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Semiotic Mediums of Meaning-Making in Oral Reproduction Course in TEFL

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Abstract

This investigation aims at examining how the semiotic mediums of gesture and speech integrate into one another to make gesticulations, so as to mediate meaning in oral reproduction. To this end, this study concentrates on Hodge and Kress's (1988) theoretical framework linking semiotics to TEFL contexts, and also analyzes the gesticulations in oral reproduction applying McNeill's (2005) scheme or Kendon's (2004) Continuum with four categories of *iconic, metaphoric, deictic,* and *beat* gesticulations. Results illuminated how the creation of gesticulation brings about a sort of mediation between what is in the mind of the speaker and what is expressed to the audience, and how this mediation of gesticulations facilitates and clarifies the meaning in the speaker's oral reproduction or summarization process, so that the audience can better understand the speaker's intentions or summaries. The findings have some implications for TEFL teachers and researchers to understand the dialectic relationship of oral speech, written language, and gesture in language during the oral reproduction process.

Keywords: gesticulation, gesture, oral reproduction, semiotics, summarization

1. Introduction

Semiotics, also called semiotic studies (Caesar, 1999; Chandler, 2007; Deely, 2005) or, in the Saussurean tradition, semiology (Barthes, 1967), is the study of signs and sign processes (semiosis), indication, designation, likeness, analogy, metaphor, symbolism, signification, and communication. Semiotics is closely related to the field of linguistics, which, for its part, studies the structure and meaning of language more specifically. The term, which was spelled semeiotics, derives from the Greek σημειωτικός, (sēmeiōtikos), "observant of signs" (from σημεῖον - sēmeion, "a sign, a mark") and it was first used in English by Henry Stubbes (1670, p. 75) in a very precise sense to denote the branch of medical science relating to the

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interpretation of signs. Lantolf and Thorn (2006, p. 62) proposed a Semiotic Model which provides a coordinated way of talking about how the thoughts in our minds can be expressed in terms of the world outside of our minds. The model contains three basic entities: 1) sign: something which is perceived, but which stands for something else; 2) concept: the thoughts or images that are brought to mind by the perception of the sign; and 3) object: "something else" in the world to which the sign refers.

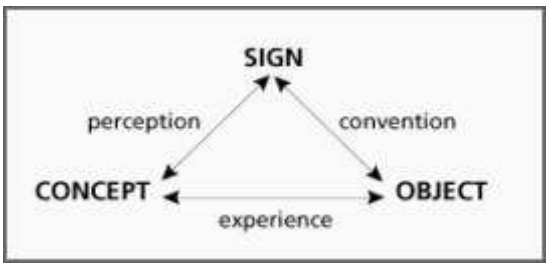


Figure 1. *Semiotic Model (Lantolf & Thorn, 2006).*

The model is most often represented as the semiotic triangle. The sign and the concept are connected by the person's perception. The concept and the object are connected by the person's experience. The sign and the object are connected by the conventions, or the culture, of the social group within which the person lives. These connections are important to the study of how meaning arises during the daily encounters with the many signs that fill the human environment. A gesture is a form of non-verbal communication in which visible bodily actions communicate particular messages, either in place of speech or together and in parallel with spoken words. Gestures include movement of the hands, face, or other parts of the body. Gestures differ from physical non-verbal communication that does not communicate specific messages, such as purely expressive displays, proxemics, or displays of joint attention. Gestures allow individuals to communicate a variety of feelings and thoughts, from contempt and hostility to approval and affection, often together with body language in addition to words when they speak. Gesture processing takes place in areas of the brain such as Broca's and Wernicke's areas, which are used by speech and sign language. Other prominent researchers in this field include Susan Goldin-Meadow and David McNeill. Susan Goldin-Meadow (2003) has intensively investigated the role of gesture in problem solving in children. David McNeill (1992, 2006) has developed a broad theory about how gesture and speech are part of a single thought process which has been discussed in Method section.

'Gesticulation' is motion that embodies a meaning relatable to the accompanying speech. Gesticulation is by far the most frequent type of gesture in daily use and it covers many variants and usages. It is made chiefly with the arms and hands but is not restricted to these body parts – the head can take over as a kind of third hand if the anatomical hands are immobilized or otherwise engaged, and the legs and feet too can move in a gesture mode. In a large sample of gestures, Shuichi Nobe found the stroke phase of the gesticulation is synchronous with the co-expressive speech about 90% of the time (gesture phases are defined below). When strokes are asynchronous, they slightly precede the speech to which they link semantically, usually because of brief hesitations, and the time-gap is small. Gesticulations rarely if ever follow their co-expressive speech (Kendon, 1972). There is no basis for the assertion that strokes occur during hesitations. Gesticulations combine both 'universal' and language-specific features. Speakers of every language studied thus far (and this is a sizable list: in our lab alone, besides English, Japanese, Mandarin, Korean, Spanish, French, German, Italian, Turkish, Georgian, Russian, ASL, Taiwanese Sign Language, and a few African languages) produce them, and the gesticulations for the same events in a

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cartoon stimulus show clear similarities across these languages. Yet, there are also striking differences which are traceable to characteristics of the languages the gestures are co-occurring with, in particular whether the language is, in Leonard Talmy's typology (Talmy, 2000), S-type or V-type (see McNeill & Duncan, 2000).

2. Literature Review

A large number of investigations have studied gesture from different aspects. One of these studies pertains to Kita's (2000). Kita (2000) used the same types of gesture categories applied in the present study to describe and propose types of thinking that underlie representational gestures (e.g., iconics) called spatiomotoric thinking. He proposed that "spatio-motoric thinking can be applied to the virtual environment that is internally created as imagery. Representational gestures are actions in the virtual environment" (Kita, 2000, p.165). Because humans use their senses to move through the world, then it follows that they create visualizations as background context, then create multiple representations against this background. An example would be when participants in the McCafferty (2004) study created a background kind of map in which to place the countries of China, Japan and Korea; then the speaker with English as the L2 used iconic types of gesture to signify the movement of writing from one place to another. McCafferty (2004) found that, for a native English speaker and a Taiwanese international student with English as the L2, the physical and metaphoric movement, as signified through the use of language, the hands, and the interlocutors' bodies to create metaphoric space, proved crucial to successful communication. Moreover, McCafferty described gesture as a "self-organizing form of mediation for L2 learning" (p. 149), which is relevant for the current two-case analysis. In the McCafferty study the two participants were discussing the movement of forms of writing across Asia. In this example, the way writing moved between China, Korea, and Japan. The participants marked the space in front of them with their hands and body positions while discussing this historically sequenced movement of language; they collaboratively created metaphoric space that represented the actual locations of these countries on a map. This focus on the way gesture worked as a form of mediation has also been emphasized in other studies. Lazaraton (2004) examined the use of gestures by an ESL teacher when the teacher was making unplanned explanations of vocabulary items. English was also the teacher's L2. Lazaraton (2004) found that the teacher used gestures extensively during these explanations, including a high level of iconics and metaphorics to illustrate the meaning of words. Her study provides data about the gestures used by an individual who is trying to communicate meaning to a student audience in her L2.

Gullberg (2008) considered how gestures might be used to compensate for learners' incomplete acquisition of L2 grammar and how gesture can reduce the cognitive burden of L2 discourse (p. 203). Her findings support the idea that gesture simultaneously mediates cognition and meaning. In a related study, Lee (2008) investigated Korean students' gestures as private speech (i.e., speech for oneself, Wertsch, 1979) as a mediational means as they studied for final exams alone or with tutors. Lee's findings not only included the integration of graphics and gestures in private speech, but also gave a better understanding of how these systems interact in second language acquisition. Sime (2008) used the EFL classroom as a site to investigate the meaning that students assigned to the gestures of their native English speaking teachers. She found that learners seemed to be particularly interested in gestures that in some way supported their learning, particularly when meaning was

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vague. Sime also suggests that gesture be given more attention in the EFL classroom, possibly even providing some kind of explicit instruction about gesture, although beyond increasing teachers' awareness of gestures, she does not provide any specifics. Kida (2008), in the same collection of gesture studies edited by McCafferty and Stam (2008), advised against the teaching of gesture, warning that the teaching of gesture might prompt learners to focus on gesture and exclude other visual resources. Kida's study investigated the role of gesture in improving comprehension in the L2. She found that visual information is important to comprehending the speaker using the L2. Although Kida's caution in teaching gesture is worth considering, emphasizing to learners how gesture is just one integrated piece of a functional, dynamic sign system is a way to resist this tendency.

Unger (2007) is the only study that could be found that emphasizes the importance of gesture, speech, and graphic organizers as part of a functional semiotic system, viewing gesture as a semiotic resource. Unger (2007) presented data of a speaker using a concept map during the oral summarization of academic text. Findings included the importance of using gesture (specifically the gesture stroke) as a reference point to describe and understand how the participant was visualizing concepts from the academic text, although the way gesture could inform teachers and participants was as not as strongly emphasized as in the current study. Also, the data analysis included the use of motion events and the concept of thinking for speaking as additional dimensions in the data (see McNeill, 2005; Slobin, 2003, 2005). All in all, the literature on gesture, SLA, and ESL/EFL classrooms emphasizes the central and crucial nature of gesture in negotiating meaning. Most important for classroom teachers and the current investigation, the study of gesture provides a window into cognition (McNeill, 1992, 2005; McNeill & Duncan, 2000), and this insight into cognition has the potential to inform teachers on the types of problems L2 learners are having in summarizing academic text, along with understanding other difficulties students are having with language (see also Stam, 2008). With regard to the vast amount of research on gesture in general, and the growing body of research on gesture and second languages (see McCafferty & Gullberg, 2008), the present study addresses the gap in the literature on how gesture works to form a functional semiotic system during oral presentations of academic text. In other words, few of the ESL/EFL and other studies on gesture and the L2 have provided teachers and students with specific information on the use of gesture as a reference point to better understand and improve language lessons. Therefore, besides Unger (2007), no studies could be found that directly investigated how gestures and speech work together to create meaning during the oral presentation of academic text for an audience.

According to Hodge and Kress (1988), semiotics not only assists learners to make meaning, but also encourages the language teachers to play a critical role in the classroom. Since semiotics is the combination of signs and symbols to communicate the information, the students and the teachers utilize a number of signs, some of which are iconic and some are symbolic. Thus, it can be said that, semiotics is a fundamental issue to be regarded in language teaching pedagogy, because it benefits the individual to develop his cognitive facilities at all levels of perception. Moreover, semiotics not only offers different ways of teaching but also broadens the scope of language teaching by offering tools to consider for visual communication in a given teaching context. Accordingly, the primary focus for this paper is on specific segments from each participant's summary

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and presentation of academic text in which moments of meaning in the speech/gesture stream were created through a reorganization of semiotic resources. These moments occurred when meaning became a challenge for the participant to express, or when one salient part of the semiotic system of speech and gesture needed to be supported through an emphasis on using another part. In other words, the overall purpose of the study is to inform teachers of language and literacy about how learners/speakers can position a variety of gestures and sign systems available in the environment and use these signs to mediate meaning. Particularly, the focus of the study is on how participants integrated the sign system of gesture and speech to make meaning across very short spans of time. In fact, this study illustrated how gesture can be helpful during summarization activity. In other words, the following question was answered in this investigation:

- How does gesture interact with the EFL learners' oral presentations to make meaning?

3. Method

The present study was conducted in the context of Navid Institute, which is one of the famous EFL institutes in Shiraz, a large city in Iran. The time of data collection was in the morning when the teachers' minds are almost fresh for teaching and oral presentation. As formerly mentioned, the context is an EFL one with EFL non-native teachers.

3.1. Participants and Instruments

Since the present study can be considered as a sort of case study, the primary participants consisted of 5, i.e. 3 male and 2 female, cases of EFL teachers teaching at Navid Institute who were at the age of about 25 to 28. These cases were told in advance that their oral presentations on a reading were going to be observed or video recorded. However, they were not informed about the researcher's focus on their use of gestures. Out of these 5 participants, one exemplar was selected due to the representativeness and richness of his presentation or gesticulations and the wide variety of gestures applied in his speech. In fact, this exemplar was selected and decided collaboratively by other experts in the field. A reading passage on "Electricity" from Wikipedia was used for the participants' oral presentation or summarization, recorded by a camera to pinpoint their gesticulations during the presentations. Furthermore, for data triangulation, a semi-structured interview was taken from the participants, who were asked a number of questions germane to their use of gestures while they are speaking or what McNeill (2005) calls "gesticulation."

3.2. Procedures

Regarding the data collected for the present investigation, the camera was located at the back corner of the small classroom recording the entire summarization. Also, some field notes were used to be on the safe side. Out of 5 participants, one was selected as an exemplar case for transcription and analysis of his gesticulations. After, video recording of their summarization, the participants were interviewed to explain how they get the help of gestures in their speech in order to express themselves and their intentions better. In the present research, the major emphasis is on the selected segments of data, i.e. the exemplar participants' oral presentation which was chosen out of 5 summarizers. These segments were purposely selected to illustrate moments of signification, and to answer the research question. For this study, this exemplar segment was viewed as episodes of meaning microgenesis. This developmental approach is derived from Cole (1996), Vygotsky, (1978, 1986), Wertsch (1985, 1991), Wells (1999), and Werner (1978). During the transcription and analysis processes, the concept of the psychological predicate and the utterance were applied to illustrate the ending of one

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line of text and the beginning of a new line of text in the transcription. That is, as the background context of meaning seemed to change and participants visibly shifted to another speech/gesture moment, one line of text ended and another line began. From a gestural perspective, this visible change was generally determined by the hands and arms in a position to begin a new gesture or in a resting position. In other words, one gesture phrase ends and another begins (McNeill, 2005; Kendon, 2004). The recognition of these kinds of permeable boundaries can reveal tensions among different types of semiotic resources and a type of catharsis as these tensions in the discourse are resolved (Robbins, 2003, p. 33). With regard to the analysis, the focus was on a salient reorganization of semiotic factors, and the area around the stroke as a part of the gesture/speech stream. The next section gives more information about the transcription and gesture coding procedures as well as the frameworks based on which these processes have been done. Therefore, the present study has utilized the following framework, presented in the next section, for the analysis of the gesticulations in the selected segment. Then, the result of this analysis was combined with the participants' interviews and comments regarding their use of gestures to mediate their meanings and intentions. To make the data analyzable, the major data form, i.e. the video, was transcribed. The transcription and the analysis in this study were performed on the basis of Levy and McNeill's (2005) framework, proposing a classification scheme with four categories: *iconic*, *metaphoric*, *deictic*, and *beat*. All are gesticulations or speech-framed gestures on Kendon's (2004) Continuum. The following are the descriptions of these categories according to McNeill (2005):

Iconic: Such gestures present images of concrete entities and/or actions. For example, appearing to grasp and bend back something while saying "and he bends it way back." The gesture, as a referential symbol, functions via its formal and structural resemblance to event or objects.

Metaphoric: Gestures are not limited to depictions of concrete events. They can also picture abstract content, in effect, imagining the unimageable. In a metaphoric gesture, an abstract meaning is presented as if it had form and/or occupied space. For example, a speaker appears to be holding an object, as if presenting it, yet the meaning is not presenting an object but an 'idea' or 'memory' or some other abstract 'object' (for examples, see McNeill 1992, Cienki 1998). This is a gestural version of the 'conduit' metaphor that appears in expressions like "he packed a lot into that lecture", where the lecture is presented as a container and the message as its contents (Lakoff & Johnson, 1980). Recent work on metaphoric gestures has greatly expanded the subject. Cornelia Müller (2004) has developed a new theory of metaphor as a dynamic process (whereby 'sleeping' metaphors are 'awakened' in context) in which metaphoric gestures play an essential part. Parrill & Sweetser (in press) have developed a new theoretical account based on 'mental spaces blending theory'. Metaphoric gestures often indicate that the accompanying speech is meta- rather than object-level – for example, saying "the next scene of the cartoon" and making a conduit cup of meaning gesture (iconic gestures, in contrast, favor the object level).

Deictic: The prototypical deictic gesture is an extended 'index' finger, but almost any extensible body part or held object can be used. Indeed, some cultures prescribe deixis with the lips (Enfield, 2001). Deixis entails locating entities and actions in space vis-à-vis a reference point, which Bühler called the origo (Bühler 1982, Haviland, 2000). Much of the pointing we see in adult conversation and storytelling is not pointing at physically present objects or locations but

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is abstract pointing, which Bühler referred to as *deixis at phantasma*. The emergence of abstract pointing is a milestone in children's development. In striking contrast to concrete pointing, which appears before the first birthday and is one of the initiating events of language acquisition, abstract pointing is not much in evidence before the age of 12 and is one of the concluding events (McNeill, 1992).

Beats: It is so called because the hand appears to beating time. Other allusions to the musical analogy use the term 'baton' (Efron, 1941). As forms, beats are mere flicks of the hand(s) up and down or back and forth, zeroing in rhythmically on the prosodic peaks of speech. This rhythmicity has made beats seem purely speech-related. However, they also have discourse functionality, signaling the temporal locus of something the speaker feels to be important with respect to the larger context. One can think of a beat as gestural yellow highlighter.

4. Results

In this section, the exemplar participant's utterances along with his gestures are transcribed sentence by sentence. The following is his first utterance as well as all the gestures he applied while uttering it.

Utterance 1: *Now… we can sum up the basic principles that explain how electricity is generated, transmitted and distributed.*

After reading the passage, with his left hand, he is pointing at the information in the passage paper on the desk. He is standing about two feet from the whiteboard in the corner. He is standing comfortably with his right hand on a desk as he is pointing with his left hand at the audience. His right side is angled toward the desk. Most of the left side and front of his body face the audience. This position of himself to the desk and the audience makes a situation in which he alternates from looking at the text to looking at the audience. At the word "Now", he pauses to take a look at the passage with his finger against it (deictic). His finger makes a noise (beat) as he gently leans toward and touches the paper on the desk; this touching of the paper can be clearly heard as he presses in and moves away after saying "Now" and begins "we can…". On "sum up…" he moves his hand from the desk and drops his left hand to his side after completing "…principles" (beat). When saying "electricity," he raises his left hand as if he is grapping an object (metaphoric), which is electricity. Before saying "generated," he closes the fingers of his left hand and suddenly opens his fingers exactly at saying "generated" (metaphoric). Moving his left hand from right to left, he mediates the word "transmitted" (metaphoric). And finally, for the word "distributed," he moves his both hands towards the audience as if he is showing a variety of directions (metaphoric).

Utterance 2: *first… aah… electricity and magnetism are closely related.*

On "first… aah" his left hand rises (beat), with his index finger open toward the audience (deictic). During the pause after "aah," his hand swings slightly down, then up, rising to shoulder level as he begins "electricity." On "electricity," both his hands face the ceiling, palms up, fingers slightly curled, as if he is holding something (metaphoric), his hands making a very slight series of small twisting beats as he says "electricity," his palms still facing the ceiling. There are stronger, more distinctive beats on the third and first syllables of "electricity" and "magnetism," respectively, in addition to the overall positioning of the height of his hands, which is signifying where the "electricity" and "magnetism" are in front of him (metaphoric). On "closely related," his hands begin to move towards one another, index fingers crossing each other (deictic, metaphoric). On "closely," his crossed fingers press each other more firmly with a slight beat. Then, at the word "related," his hands rises to the same general

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shape and almost to the same level it had on "electricity;" his hand is open to the ceiling, fingers slightly curled as before (metaphoric). His hand is just a few inches lower than it was at the beginning of this segment.

The end of line two marks the end of a salient contextual background established through the interweaving of the two semiotic systems of speech and gesture. An observable shift in thought has occurred: a shift between talking to the audience without written text to using the written text to mediate the next speech segment. It is important here to note a shift between an emphasis on oral speech and gesture as more independent of the written text until line 3. In the first three seconds of line 3, he is visibly reading the text. As pointed out in the transcript below, he says "power" as soon as he looks at the word "power" in the text. One second after he says the word "power" at the beginning of line 3, he continues with "station…" in a way that his entire demeanor changes; this visible display of demeanor, which is exhibited through a change of physical positioning and gestures, marks another change in context, and of thought. This movement and salient, permeable boundary from one moment of thought to the next occurs at the end of line 3 and beginning of line 4, where the reorganization of the semiotic factors begins more seriously and with greater effort. The rest of line 3 can be followed below.

Utterance 3: *[looking at the text] …Power stations work by spinning electromagnets. The moving magnetic fields generate electricity in coils of wire.*

Suddenly, he turns from the audience to the paper on the desk after completing line 2 (beat). In the first three seconds of line 3, he is looking directly at the passage and presumably reading the text; he is still holding her hand, palm up, fingers a little straighter, pointing towards the text (deictic). As he is reading, he utters "power," which is assumed to coincide with her remembering the word "stations" devoid of looking at the paper. Approximately, one second after "station," he begins to move from her relaxed stance (beat) as soon as he reaches the word "work;" his right hand leaves the desk, moving to the palm-up position as it begins to move toward his midsection where it will synchronize with his left hand in the next moment of discourse. At the word "spinning," he spins his palm-up right hand along with saying "electromagnets" simultaneously (metaphoric). He keeps on the spinning of his right hand while saying "the moving magnet fields" (metaphoric). Then, he makes the same hand like a fist, and suddenly opens it at the word "generate" (beat, metaphoric), which is, then, followed by showing a sort of linear direction with his right hand at the phrase "coils of wire" (iconic).

Line 4 begins the building of the image that he will supply as this next moment of gesture/speech unfolds, and this involves a new depiction of a basic principle of electricity that he has been attempting to describe since the beginning of the overall 30-second segment. He was only using one hand in a relaxed stance until she said "power." The change is quite striking when he turns back to the audience, with both palms open to the ceiling; then he begins to circle his right hand around with the index finger pointed up (deictic), as described in this next transcribed segment, as if spinning electromagnets with his right hand while marking where this spinning is with his left hand (metaphoric).

Utterance 4: *The … same electrical power can be … transmitted either as high voltage / low current, or as low voltage / high current.*

He turns back to the audience and moves his hands slightly above with both palms up, his left hand higher than his right at "electrical power" (metaphoric); his hands

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are at a similar height as he says "transmitted." He makes a distinctive shift (beat) from looking at the text to addressing the audience on "either as," with his two hands, palms up, outstretched to the audience. At the beginning of "high," her right forefinger is raised (iconic), marking a position where the voltage is located higher in comparison with the position of current when he says "low" with the left-hand forefinger coming down at the same time (iconic). The reverse of the same process is repeated when he starts to say the last part, i.e. "… low voltage/high current." Suddenly, he comes back to his normal position of hands as he begins line 5 (beat, also metaphoric: to show the end of this utterance).

Utterance 5: *… [looking at text] Wires lose electrical power as heat due to their resistance.*

At "wires," his right hand moves in a linear manner, palm down angled sharply toward the floor, with his fingers straight (iconic). Each word is marked by slight, perceptible beats by his hands and arms. On "lose," both his hands makes a beat towards the ceiling with fingers curled, palms angled toward the ceiling, the back of his hands facing the audience, his fingers pointing toward the ceiling (metaphoric). On "electrical power," his hands hesitate just a moment on the downward stroke (beat). On completing the last section of the stroke, he slightly hesitates at the "heat" about halfway down to the bottom of the stroke (beat). This hesitation is expressed by a barely noticeable pausing of both hands on the way down (beat). Then, on "due to," his right hand is raised (beat), palm up and fingers curled and ready to beat firmly because of saying "… resistance" (metaphoric).

Utterance 6: *Power is transmitted over long distances at high voltage to reduce the current and therefore reduce power lost as heat.*

At "power," his left hand is rising to point to the passage again with his hand beginning to turn gently back and forth, as if she is adjusting something (beat). On "transmitted," again, by his right hand, he tries to show a distance, in which his hand moves from left to right (metaphoric). This distance is shown again and it becomes longer at the word "long" (iconic). By the time he reaches "high," both his hands go up with their palms down towards the floor (iconic). At "reduce," just his right hand becomes curled and palm-up, as if holding something as well as taking it a little down (metaphoric). On "current," his hand is level with the desk, though his arm is not completely rigid. His fingers begin to close more tightly in a grasping shape as she gently moves his hand in the tuning motion (beat, iconic), his hand gently twisting back and forth as she says "reduce power" (beat). His right arm begins to bend at the elbow, moving back toward his body at the end of "power" (beat). As he says "lost," the movement of his hand changes as his hand is in the process of dropping to his side for the word "heat" (beat, iconic).

Utterance 7: *Transformers … I mean voltage changers… can be used to step voltage up or down.*

On "transformers," he is swirling his fingers and bending a little and is reaching for the pen on desk (beat). "Transformers" seems to mark the end of the previous utterance (metaphoric) and he is preparing to move the pen to mark the topic he will talk about next (beat). Suddenly, he corrects his swirling gesture through the reorganization of the words "I mean voltage changers" devoid of any particular gesture. On "can be used," he is picking up the pen and resting it on the desk again, with his left hand dropped (beat). On "step," his right hand finishes placing the pen down on the desk and his hand begins the movement away from the desk and toward his body (beat). On "voltage," his hands almost meet in front of

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him just below his waist. On "up or down," he begins a sweep of his arms upwards and downwards in a way that is clear to the audience (beat, iconic). He completes one sweep on "up," and one full sweep on "down" (beat, iconic).

Utterance 8: *Now you should be able to follow some of the issues surrounding electricity and the environment.*

At the end of "down" in line 7, and on "now" in line 8, he begins to make a closed hand with his fingers of his right hand curled and his palm up, which he did on "electricity," formerly (metaphoric, iconic). Note that the word "electricity" is split into two syllables with "electric" and "city" as separate words. On "city", his right finger extends from his closed hand and swings up, and he spreads his hand in front of him (beat). At the beginning of this last utterance, he has both hands and arms spread apart, slightly higher than his shoulders (beat). The words "now" and "you" are marked by iconic-like beats; with each beat, he opens his hands, his fingers splaying outwards, fingertips at the end of each beat pointing toward the audience, his palm open to the ceiling, his fingers spread apart as if flashing the number five at the ceiling. From the beginning of this series of beats that starts with "now", it's almost as if he is gently sprinkling light on the audience (deictic), with his palms open to the audience at the end of each word (beats); then his fingers close against his thumb again to say "should be able" (beat, iconic). This iconic-like beat is part of a continuous, fluid motion of his arms and hands marking the space in front of him. On "follow some of the issues," he is stretching his left hand outward towards the audience, his hand closing into a fist as he moves it out (iconic). His left hand pauses for a moment as his right hand performs one sprinkling beat as well as a short spin for the word "surrounding" (iconic). On "electricity" and "environment," his right hand is drawing inward and closing in preparation of repeating the beat, forming his hand as if holding two objects sequentially, i.e. holding one thing first ("electricity"), and then, with a very short distance aside (beat), holding another one ("environment"), as her left hand stays relatively motionless again (iconic, metaphoric).

5. Discussion

As with McCafferty (2004) and others (McNeill, 1992; McCafferty, 2002), the data in the present study suggest that speakers create a functional system that becomes a regulatory space, and each part of the system is involved with other parts of the system to mediate meaning, though the participants emphasize different parts during the course of the summarization process on the basis of what they say in their interviews (Luria, 1979). As with McCafferty (2004) and Unger (2007), beats were prominent when speakers were having difficulty making meaning. In many ways, the data from this exemplar participant also related to Lazaraton (2004), who found large numbers of iconics and metaphorics used by English teachers with English as the L2. McCafferty and Gullberg (2008) also report extensive use of representational gestures in many studies when the L2 is used. In the same vein, the exemplar participant in his interview stated that he had intended to show some concepts by his hands; this is exactly the same as iconic or metaphoric gestures.

In the data from the exemplar, it was clearly emphasized that a specific dimension of electricity by using representational gestures in a metaphorical space, as he also stated in his interview, when he mentions "power." The way these iconics and metaphorics act as deictic displays for the audience, as well as pointing back to the summarized text is important to notice. He represents elecromagnetism by signifying a specific dimension of electricity through the positioning of his hands in relation to his

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body and the paper on the desk while making a spinning move. This series of movements signifies the type of the movement for the audience and for him; then he clearly refers back to this dimension to position the concept of spinning during other utterances in this segment. In this way he is creating a similar reference point as in McCafferty (2002, 2004), and returns to this point as a part of the ongoing discourse. Creating a reference point to describe a specific type of concept clearly indicates one of the definitions of microgenesis from Wertsch (1985): "the unfolding of an individual perceptual or conceptual act," and is exactly in line with Hodge and Kress' (1988) view that semiotics assists learners to make meaning. In most of the data, this genesis of meaning could be observed by using the stroke as a reference point, around which other semiotic resources are organized, particularly during moments when one part of this semiotic system began to weaken and another part of the system compensated. By closely observing this genesis of meaning teachers and learners can observe how speakers are creating deictic displays to share attention on a specific idea from the reading they are summarizing. In other words, the speaker intends for the audience to understand a major piece of information from the text summarized, through the use of abstract and concrete use of iconics, metaphorics, and beats to create deictics. This is exactly the point that the present paper intends to accentuate: since semiotics is the combination of signs, speech, and gestures, or what McNeill calls "gesticulations," to communicate the information, the students and the teachers should utilize a number of signs and gesticulations, some of which are iconic and some are symbolic, so as to benefit the individuals to develop their cognitive facilities at all levels of perception, and as a result, to offer different ways of teaching and broaden the scope of language teaching by suggesting tools to consider for visual and gestural communication in a given teaching context. Therefore, as Hodge and Kress (1988) have already implied, semiotics is not only a meaning mediator for the learners, but also encourages the language teachers to play a critical role in the classroom.

A deeper understanding of what speakers is referring to and what they are visualizing when they create gestures as semiotic resources can also be seen when examining the present study in light of Kita's (2000) view, mentioned in the literature, that "spatio-motoric thinking can be applied to the virtual environment that is internally created as imagery. Representational gestures are actions in the virtual environment" (p. 165). This idea seems particularly useful to examine how learners apply representational gestures as semiotic factors during summaries, and how investigating gestures as semiotic resources can reveal what material from the summarized text is prominent in the minds of the speakers. In other words, teachers and learners can better understand how speakers visualize the content of text. As the exemplar participant in the present investigation generated semiotic systems, he created gestures and gesticulations that illustrated how he was conceptualizing concepts and words, including what seemed to be the most important information from the text he was summarizing. He seemed to consider himself as a part of the virtual environment to illuminate the locations of items he defined in his interview. This participant signified the notion of "electromagnetism", a dimension of "electricity", by showing spinning gestures in the physical space in front of him for the audience to view; which supported the idea of "moving of magnetic fields" when he further swirled his finger in a circle (also stated in his interview). Recall that he moved into swirling his finger after having said the word "transformers" while bending a little. After recognizing a

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mismatch between his speech and the gesture he performed, he completely reorganized gesture and speech, or gesticulation, expressing, as Kita (2000) said, an "action in the virtual environment" (165); in this moment, the environment of voltage change. The subtleties of the summarization process can be found by taking this kind of approach to the data: the data illuminates process features of summarizing text in the participant's use of the word "resistance" and his efforts to emphasize the concept of it in the iconic type of a firm beat.

The most important aspect for the classroom literacy applications has been presented at the end of this paper, and what stands out in the segments of its data, is how the organization of the semiotic resources of gesture and speech, or gesticulation create moments of shared thinking (see *joint attentional scenes* in Tomasello, 1999; 2003). The iconics and metaphorics become noticeable reference points in the way these gesture dimensions overlap to create a deictic display; that is, the iconics and metaphorics position language and meaning to simultaneously point the speaker and the audience to specific ideas from the summarized text. The speakers are strongly guiding the audience in signification. Recall that the participant in this study used a well-known iconic from the surrounding community, i.e. the opening and closing of the hand to signify the word "generate." Overall, this segment from the exemplar participant' summary in this study clearly depicted the general theme of "electricity", which would provide a reference point to indicate what might be important information to include in a final summary. Indeed, the representational gestures used in this data clearly illustrated how the speaker was bringing his original summary to life for the audience; how the interaction and integration of speech, and gestures, or what McNeill calls "gesticulations," mediate to communicate the information that the students and the teachers utilize to develop their cognitive facilities at all levels of perception, and as a result, to learn different ways of teaching and broaden the scope of language teaching by applying tools for visual and gestural interaction in a given teaching context. Therefore, on the basis of what Hodge and Kress (1988) have suggested in the theoretical framework of the current investigation, semiotics and, in terms of this study, "gesticulations" can not only be regarded as mediators of meaning for the learners, but also as academic facilitators for language teachers to apply them properly, so as to have a crucial role in their classrooms. Of course, these suggestions for integrating gesture study in the classroom are still evolving. Additional extensions of using gesture in the classroom deals with guiding students into identifying metaphoric gestures in moments of speech and comparing these to metaphors expressed in different types of readings and other media (e.g. movies, or digital games). All in all, access to cameras and methods for giving video to students are the crucial challenges to integrating the study of gestures and speech into different literacy/ language learning contexts. However, despite the challenges, the potential benefits are ultimately only restricted by the imagination and institutional, curriculum, and cultural constraints. By having teachers and students use gesture as a reference point around which to inventory semiotic resources, which includes noticing how these resources are created and evident as utterances that are a part of larger systems of utterances and semiotic resources, teachers and students of language and literacy at all levels can develop their ability to determine what information they are noticing and decide what to include in their summaries and other types of interpretation and creation of text. The study of gesture and the suggested applications for the classroom

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demonstrate how gesture can be used to make judgments about language and cognition and enhance literacy learning across a wide variety of contexts.

6. Conclusion

What one can conclude from this study has two aspects. The first aspect deals with how gesture and speech integrate into one another, so as to create what McNeill (2005) calls "gesticulation" in the process of summarizing a text. In fact, the creation of gesticulation brings about a sort of mediation in what the speaker intends to express. This mediation is performed between what is in the mind of the speaker and what is expressed to the audience. The more the mediation of gesticulations facilitates and clarifies the meaning in the speaker's summarization process, the better the audience can understand the speaker's intentions or summaries. And this is exactly the second critical aspect that this study accentuated. In fact, teachers and students can utilize gesture as a reference point, which includes noticing how semiotic elements are generated and mediated as utterances that are a part of larger systems of utterances and semiotic resources. In other words, teachers and students of language and literacy at all levels can develop their ability to specify what information they are noticing and decide what to include in their summaries and other types of interpretation and generation of text. The study of gesture and the suggested applications for the classroom illuminate how gesture can be applied to make judgments about language and cognition and promote literacy learning across a wide variety of contexts.

Taking these points into account, this study intends to present some implications in the realm of EFL context which can be followed in the next section. The goals of the classroom applications evolving from the gesture research are intended to prompt the students to 1) Create a variety of representations on inexpensive poster paper, such as main idea statements, quoted phrases, graphic organizers, collages, etc. that entails specific gestures of gesticulations to be utilized as part of the reading comprehension, reader response, summarizing, and writing process; 2) Use inexpensive flip-video cameras to record oral explanations of the relationships between main ideas and supporting details illustrated by gesticulations, including thesis statements and main points of summarized readings, film, music, and other media presentations; 3) View videos with an emphasis on prompting students to notice the relationships between deictic types of gestures (pointing) and transition words to explain relationships and mediation of meanings; 4) Write formal explanations of the relationships of supporting detail presented by gesticulations and gestures to main ideas and thesis statements; 5) Move back and forth across phases in this entire series of applications, emphasizing the deictic types of gestures and words used to express relationships, particularly the representations and explanation between supporting details, main idea statements, thesis statements, and summaries of academic text; 6) Teachers and students of language and literacy at all levels can develop their ability to specify what information they are noticing and decide what to include in their summaries and other types of interpretation and generation of text; 7) Teachers and students can utilize gesture as a reference point, which includes noticing how semiotic elements are generated and mediated as utterances that are a part of larger systems of utterances and semiotic resources; 8) The investigation on gesture and the suggested applications for the classroom illuminate how gesture can be applied to make judgments about language and cognition and promote literacy learning across a wide variety of EFL contexts. As in all research there were many limitations to

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this study. There is a limitation with regard to the inclusion of just one exemplar participant selected out of 5 for the analysis. Despite extensive triangulation of the findings with a variety of data from the larger study, and an objective approach to the data, the findings are ultimately subjective. In addition, generalizability of the findings is limited. To counter a variety of limitations, data interpreted for the present paper are displayed for readers to make their own judgments about the verifiability of the findings.

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