners changed when they were speaking English, but they had also adopted object viewpoint *in Japanese*—their first language. This effect of the L2 on the L1 of even intermediate L2 learners has not been observed when linguistic knowledge alone has been studied, but it seems to be "a normal part of the process of acquiring a second language and not only the result of a shift in language dominance and leading to grammatical errors and loss of their L1" (Brown, 2008, p. 272).

The effect of L2 on L1 has been observed before, of course, but primarily it has been L1 attrition that has been observed in advanced L2 learners and those who have been exposed in an L2 dominant community for considerable periods of time. Such were the cases that Monika Schmid (2002) reported of German Jews resident in Anglophone countries for over 40 years, or of the Japanese returnees reported by Yasuko Kanno (2000). Brown's study of gesture is one of the very few studies to report the influence of the L2 on the L1 at even early stages of L2 development. She concludes:

> From the perspective of second language acquisition, these results suggest that the relationship between an established first language and an emerging second language is bidirectional: that not only does an L1 influence an L2, but that an L2 can also influence an L1. Moreover, these influences may be considered a normal part of the

process of acquiring a second language and not only the result of a shift in language dominance leading to grammatical errors and loss of the L1. (p. 272)

Development of learner language

Chapter 6 of Ortega's textbook is titled "Development of Learner Language" and by development, Ortega means the processes and mechanisms by which mental representations of the second language and the ability to use them change over time. Traditionally, in describing learners' development in their second language, researchers have looked at learners' speech to see what types of grammatical constructions they use and what types of errors they make. While doing this provides some valuable information, it ignores the fact that communication in a first or second language is multimodal. It is not enough to look at only learners' speech to understand their L2 development. Learners' gestures also need to be taken into account. Learners' gestures reveal not only *what* they are thinking but also *how* they are thinking. Looking at learners' gestures and speech together can give us a clearer picture of their L2 development than looking at speech alone.

Studies by Stam (2006, 2008) and by Negueruela, Lantolf, Jordan, and Gelabert (2004) produced a convincing demonstration of the different perspectives on second language development provided by learners' talk and learners' gestures. Based on earlier research by Leonard Talmy (1985), authors of these studies recognized that there are typological differences between languages in the way speakers of those languages express motion. In some languages, and English is one, verbs of motion express not only motion but also MANNER of motion; that is, how the motion was performed. In Example 1 in English, MANNER of motion (in red) is expressed on the verb *hop*. The PATH of motion (underlined)

is expressed on the particle (also known as satellite) *out*, and the GROUND (in green), the place where the motion happened, is expressed with the adverbial *of the cage*.

(1) The little bird hops out of the cage.

In contrast, other languages encode motion, manner, path, and ground in other syntactic constituents. Spanish provides examples of this different typology.

(2) El pajarito sale de la jaula dando saltitos.

In Example 2, which is a translation equivalent of Example 1, MANNER—the way the bird moves—is expressed in the nonfinite clause *dando saltitos*, and both PATH and motion are conflated on the verb *sale*. As in English, GROUND is expressed by the adverbial *de la jaula*. A second way in which Spanish speakers can express the same idea is with two coordinate clauses as in Example 3.

(3) El pajarito da saltitos y sale de la jaula.

In this version, MANNER of motion is expressed by a verb and complement *da saltitos*, while both PATH and motion are conflated on the verb *sale* in a separate clause. Again, GROUND is expressed by the adverbial *de la jaula*.

These utterances exemplify the two language types that Talmy proposed: satellite-framed languages and verb-framed languages. Speakers of English, a typical satellite-language, indicate PATH of motion through particles or adverbs, while they encode MANNER directly in the verb. In contrast, speakers of Spanish, a verb-framed language, rarely conflate MANNER with motion, preferring instead to encode manner, if at all, on a

separate lexical item. And in another contrast with English, the linguistic resources of Spanish usually constrain the PATH of motion to be expressed on the verb.

When speakers of Spanish learn English, they are able to use their new linguistic resources to express PATH, GROUND, and MANNER of motion in English. For example, Gale Stam compares the attempts by a native speaker of English and an intermediate Spanish learner of English to describe the same scene from *Canary Row*, in which the cat, Sylvester, is climbing up inside a drainpipe to reach the apartment where he knows Tweety Bird to be. Figure 4 shows three frames from the movie.

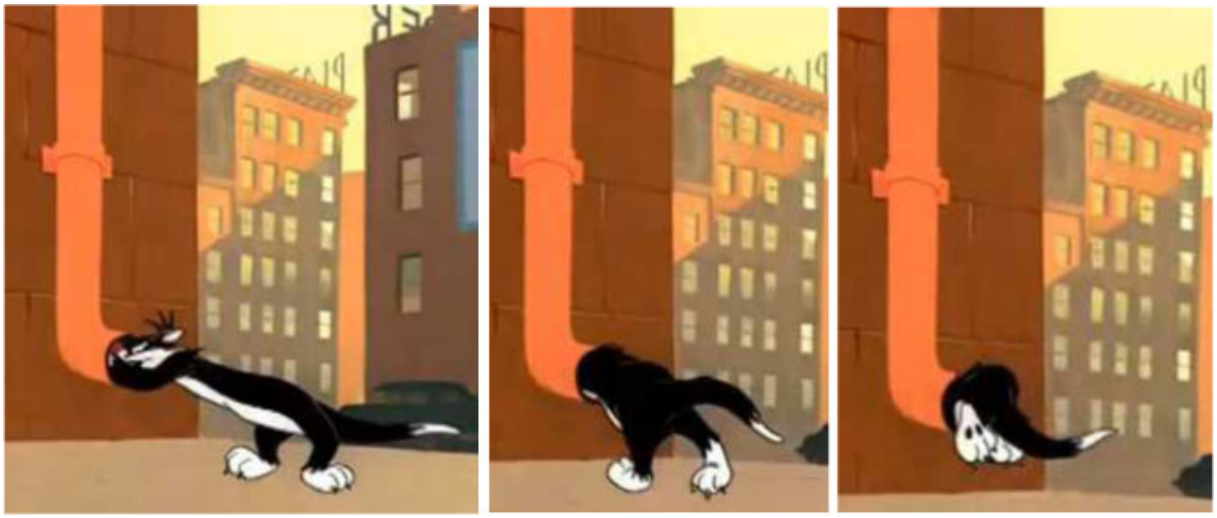


Figure 4. Three frames from *Canary Row* showing Sylvester going through a drainpipe

In Example 4, a native speaker of English is describing the scene and, in Example 5, an intermediate Spanish learner of English describes the same scene.

(4) "and he goes up through the pipe this time"

(5) "he get in through a tube"

If we attend only to the Spanish learner's interlanguage, things we notice are the lack of inflection on the verb *get* and the use of the high frequency lexical item *tube* in place of the specific term *pipe* or *drainpipe*, developmental errors that could be attributed to a universal process of simplification and a communication strategy. When we compare the gesture of the native speaker and the learner, however, a very different picture emerges in Examples 6 and 7.

(6) Native speaker of English[1] (Stam, 2008, p. 248)

a<a>nd // he goe[[ss / **up** / **th** | **rough** the pipe]] this time #
a b

a. iconic: right hand at low right waist moves from right to left to next to left thigh <Sylvester moves into lower part of the pipe> PATH + GROUND

b. iconic: right hand "O" pops open to loose curved hand and moves up vertically from next to left thigh to left side lower chest level <Sylvester moves up inside the pipe> PATH + GROUND

(7) Intermediate Spanish learner of English (Stam, 2008, pp. 248-249)

/ / he [g**et in** th][rough a / / /] <%smack> [a tu**<u>be** / /]
1 2 3

1. iconic: right hand, outstretched with fingers loosely together at right waist, rises to a position where palm is facing shoulder, fingers are up. Left hand open hand at right waist moves down a little to right lap <Sylvester up through pipe> PATH

2. iconic: both hands, open hand slightly bent at chest, move up and down two times

and then move to just below neck changing hand shape to loose bent ":L" move down to chest <tracing pipe> GROUND

3. iconic: right hand, open hand at right waist, rises to upper right face level and retracts, left hand, open hand at waist, palm towards body fingers toward right <Sylvester going up pipe> PATH + GROUND

The difference between the English native speaker's concept of motion and the concept of motion by the Spanish learner is apparent when we examine the gesture. The iconic PATH gesture of the native speaker of English is synchronized with the satellite *up* and continues with the start of the ground adverbial *through the pipe*. In contrast, the stroke of the Spanish learner's iconic PATH gesture is synchronized with the verb *get*. This speaker's verbal resource *get* has no conceptual meaning of PATH, but her gesture does. In other words, this Spanish learner's concept of PATH of motion is still associated with a verb, just as in Spanish, whereas the native speaker of English expresses the concept of PATH jointly by gesture and the verbal satellite.

The quantitative results of Negueruela et al.'s study are shown in Figure 5, which shows the number of PATH gestures produced by native speakers of English in blue and intermediate Spanish learners of English in red. Three native speakers produced zero path gestures on verbs, 18 on satellites, and 6 on ground NPs, while the gesturing of three highly proficient Spanish learners of English reflected the influence of their first language. They produced 8 path gestures on verbs, only 2 on verbs, and 19 on ground NPs.

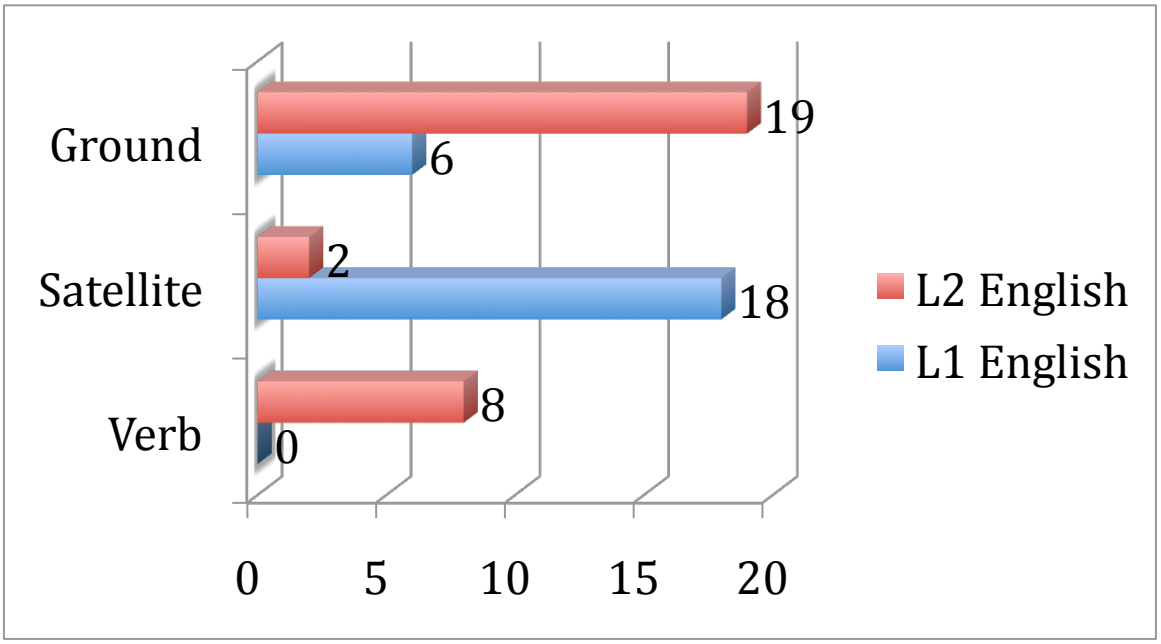


Figure 5. Frequency of PATH-only gestures synchronized with spoken production of verbs, satellites, or ground NPs produced by three native speakers of English and three highly proficient Spanish learners of English
(Based on Negueruela et al, 2004, Table 3, p. 28)

Gesture and speech, thus provide a better representation of a learner's knowledge than speech alone. In fact, as Wolfgang Klein (1986) wrote:

> The production of grammatically well-formed utterances does not imply that the speaker has mastered the language; he may endow these utterances with quite a different meaning […] a speaker must have acquired the *cognitive categories* which underlie the various expressive means of natural languages—categories such as time, space, modality, etc." (p. 4)

Social dimensions of L2 learning

The final chapter of Ortega's textbook is titled "Social Dimensions of L2 Learning." One of the basic questions that gesture scholars have asked is whether people gesture in order to

communicate something to their interlocutors or whether gestures help speakers themselves formulate their own thoughts. In other words, do gestures have a social function or do they serve as cognitive mediation for the speaker alone? If you have ever seen someone gesture while they are speaking on the telephone it seems obvious that their gestures don't serve any communicative purpose since the other person cannot see them. On the other hand, if you have ever tried to communicate something to a friend across a noisy, crowded room, you know that the function of your gestures is social communication because your gestures have taken the place of speech. In fact, as these examples suggest, gestures serve both social and cognitive functions—gestures help you communicate and gestures help you to think. The influence of the visibility of an interlocutor on the gestures of a second language learner has been investigated recently by Suyeon Kim (2010). As in previous studies of the same question with first language speakers, Kim found that the effect of visibility depended on the kind of gestures that speakers use. Kim recognized the distinction between representational gestures such as iconics, metaphorics, and deictics and non-representational gestures called beats. While representational gestures have some discernable meaning, beats are small, low energy, rapid flicks of the fingers or hand that do not present any discernable meaning. The effect of a visible interlocutor on representational gestures by second language learners is shown in Figures 6 and 7.

then, he [put] the like [black **really (.) really (.) heavy (0.5)** box]

Figure 6. In the visible condition, an intermediate Korean speaker of English depicts the size and shape of a 500-pound weight by an iconic gesture. (Kim 2010, p. 120)

so the cat takes the bag and [a **ca**ge]

Figure 7. In the screened condition, an advanced Korean speaker of English uses an iconic gesture without clearly depicting the shape and size of Tweety Bird's cage. (Kim, 2010, p. 122)

In both the visible and screened conditions—when speakers could either see or not see their interlocutors—second language speakers still use representational gestures, confirming what we know from watching our room mates talking on their telephone. The fact that iconic gestures don't disappear when speakers can't see their interlocutors suggests that speaking and movement, although separate channels, are realizations of the same underlying process. But there is a difference. When the speaker can see the interlocutor, gestures are bigger, i.e., more visible and they can be used to provide extra information than is unavailable in speech.

The argument that gestures are realizations of the same underlying process, in other words as David McNeill (1992) claimed, "gestures, together with language help constitute thought" (p. 245), this argument is strengthened by considering the role that gestures serve in lexical retrieval. Like most people, second language learners are sometimes at a loss for words, and there appear to be two ways in which gestures can help. The first way may work when the learner's interlocutor is visible and, as Elaine Tarone (1981) first noticed, a gesture may serve as an interactive communication strategy, in which an interlocutor's help is enlisted in lexical retrieval. This strategy can be seen in Clip 1, in which the learner produces an iconic gesture to depict a cage, probably because he cannot retrieve the English word *cage*.

Clip 1. In the visible condition, an intermediate Korean speaker of English produces an iconic gesture to depict a bird cage

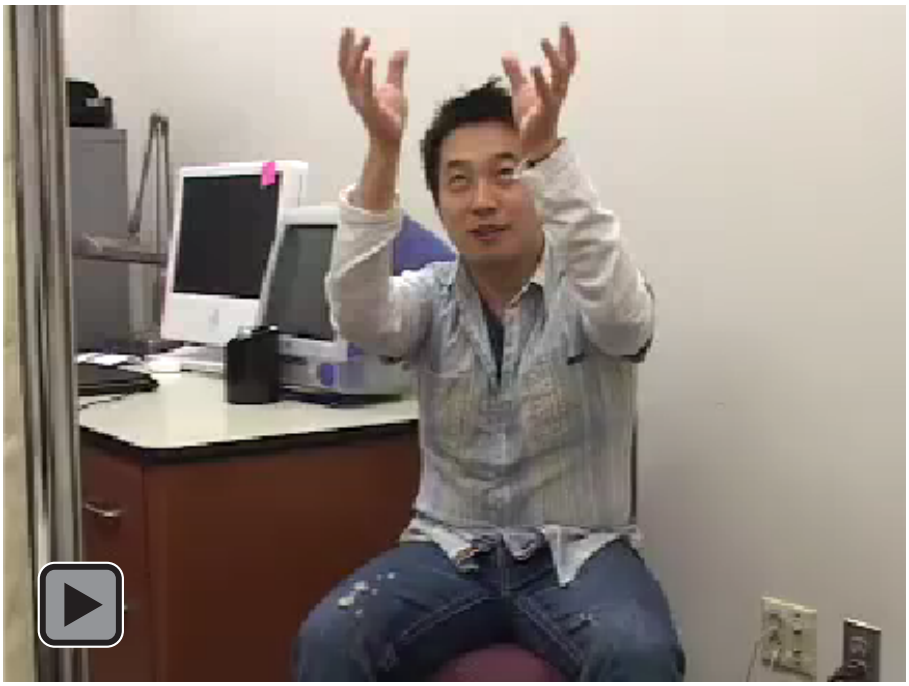
[and **there** was] [[the the **(1.1) uh::::** (1.1)] [the **bird's** house]]

If you carefully observe the speaker's gaze, you'll notice that he maintains eye contact with his interlocutor up until the point where he appears to experience difficulty in retrieving the word *cage*. And at this point his gaze moves away to his hands. Both hands form a round shape, a shape that seems to help the speaker articulate the expression *the bird's house*. Immediately he returns his gaze to the interlocutor, who confirms with a continuer that she has understood.

Because the interlocutor is visible, it is not clear to what extent the speaker's gesture is a way to help himself with a problem of lexical retrieval or whether it might be interpreted by his interlocutor as the initiation of an interactive communication strategy. That ambiguity is resolved in the screened condition when no interlocutor is visible in Clip 2.

Clip 2. In the screened condition, an intermediate Korean speaker of English gesturally depicts the scene in which a ball drops into and travels down a drainpipe.

[and the **bowl**ing ball was] [(1.6) mm:::] [(2.1)] [bowling ball was (0.5) **droppi-]** [drop **(0.2) through** the] [(0.4) **through the (0.3)** pipe]



It seems from the perturbations in this intermediate second language learner's speech that he experienced difficulty retrieving the two words *drop* and *drainpipe*. Instead of speaking, this learner used gesture to represent some parts of the concept "drop" by moving both hands together downwards, after which he was able to retrieve the lexical item *drop*. After expressing the manner of motion of the bowling ball, he again experienced difficulty in expressing through language the ground of the movement—where the bowling ball dropped. At this point, his thinking again became gestural as his right hand closed slightly to form a hollow shape and moved downward. His gesture appeared to stimulate his speech, and he produced *pipe*.

This learner produced gestures with a screen between him and his interlocutor, so his gesture does not appear to be a communication strategy. On the basis of evidence from lexical search and from gesture studies of your children, Sotaro Kita (2000) has put forward the Information Packaging Hypothesis, which states:

> Gesturing helps the speaker organize information in a way suitable for linguistic expression. When a person speaks and gestures, analytic thinking and spatio-motoric thinking are collaboratively organizing information. The two modes of thinking have easy access to different sets of possible informational organization; consequently, the collaboration between the two modes provides speakers with wider possibilities to organize thought in ways suitable for linguistic expression." (p. 180)

Conclusion

To conclude, I wanted to show with these examples three of the ways that the study of gesture can provide new insights into second language acquisition. Gesture research has shown not only the influence of the L1 on the L2, but has confirmed crosslinguistic influences of the L2 on the L1 at even the early stages of SLA. It has shown how the study of learner's language alone does not provide an accurate picture of underlying L2 knowledge. And gesture research has shown that when a person speaks and gestures, that person's process of thought is both analytic and involves motion of the body. Spatio-motoric thinking combines with analytical thinking to show that language is truly embodied.

The act of gesturing is a part of second language use and provides us with new insights into the process of learning a second language. The field of gesture studies is new. Whereas linguists can trace the origins of their field back 2,500 years, people who work in gesture can only look back a couple of decades to when video records of embodied language came to be

widely available. In SLA, this relatively new field has the potential of shifting our attention from a focus on disembodied language to a much broader conception of communication and cognition, up to the point at which we can begin to ask: SLA? What's language got to do with it?

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Note

1 Gesture coding conventions from Stam (1999):

[gesture phrase]

<u>hold</u>

stroke

*	Self-interruptions, self-corrections
%	Nonspeech sound, e.g., a swallow, laugh
< >	Filled speech pauses and lengthening
/	Unfilled speech pauses
#	Breath pause