Doing Self-corrections in L2: Interactions between Korean TAs and American Students

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This study examines voluntary corrective actions of advanced English learners teaching American students in science labs. Although the nonnative teaching assistants (TAs) possess sufficient knowledge in content areas, their level of mastery of the medium of the interaction hardly reaches that of their students. By describing their self-selected corrections on the microethnographic level, I aimed to reveal which aspects of language use the nonnative speakers have the most difficulty within the second language development. Analysis of the videotaped data of 5 Korean TAs in science labs of an American university revealed that their self-correction functioned to serve as critical means to gain control of L2 production. They tended to avoid uttering constructions with inanimate subjects and to depend on Korean topic-comment structure. Also, in many cases, Korean TAs' troublesome production was repaired only after their student's turn, so that the proper production was made across multiple turns. Finally, other semantic resources such as gesture contributed to the TAs' communicating with their cognition, which evidences that talk in interaction is not separated from its relevant environment. These findings emphasize the importance of teaching advanced learners how to properly enact the assigned role by means of different resources including the language.

I. INTRODUCTION

A great number of international graduate students are employed as teaching assistants (TAs) at the graduate level of American academic institutions to help undergraduate students complete their coursework. Especially in the areas of science and engineering, the international TAs, including Korean TAs, take critical positions to teach native English-speaking students in various content areas. To the undergraduate students, the TAs, who possess higher level of content knowledge, are major resources that the students can depend on when they need assistance for their projects or assignments. To the TAs, these

lab hours are their work places where they are expected to exert instructorship properly. Although they are in a powerful position in terms of the knowledge, as the learners of English as a second/foreign language (ESL/EFL), the nonnative TAs' competence in English rarely reaches the level of their students in every aspect of the language from phonetics to pragmatics, and to gesture (from international TA training program/orientation, 2002). The problems garnered attention from many universities in the U.S.A., and have resulted in various English tests required for the international graduate students. However, it is not known exactly in which aspects of the language the Korean TAs are not as competent, and the effects the lack of competence on the entire interactional event. Examination of this intriguing nonnative speaker (NNS) versus native speaker (NS) interactional framework is to provide insight for English education for advanced learners who are more profession-oriented. In fact, as the world becomes more globalized, English learners are engaged in encounters with native speakers, not as learners, but as professionals such as instructors or corporate representatives. It is critical in these events, that they perform the given role in an interactionally well-designed manner, which He and Young (1998) calls 'interactional competence'. Improper actions in L2 may result in failures in instruction or international negotiations, and ultimately distort perspectives towards the NNS speakers. We, as English educators, need to consider which area of the target language should be more emphasized for those growing population of the learners who need to function in the target language. By examining talk and interaction of Korean TAs working in lab hours, this study attempts to investigate this area of English competence that has not been studied in second language acquisition (SLA) research.

Research of NS-NNS interactions have found that even adult advanced level NNS speakers show problems in almost all areas of English, from phonetics (Fisher, 1985; Stevens, 1989), to discourse functions (e.g., Gallego, 1993) and meaning negotiation (e.g., Boulima, 1999). Among those, second language (L2) researches that are most pertinent to my central concern with Korean TAs' corrective actions are those of L2 meaning negotiation. Triggered by Hatch's study of discourse modifications in interaction between native and nonnative speakers (1978), studies on negotiation have focused on the role of negotiation in enhancing comprehension and ultimately L2 acquisition. Krashen (1982) approached modification in terms of the comprehensible input provided for learners. According to him, modifications provoked by a higher frequency of negotiation procedures facilitate acquisition by providing comprehensible input of a certain linguistic form. Conversational modifications, as a product of joint efforts between native and nonnative speakers (Long, 1983), have since been considered as a critical condition for L2 comprehension and acquisition. Negotiation studies, however, received criticism in the following research mainly because of their emphasis on comprehensible input as if such input could be obtained automatically from the negotiation process, directly causing

comprehension. Aston (1986), for example, argued against the facilitative effect of negotiation suggested in the previous studies. He stated that negotiation would not always produce comprehensible input by establishing utterance value for the learners. Also, it would not create a context for L2 acquisition by lowering affective filter. Contrary to Krashen, he maintained that the frequency of negotiations has very little influence on learning. The critical condition for learning, according to Aston, is the social context involved in the negotiation process, mainly because a context in which learners perform negotiation reflects and constructs the learners' definition of the situation.

These two perspectives of the effects of negotiation indicate that the nonnative speakers as well as native speakers actively participate in creating shared meaning. Korean TAs in the lab hours, are responsible for their production as instructors of the students. They often times monitor their production and correct themselves in order to effectively communicate their ideas. This corrective action is called 'repair' by researchers who have studied talk and interaction within an ethnomethodological framework. According to them, repair refers to the ways in which speakers and hearers systematically address communication problems, and has been one of the focused features of conversation analysis (Schegloff, Jefferson, & Sacks, 1977). Researchers have continuously noted that the instances of problems and their resolution are important site for understanding the processes of any social organization. Studies on repair mechanism have investigated how repair is associated with certain features of a type of talk. Essential in describing actions of repair are the issues of who initiates it and who performs the actual repair, the "repair proper" (Schegloff et al., 1977). When the speaker of the trouble-source turn acts on it first, then the repair is self-initiated. The most important systematics of self- versus other-initiated repair is a preference hierarchy between the two types of repair: self-repair and other-repair are not random alternatives; rather they are ordered, with a clear preference for self-repair. This hierarchical structure is represented in turn-taking procedures, so that the self is more likely to interrupt a turn construction unit in order to initiate a repair than is the other.

This study examines, Korean TAs' self-initiated repair, one of the most voluntary actions in conversational negotiation. By investigating the voluntary actions that Korean TAs take to disclose a problem in L2 production, I attempt to find evidences of their L2 competence in terms of the target language norms and, more importantly, their competence in detecting trouble and communicating the existence of trouble with their NS students. The following research questions are the axis of the current study of Korean TAs' self-selected repair:

1) Which areas of English Korean TAs voluntarily take actions to correct?
2) How do they communicate the existence of trouble and repair the detected problem?
3) How do their actions contribute to the entire repair sequence?

II.   DATA AND METHOD OF ANALYSIS

1. Participants

The data came from 11 hours of videotaped interactions in which one-on-one dyadic problem-solving activities occurred. The participating Korean TAs in this project had acquired a certain degree of target language competency, according to national and the university's standards. They had achieved the required score on the TOEFL and the GRE,[1] two internationally administered tests to assess the overall English proficiency of international graduate students. The nonnative TAs also had passed the L2 oral proficiency test for international candidates for teaching assistantship administered by the university. It is a 20-minute test designed to measure the ability to communicate in an instructional setting in English (ITA program, 2004). The test consists of five sections: (1) summary and explanation of a four-page excerpt from a textbook in the candidate's field; (2) pronunciation of 40 terms from the candidate's field; (3) explanation of two of these 40 terms; (4) description and interpretation of a graph; and (5) classroom announcement role-play.

Scored by two ESL professionals, the test results fall into one of the following three categories.

TABLE 1
Three levels of ITA Oral Proficiency Test Scores

Score	Pass / Fail	Oral proficiency
250-300	Passed	The speaker is (almost) always comprehensible with occasional nonnative pronunciation errors or sporadic minor grammatical errors that rarely interfere with intelligibility.
230-240	Conditionally Passed	The speaker is usually comprehensible with errors in pronunciation, grammar, word choice, or pauses or rephrasing that generally do not interfere with intelligibility.
0-229	Not passed	The speaker is somewhat (not) comprehensible with consistent, distracting errors in pronunciation, grammar, word choice, or nonnative pauses that (sometimes) interfere with intelligibility

Four out of five TAs who participated in this study had conditionally passed this test, while one TA had passed unconditionally. Therefore, at the time of the recording, four of the Korean TAs had taken or were taking a class to improve their English proficiency and remove the 'conditional passed' status.

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[1] The participants' TOEFL scores ranged between 560 and 600 while GRE scores were not known.

All of the Korean graduate students were males aged 29-33, and have worked either in electrical engineering or chemical engineering labs, for 1-3 semesters. All the data were collected during the summer and fall semesters of 2001. In either semester, videotaping occurred at least two weeks after the beginning of the semester, because of the time required for correspondence and for the procedure of obtaining permission in each case. Therefore, all of the TAs who participated in my study were quite familiar with the lab-hour settings and their students. For the American student participants, 18 male and 12 female students participated in the videotaping. The lab hours that I taped were offered in Electrical Engineering and Chemical engineering departments.

2. Data analysis

1) Microethnographic Analysis

Since the lab-hour setting includes significant amount of material environments such as experimental equipments and computers, the participants' interactions were almost always relevant to those environments. I adopted an approach to language and interaction that can encompass entire, rather than just verbal, resources, so called, "microethnographic analysis" (Streeck & Mehus, 2004). This approach was developed from conversation analysis (CA)[2] that studies how social order is reflected and produced by speakers (Garfinkel, 1967; Sacks, 1992). CA provides a thorough analysis of language as a mode of interaction that relies upon context for the interpretation of action that at the very same time shapes, expands and changes that context (Goodwin & Duranti, 1992). Mocroethonographic analysis examines critical parameters of context by looking at entire actions, i.e., verbal and non-verbal production. People in face-to-face interaction gain a great deal of information from one another by observing as well as listening to one another (Goodwin, 2000). Gesture, or gesticulation (Kendon, 1986), therefore, is not separate from the verbal exchanges of talk, but comprises an integral part of an individual's communicative effort. This approach thus, investigates the simultaneous use of multiple resources by participants, i.e., the stream of speech and the body (Goodwin, 2000, p. 1489).

For a microethnographic description of the interactions, it was critical to have visual information of each moment of talk. Analysis involved replaying the clips that were relevant for research purposes and transcribing and coding the verbal and non-verbal productions. Once the interactional domains of investigative interest were identified, relevant conversational segments were transcribed and digitized for analysis by the

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[2] For detailed explanation of CA, see the article by Schegloff, Jefferson, and Sacks (1977).

notation described in appendix. In order to obtain as precise a transcription and as complete an understanding of the segment as possible, I had to have recurrent conferences with the Korean TAs, during which I replayed video clips and asked questions concerning the parts of interest. As I attempted to uncover the nature of interaction between Korean TAs and American students, conversation excerpts were selected and presented as the examples for analysis.

2) Analytic Framework of Self-selected Repair

Based upon the results of earlier studies of repair of native speaker interactions (Schegloff et al., 1977, Schegloff, 1992, 2000), I examined the Korean TAs' self-selected correction (repair) by whether the corrective actions were complete at the trouble turn or after the trouble turn. In other words, their corrective actions could be patterned into two categories: corrections that occur within the trouble turn; corrections that occur after the turn where the trouble appears. In native speaker interaction the repair proper is performed in the same turn as the trouble when repair is self-initiated (Schegloff et al., 1977). When self-repair is performed by other-initiation, it occurs in the third turn. Later works by Schegloff (1992, 2000) reveal various ways of performing self- versus other-repair, providing different typologies of the repair mechanisms. He discusses third and fourth position repair as important devices to deal with a conversational sequence going off track (Schegloff, 1992). In these instances, repair occurs because of the problematic understanding from the recipient at the second turn position. The speaker of the first turn then redoes his or her turn to repair the misunderstanding at the third position.[3] Identification of the two types of self-selected repair helped to concretely explain exactly what contingencies they react to in the lab hour setting.

III.   RESULTS AND DISCUSSION

As the Korean TAs endeavored to get their meaning across to their American students, they did perform self-initiated correction in the trouble turn, i.e., within the same turn self-correction. It was also not difficult to find instances in which they performed correction across multiple turns, which is called 'after the same turn self-correction' in this study. Surprisingly this delayed form of self-correction accounted for almost half of the

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[3] For example,
    A: Mary will do it
    B: That's good. Mary always does a good job
    A: Did I say Mary? I meant Beth.

total occurrences of the Korean TAs' self-selected self-repair. This high frequency of self-correction was not common in other studies of repair done in the literature, and provides information of Korean TAs' competence in dealing with trouble in their own L2 production as they make efforts to share understanding in the lab hours. I will discuss 'after the same turn self-correction' in relation to Korean TAs' L2 competence in the latter part of this section. The following is the distribution of the two types of self-repair performed by the Korean participants in this study.

TABLE 2
Distribution of Same Turn vs. after the Same Turn Self-repair of Korean TAs

	Same turn	After the same turn	Total
Frequency	30	25	55
%	54.5	45.5	100

1. Within the Same Turn Self-correction

The data contained only 3 instances of self-repair on English morphology in comparison with 23 instances of self-repair on English syntactic structure. This finding demonstrates that Korean TAs in this study rarely perform repair upon English morphology within the same turn. By contrast, they often times act on syntactic structure of their utterances, which was more complicated than the corrections of simple morphology. Corrections included recycling the entire sentence structure and reformulation of the sentence. Such instances as the reconstruction of a sentence accounted for most instances of Korean TAs' self-corrective actions.

Apparently, the demand on language increased when Korean TAs work on larger units of the language, i.e., a sentence, than separate lexical items. The increased linguistic demand often caused the nonnative-speaking TAs to employ different strategies to reduce the linguistic demands. Their ways to perform corrections, therefore, clearly displayed which L2 strategies were available in their L2 repertoire. Most distinguished among the strategies was doing the correction to avoid inanimate subjects and subject-predicate information structure.

1) Avoidance of Inanimate Subjects

Korean TAs have been found to perform self-corrections in order to avoid certain English sentence constructions rather than to make the construction better fit to L2 norms. Avoiding certain construction is a strategy often used by nonnative speakers as they try to adopt their already acquired linguistic items instead of not-yet-acquired ones. In order to

gain control of L2 production, they avoided what was not yet automatically controllable in their L2 repertoire. The excerpts that follow highlight how Korean TAs perform syntactic correction as they switch to acquired English items.

In the first excerpt from a chemical engineering lab, a Korean TA and his student are engaged in the power test of a box model, a tool to graphically display the estimated viscosity of the solvent.

Excerpt (1) TA (E) and Student 1 (J) in a chemical engineering lab

1. S1: does that mean actually it varies uh parameters between these
2.   three points?
3. **TA: <u>no no no</u> (-) this one is the exact (-) you should measure exact**
4.   **this point**↓ this one is the kind of the box model (-) you cannot
5.   change the value [in here.
6. S1:   [no, no, no I meant (- - - -) I meant (.) did you
7.   (-) did you mean (.) I just (-) uh: (.) went down shear rate down another?
8.   and then, use these three data points?

In line 1, S1 asks whether there is variance among the three data points. The Korean TA rejects his student's interpretation of the TA's previous turn, saying, "no no no," in line 3. As he attempts to emphasize the fact that the indicated data point is 'fixed,' not 'varies,' he self-corrects his sentences several times. He says, "this one is the exact (-) you should measure exact this point↓" in lines 3-4 as rewritten in the following.

"<u>this one </u>is the	<u>exact </u>(-)	<u>you </u>should measure exact this point↓"
subject (inanimate)	modifier	subject (animate; human)
[sentence being repaired]		[repaired sentence]

He utters a first sentence with "this one" as the subject, only to withdraw the sentence at the point where a noun should be produced after the modifier "exact." He pauses and restarts the sentence to reformulate the whole sentence. The reformulated sentence begins with an agent "you" instead of "this one" and with this repaired subject, he now utters a complete sentence, when he says, "you should measure exact this point."

Excerpt (2) includes another Korean TA's syntactic correction done by replacing the inanimate subject with an animate subject. Here, the Korean TA is interacting with his student while explaining how to modify the program.

Excerpt (2) TA (H) and S1 (V) in an electrical engineering lab

1.   TA: you can say you know another flag (-) as a zero (-) so if you find
2.   F (-) number (-) here then you can increase (- - -) that fl (-) flag
3.   S1: mm-hm
4.   **TA: so: this routine will (- -) you will leave this routine**

In line 4, the TA repairs the sentence, which he has just produced with an inanimate subject "this routine." He restarts the sentence with an animate subject, "you," to refer to his student. In the reformulated sentence, the grammatical role of the noun phrase "this routine" is changed from the subject to the object of the verb, "leave." It is to be noted that the two clausal constructions, the repairable and the repaired, have a homogeneous syntactic structure. Only the components of the structure are reordered as a result of the correction. Together with excerpt (1), this example reveals these Korean TAs' tendency to avoid the structures with inanimate subjects.

In the following example a Korean TA has to restart his sentence several times, until he successfully produces a sentence with an animate subject. His word search repair on subject nouns therefore is significant in this process.

Excerpt (3) TA (H) and S1 (S) in an electrical engineering lab

1.   S1: which one (- -) the (   ) thir'y an' (   )
2.   **TA: no no no I mean (- - -) it (-) this one (-) look at <u>this</u> (-)**
3.   **thee (.) first bit (-) the most significant bit (-) has error (-) right?**

In line 2, following the overt correction of his student's suggestion, "no no no," the TA utters, "I mean," and launches self-correction on his previous turn. The following pause indicates his planning process in showing his content knowledge. He searches for a proper word to indicate the problematic part of the program. Pointing to the computer monitor with the right hand, he utters the subject pronoun, "it," and immediately corrects it to "this one." Noteworthy is that the action of word search also functions as a structure search. After failures to produce a complete sentence, the TA opts for a directive construction, "look at this." The directive sentence presumes the subject 'you.' Again, with the animate subject the TA can successfully produce an L2 sentence. The multiple performances of correction can be diagramed into the following.

Initiative of a sentence	"I mean (- - -)	
First round correction	It (-)	inanimate subject
Second round correction	this one (-)	inanimate subject
Third round correction	Look at this"	animate subject
		("you" implied)

This subject change from inanimate to animate provides evidence about the TA's limited competency in L2 syntax. It is very likely that he can better command L2 syntactic structures with animate, or more specifically, human subjects. Creating a sentence with an inanimate subject may be in the process of this Korean TA's target language acquisition, therefore less controllable. By means of self-correction, the nonnative TAs can use an already mastered structure, L2 structures with animate subjects, and successfully produce a complete sentence. I attribute their better competence in producing a construction with an animate subject to a feature of their first language. The Korean language does not fully allow the use of inanimate subjects, and consequently the passive voice is very rarely used. This limitation may make the TAs use active voice while producing L2. For example, inanimate subject of excerpt (1), if completed and translated into Korean, requires a structure of passive voice.

	this one is	**the exact (-)**	
→	Eegut-ii	paro	chukjung-doe-euya-doemnida
	(this one-subj. particle	exactly	measure-passive-should-ending)

While this Korean sentence is grammatical, many Korean speakers would rather say the following with the animate subject.

	you should measure	**exact**	**this point↓**	
→		paro	eejum-ul	chukjunghaeya-hapnida
	(zero subj.	exactly	this point-obj. particle	measure-ending)

The avoidance strategy used by the relatively advanced speakers of Korean reveals that the difficulty of acquiring passive voice as they learn English, which needs to be used as an important information for EFL curriculum.

2) Avoidance of Subject-predicate Information Structure

One of the interesting findings about the Korean TAs' syntactic correction is the frequent occurrence of pre-positioning of a subject noun. Pre-positioning is a grammatical device that moves the proper noun from its legitimate position in a sentence to a pre-sentential

position. One of the contingencies that are related to pre-positioning is the perceived high informational load in the subject. By doing this, the nonnative TAs can reduce the informational load in a sentence that they will produce. Two excerpts that follow exemplify this case in which they handle the informational demand by means of subject pre-positioning. At the moment of the interaction, the Korean TA is reviewing the results displayed on the computer monitor.

Excerpt (4) TA (H) in an electrical engineering lab

1.   TA: but <u>now</u> it's (-) always <u>low</u> (- -) **so: that means your program**
2.   **(.) it can't (-) doesn't send quite right value**
3.   (- - - - -)

While saying "but now it's always low" (line 1), the TA points to which part of the program is problematic. As he interprets the result, he concludes that the low value resulted from the incorrect input value. Immediately after producing a candidate subject noun for a sentence, "your program," he corrects it by replacing the noun phrase with the subject pronoun "it," saying, "it can't (-) doesn't send quite right value." This replacement significantly reduces the linguistic demand of the L2 sentence construction for the nonnative TA. The replaced pronoun transforms its referent phrase into old information. The newly created sentence, thus, is less loaded with information.

The following excerpt reveals the same type of syntactic correction. In this example, the sentence is formed only after the subject noun is properly produced after a few rounds of lexical correction.

Excerpt (5) TA (O), S1 (F) and S2 (T) in an electrical engineering lab

1.   S1:   so this is channel one?
2.   TA: mm-hm
3.   S1:   and this one is channel two?
4.   TA: channel <u>one</u> mean signal from the (- -) ah circuit
5.   S1:   yeah and then two we're gonna have five
6.   TA: five volt
7.   S2:   that should (-) that should (-) that's from the wire (- - - -) it's a: (- - -)
8.   S1:   yeah that's what I found
9.   **TA: verti (-) the vertical range↑ (- -) vertica::l resolution↑ (.) is it**
10.   **(- -) ten micro (- -)**
11. S1: it's a (-)

12. TA: ten mili-me some [thing?
13. S1:   [yeah

At this moment, the TA is interacting with two American undergraduates. They are
looking at an oscilloscope, a device used to display electrical signal. The TA experiences a
trouble in describing the graphic display on the oscilloscope. In lines 9-10, he asks about
the value of the Y-axis, during which he performs multiple rounds of lexical correction in
order to properly produce, "vertical resolution," the topic of the sentence. The TA's initial
production of the word "vertical" (line 9), which refers to the Y-axis of the box, is
phonetically incomplete. He reproduces the word within the phrase, "the vertical range,"
with rising intonation. This rising prosody indicates that he is searching for a correct form.
While saying "the vertical range," he makes a vertical shape with his first and second
finger and moves the shape up and down (Figure 1). This gesture is clearly related to the
"Y-axis" of the grid in the oscilloscope. Coordinated with his linguistic correction, this
gestural representation of the object helps the TA, the doer of the correction, to produce the
correct form. The visual representation is functional to generate the corresponding
linguistic production. After a pause, he corrects the phrase and replaces the word "range"
with "resolution" to utter "vertica::l resolution" with rising intonation.

FIGURE 1
The TA's Gesture of "Vertical"

Once he produces the subject, 'vertical resolution,' the Korean TA formulates a sentence
with pronoun "it" which refers to the precedent noun phrase "vertical resolution." The pauses
in the sentence indicate that he is struggling to construct a proper sentence with appropriate
lexical items. The sentence can be completed only after his student, S1, begins her turn to
respond to his unfinished question, "it's a" in line 11. The TA finishes his turn with another
lexical correction, replacing "ten micro" with "ten mili-me something?" in line 12.

As the above two examples show, the pre-positioning of the topic of the not-yet-
produced sentence is an important factor for the nonnative TAs' actions of syntactic

correction. The actions involved highlight two aspects related to the participants' nonnativeness. First of all, by replacing the phrase with a pronoun, the nonnative TAs can decrease the linguistic demand in the sentence construction. For example, in excerpt (5), by using the pronoun "it," the TA can dramatically decrease the load on the topical element, "vertical resolution." When the subject is old information represented with a pronoun, only the remaining part of the sentence carries new information. Consequently, the repaired sentence is more controllable by the Korean speakers.

The other effect of doing this type of syntactic correction is creating a topic-comment structure.[4] Korean, the TAs' first language, is a topic-prominent language in which the grammatical units of topic and comment are basic to the structure of sentences. The concepts of topic and comment are not identical to those of subject and predicate. Subject-predicate structure refers to the grammatical structure of a sentence rather than to its information structure. English is a subject-prominent language, and sentences as in the following are common:

- In English: I have already sent Peter.
- In Korean: Peter   bulseo   bonaet-da.
      (I-suj) Peter (obj)) already sent-sentence ending marker

In the topic-prominent structure, the topic usually represents old information and takes a sentence head position as a subject, while the comment represents new information related to the topic. This specific property of the Korean language appears to be relevant to their performance of subject pre-positioning during the correction. The turns are repeated below.

- TA: your program (.) it can't (-) doesn't send quite right value   [from excerpt (4)]
- TA: verti (-) the vertical range↑ (- -) vertica::l resolution↑ (.)
      is it (- -) ten micro (- -)   [from excerpt (5)]

In both instances, the topical elements are pre-positioned, so that a production of a sentence is delayed till appearance of a pronoun that refers back to the topical element. The subjects in the subsequent sentence become old information so that the following information becomes new information as a comment. In excerpt (4), the TA produces a

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4 The topical topic is a part of a sentence that names the person, thing, or idea about which something is said (the comment). Topic-comment structure is different from subject-predicate as in the following.
   <u>As for the dry-cleaning,</u>   <u>I</u>   <u>will bring it tomorrow</u>
                                     subject   predicate
            Topic   Comment

noun phrase "your program" and replaces it with a pronoun "it," in the subsequent sentence, as old information. The noun phrase also topicalizes the subject of the following structure as well. In excerpt (5), with the pronoun subject "it," replacing "vertical resolution," he creates a topic-comment structure in the subsequent sentence as shown in "is it (- -) ten micro (- -)." It is clear that the Korean TAs use self-correction to adopt Korean information structure instead of that of English. They are still learning, not mastered, the English information structure.

3) Incomplete Syntactic Correction

   In many cases, the repaired sentences are still deviant from L2 norms. In the excerpt below, the TA and his student are collaboratively defining the function of the device called micro-pipet, a viscosity measurement tool (Figure 2).

FIGURE 2
The Micro-pipet
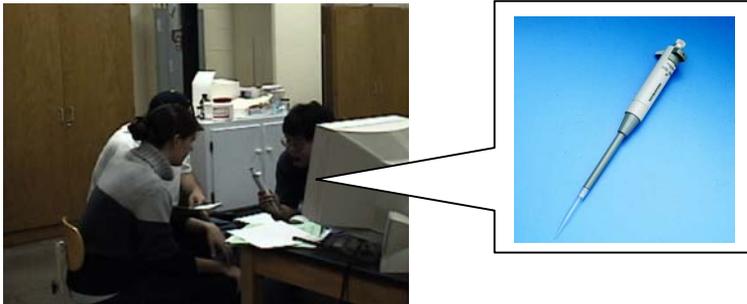
   The TA is holding the tool in his hand while explaining why it is a better tool than a traditional tool. Earlier turn exchanges are presented that contribute to the TA's performance of the self-selected correction.

   Excerpt (6) TA (E) and S1 (J) in a chemical engineering lab

1. S1: = that measures weight or not?
2. TA: ahh: volume=
3. S1: =volume?
4. TA: yeah just measure of volu [me
5. S1:   [so we use milliliters?
6. TA: milliliter (-) sorry (-) not gram sorry huh
7. (- - - - -)

8. TA: uh [:::
9. S1:   [but it still measures rate
10. TA: not measure rate (-) actually it's not possible to measure rate by using
11.   micro pipet. **uh: the most (.) actually it is very accurate in water (-)**
12.   **water is very accurate to measure kin' of (-) by using micro pipet but (-)**
13.   **it is not accurate to measure kin' of this type of solution (-) like (- -)**
14.   so <u>pro</u>blem is that↓ (.) so please like (.) kin' of (-) press slowly an' release
15.   slowly

In line 1, S1 asks whether the tool measures weight or not. The TA provides an answer, "volume." S1's initiative targets the TA's false use of measurement unit "grams." The TA recognizes the sustained problem only after the student asks for reconfirmation about the measurement unit, "milliliters?" against "grams." In line 9, S1 once again suggests the possibility that the micro-pipet can measure rate. In line 10, the TA overtly corrects S1's response by rejecting a part of his turn, as he says, "not measure rate." In line 11, after a hesitation marker "uh:" he restarts a sentence several times, first with "the most," and then with "it." This newly constructed sentence, "it is very accurate in water," is still structurally ill formed and hardly delivers his intended meaning- the micro-pipet could be used to accurately measure the rate of water, but not the rate of PEO, the solution that they are measuring at the moment (E. Kim, personal communication, October, 2002). He restarts a sentence to correct his production. The repairable and the repair proper are shown here:

- The sentence being repaired:
  "it is very accurate in water"
- The sentence created by correction:
  "Water is very accurate to measure kin' of (-) by using micro-pipet."

In this reformulated sentence, most of the words from the repairable sentence are recycled and reordered. The word "water" becomes the subject, and new words are produced in the repaired sentence to deliver the intended proposition. The TA's corrective action provides clear evidence that he monitors his output and actively acts on the problem with L2 syntax. However his corrective moves turn out to be unsuccessful in the production of a well-formed sentence. First of all, "water is very accurate to measure" is semantically and logically ill formed because water itself is not to be addressed by accurateness. Secondly, the verb "measure," from "to measure," is semantically associated with the subject "water." The following prepositional clause "by using micro-pipet" is ill formed as well; "with this micro-pipet" is proper because the micro-pipet is simply an instrument that is used to measure a chemical component.

If the success of self-correction depends on effectiveness of exchange of meaning in an environment which maximizes the purpose of conversational interaction, the Korean TA's incompetence in the English syntax as shown in the above example significantly interferes with the TA's instructor role. The TA does not complete his sentence after "like" and immediately produces a conclusive remark as in "so problem is that." His turn is abruptly withdrawn at this point. Moreover, during the repeated process of correction, he fails to focus his turn on the measurement of "the rate" which was the key trouble point for his student. Thus, multiple, unsuccessful self-corrections on syntax expand the break in conversation and in the meantime the key point can be lost during the correction process.

2. Going beyond the Same Turn: Delayed Self-correction and Coordination of Gesture

1) Korean TA's Delayed Self-correction

Korean participants of the study often times performed self-corrective actions even after the trouble source turn. Unlike the result of the previous studies, their self-correction occurred based upon their own recognition of trouble, rather than the listener's false understanding. Contingent upon problem in their L2 production, they performed self-correction although there was no explicit sign of misunderstanding. For example, in the following excerpt, the nonnative TA's self-correction occurs in the third turn although the second turn of his student indicates no trouble in understanding.

Excerpt (7) TA (H) and S1 (V) in an electrical and computer engineering lab

1. S1: will that (-) will that happen though like (-)
2.   [it isn't possible to ha [ppen
3. **TA: [you know   [m::   m:: interrupt is not matter**
4. S1: mm-hm
5. **TA: interrupt doesn't matter (- - -) what happen if (- -) if you   sw[i:]p it**
6. S1: mm-hm

The two interactants are seated on chairs facing a computer. As the student asks a question about his system in line 2, the TA signals his next turn speakership, when he says, "you know" and "m:" in overlap with S1's turn. This hesitation marker "m:" is commonly produced in Korean conversation, and marks a speaker's hesitation in production. Hesitation is typically associated with more time to process a certain item. In line 4, he says, "interrupt is not matter" to explain the workings of S1's system. Although the

sentential structure is grammatically incorrect, it wouldn't impair his attempted meaning. By means of the continuer, "mm-hm" in line 4, S1 indicates that he understands the TA's meaning with no problem, while at the same time suggesting that the TA should continue with primary speakership. In the third turn, the TA restarts a sentence to make it more grammatically consistent with the target language norms in line 6. He replaces the negated copula "is not" with "doesn't," in the restarted sentence "interrupt doesn't matter." This third turn correction reflects that the TA is monitoring what he says. His monitoring makes him disregard the acknowledgment from the recipient in the second turn and reshape his turn. Therefore this self-selected correction is more like the same-turn correction.

2) Material Environment and Delayed Correction

In the following example, the TA's turns of correction include explicit signals of hearing and understanding the recipient's utterances. Although the TA's utterance is structurally incomplete and ill formed, the material environment provides enough resources for S1 to understand his meaning. He still tries to complete the structure in the third, the fifth and seventh turns while incorporating the recipient's responses in the turns.

Excerpt (8) TA (E), S1 (V) and S2 (J) in a chemical engineering lab

1. **TA: this one is the exact (-)**
2. S1:   yeah
3. **TA: yeah six hundred micro (-) more (- - -) if you push more**
4. S1:   like here?
5. **TA: yeah at certain point**
6. S1:   yeah yeah [yeah
7. **TA: [if you push more (.) yeah more amount is uh: (.) yeah loaded**
8.   so (.) be careful uh: this (-) first one is <u>not</u> the measurement step
9. S2:   (- -) temperature stabilization

At the beginning of the interaction, the TA has taken the micro-pipet from S1 and holds it in his right hand. In line 1, the TA points to the micro-pipet to explain how to use the tool to measure the viscosity of a chemical solution. At the point where he utters "exact," he shows some part of the micro-pipet to S1. The student responds to his turn with "yeah," showing her understanding. His pointing to the micro-pipet makes the device in use sufficiently relevant to their interaction at the moment, which effectively elicits S1's understanding and agreement as shown in her response "yeah" (Figure 3).

The TA receives S1's acknowledgement with the same acknowledgement token "yeah,"[5] and produce the missing sentential components at the first turn-"six hundred micro." This noun phrase in the third turn is duly connected to the modifier "exact" in the first turn. This repaired sentence becomes closer to the target language structure after a few rounds of delayed correction.

The TA attempts to keep explaining how to properly use the device after a short pause, as he utters "more" in line 3. He hands the device over to S1 at this point. With his body still facing S1, the TA restarts a sentence with a conditional clause, "if you push more." Before he utters the next component of the sentence, the student asks a confirmation question "like here?" in line 4, pointing to a part on the micro-pipet. The TA acknowledges the referent, saying "yeah," and produces an adverbial phrase, "at certain point." This phrase makes a legitimate addition to the conditional clause "if you push more" in the previous turn. S1's response, "yeah yeah yeah," indicates that she has fully understood what the TA suggested. In overlap, the TA launches another self-correction on the previous incomplete sentence. He recycles the conditional clause and completes the sentence with a proper clause, saying, "if you push more (.) yeah more amount is uh: (.) yeah loaded so (.) be careful."

The material environment and the participants' bodily orientation to it provide other important information of how effective and relevant the TA's corrective actions are to the student. Although a complete sentence is produced after several rounds of self-correction that occur across multiple turns, it is a different matter whether the student finds the new proposition that the reformulated sentence carries to be significant and relevant. The TA's second self-correction does not appear to concern S1. She is engaged in manipulating the micro-pipet. The TA's awareness of her disorientation to his turn is demonstrated by his movement during the second repair turn. He moves his body dramatically and reorients his body from S1 to the computer monitor, saying, "if you push more (.) yeah more amount is uh: (.) yeah loaded" (Figure 3). In other words, his turn is directed to S1, but his bodily orientation is readjusted to the computer in alignment with the student's disorientation. The termination of interaction is heralded by the two participants' bodily disorientation from each other; self-correction occurs no longer in the talk.

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[5] Drummond and Hopper (1993) note that "yeah" can mark a shift in footing from the recipient to the speaker role. This type of acknowledgment token prompts more talk in the speaker's same turn. Therefore, the same acknowledgement can function differently by the degree of "speakership incipiency." In this example, "yeah" shows a higher degree of speakership incipiency as it is used at the turn beginning.

FIGURE 3
The TA's Reorientation of His Body
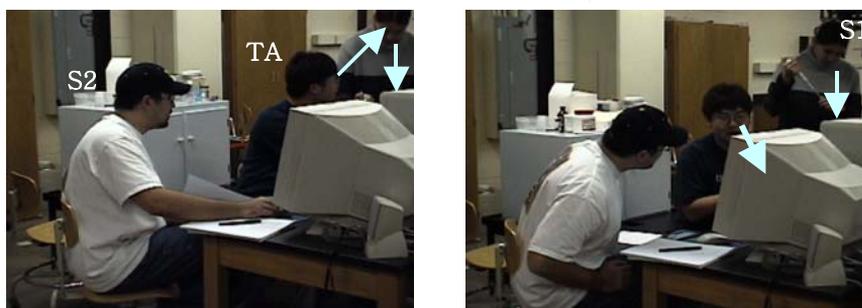
(1) "this one is the exact" (line 1)   (2) "yeah more amount is" (line 7)

3) Prosody and Delayed Self-correction

   In some instances, the turns of self-correction are associated with nonnative TAs' rising prosody in their word search in the first turn. Rising intonation instigates the recipient's confirmation, so that the third turn becomes the place for self-correction as shown in the following example.

   Excerpt (9) TA (J) and S1 (Y) in an electrical and computer engineering lab

   1. S1: ss: this MOSFET we are so comfortable with it (-) it shouldn't
   2.   matter too much about specification of the MOSFET (-) I don' think
   3.   (-) as long as we can handle the low voltage we send to it (-)
   4. **TA: so you (.) you know the difference between (-) an: uh:**
   5. **(- - -)**
   6. **TA: bipolar transistor**↑
   7. S1: **mm**- [hm
   8. **TA: [bipolar junction(.)**↑ **BJT**↑
   9. S1: BJT yeah
   10. **TA: between the BJT an:' MOSFET**
   11. TA: mos- [fets?
   12. **TA: [why (.) why are you using MOS FET instead of BJT? (.)**
   13.   **BJT is generally cheaper yeah?=**
   14. TA: =right.
   15. TA: yeah

In lines 1-3, S1 describes how she and her lab mate will manage the MOSFET, a

transistor that adjusts the electrical signal by amplifying or switching it. In line 4, the TA interrupts her turn to confirm that his two students know the difference between BJT (bipolar junction transistor) and the MOSFET.[6] While he attempts to ask a confirmation question, the TA fails to produce a correct form when he says, "you know the difference between an:" It is interesting that the TA produces the proper connector "and" following "between" without the proper lexical items that are to be placed before and after the connector "and." His production evidences his mastery of the usage of the compound conjunct in the target language. However, he is not producing the words that represent his meaning.

His word search is visually displayed in his gesture. He moves his left hand back and forth with a shape of a small object uttering "and" (Figure 4). He then moves his hand up to his jaw to show that he is searching for a word. His hesitation is marked by the hesitation marker "uh:" and by the pause at the end of his turn.

FIGURE 4
The TA's Gesture, When He Says, "a:n uh:"

Neither of the students takes the floor during his word search. In line 6, he utters a candidate word in rising intonation, "bipolar transistor↑" S1's response, "mm-hm," acknowledges the TA's turn so that he can continue in the next turn. The TA performs self-correction and replaces "bipolar transistor" with "bipolar junction," again in rising intonation. After a micro pause, he performs another self-correction on the phrase to replace it with "BJT" in rising intonation. S1 receives the TA's turn in affirmation by recycling a part of the turn, when she says, "BJT yeah." In the next turn, the TA performs correction on the syntactic structure of his first turn now that he has a proper word available through the actions of self-correction. He utters "between the BJT an:' MOSFET" in line 9; the compound conjunct is now filled with the nouns. The falling intonation at the end of the turn signals the completion self-correction

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[6] BJT is similar to MOSFET as a type of transistor used to adjust electrical power, but is different from MOSFET in that its function is limited to a lower voltage.

4) Structure Search and Gesture during the Correction

The following example clearly showcases the process that Korean TAs undergo in their efforts to form a L2 structure during correction in multiple turns. In this excerpt, a Korean TA suggests that an interrupt will enhance the ability of the circuit program to process the incoming data. An interrupt is a device that enables a circuit to process diverse input, and is suggested as crucial to S1's program. He is designing a program that transforms the numeric information of a credit card into electrical information.

Excerpt (10) TA (H) and S1 (V) in an electrical engineering lab

1. **TA: you have to catch every (-) you know pulse (.)**
2. S1: right
3. **TA: which occurs (- -) whe (- -) whenever we don' know**
4. (- -)
5. **TA: we don' know when it (-) when it will occur (-) so (-) that's why**
6. **we put interrupt over there**
7. (- -)
8. S1: mm-hm
9. **TA: that means (- -) if we wait first specific time for the interrupt**
10. S1: mm-hm
11. **TA: we (-) we may not catch another (-) you know (- -)**
12. S1: oh [I see
13. **TA: [pulses**
14. S1: so: okay

In line 1, the TA proposes that student's program should be able to catch all of the crests of the graph in order to correctly transform the numeric information, when he says, "you have to catch every (-) you know pulse (.)." He gestures "pulse" before he utters this word. He moves his left hand up and down while uttering "every (-) you know pulse" (Figure 5). His on-going word search for "pulse" is marked in the use of filler "you know" and the pause.

The student receives and acknowledges this turn with "right" which the TA's turn and lets the TA maintain speakership in the subsequent turn. The TA's third turn in line 3 is structurally on the continuum of the first turn because the noun phrase "every pulse" of the first turn is the precedent of the relative pronoun "which" of the third turn. The sentential structure, however, seems to be instable, as indicated by the halting pronunciation and the frequency and duration of the pauses when he says, "which occurs (- -) whe (- -) whenever

we don' know." The proposition that the TA attempts to deliver is not clear in the produced sentence. The student receives this turn by nodding to indicate that he is listening. While it is not clear whether he understands the TA's meaning, the TA is apparently monitoring his production, and self-selects to correct the troublesome part of the turn. He reformulates the sentence by recycling and reordering some of the lexical items of the first turn, when he says, "we don' know when it (-) when it will occur" in line 5. The fact that most of the lexical items in this structure have been reproduced from the previous turn indicates that the TA is searching for a target language structure with all the core lexical items available at hand. This structure search appears to be a major motive for the self-correction. During the search, multiple self-correction turns are constructed as a result of the self-monitoring of his syntactic structure.

Upon the completion of the correction, he concludes that "that's why we put interrupt over there." However, the semantic gap between the preceding sentence "we don't know when it will occur" and this conclusive sentence may be too significant for the student to immediately understand the TA's turn. The TA appears to be aware of the significance of the informational gap. At the student's continuer "mm-hm" the TA redoes his previous turns to make this proposition more semantically available to the student, in his conditional sentence where the two propositions are logically presented. He says, "that means (- -) if we wait first specific time for the interrupt" in line 9 and "we (-) we may not catch another (-) you know (- -)" in line 11. This redone structure is well formed as well as better able to describe the workings of the interrupt in recording timed input from the credit card. The TA's hesitation at the end of the turn occurs while he searches for a noun. He moves his left hand from right to left during the void, which represents 'catching different pulses' (Figure 5). S1's understanding occurs at this point, as shown in his response "oh I see."

FIGURE 5
The TA's Gesture

"every (-) you know"   "another (-) you know"

The TA's gestures are meaningfully related to the content of the speech, and eventually

to his performance of correction. He utilizes the two types of gestures to visually express meaning while searching for lexical items. Both of them precede the accompanying speech and properly conceptualize the item to be verbalized. The vertical hand movement is associated with the movement of pulsation, and the latter horizontal hand movement with different pulses. In other words, they visualize "conceptual affiliates" rather than "lexical affiliates" (De Ruiter, 2002, p. 291). This way, the TA's gesture effectively transmits his communicative intention while providing a clue for the student to process his meaning. Temporary failures in utterances, thus, can be compensated for by the gestural modality.

IV. CONCLUSION

While understanding is a major interactional goal in an academic interaction in a lab, as it is in any everyday human encounter, playing a proper role in a specific conversational encounter is a very important part of an interaction. Advanced ESL/EFL learners are often engaged in the encounters in which their performances in L2 affect their successes in their professions. Like the TAs who participated in this study, they need to enact successfully the role in a certain institution. This study focused on how Korean TAs, as advanced English learners, deal with communicative problems and obtain shared understanding in the setting of science labs. Essentially, I analyzed the sequential realization of voluntary corrective actions of the Korean TAs and tried to find out in which areas of the second language the TAs as advanced English learners were found less competent.

The analysis has revealed that it is not simple morphology but the syntactic structure that Korean TAs find problematic. On the syntactic level, Korean TAs depended on norms in Korean language construction in order to produce a complete English sentence. They opted for animate, human subject, instead of inanimate. They also tried to establish a topic-comment information structure, rather than a subject-predicate structure. The topical element of a sentence was pre-positioned before a complete sentence was produced. Their efforts to voluntarily correct their production, however, did not always produce correct English utterances. The results of their endeavor to correct themselves were syntactically ill-formed English structures. Their repaired sentences had no place to contribute to the meaning-making process, while their students did not pay attention to the TAs' talk.

These findings provide crucial evidence of L2 developmental state of Korean TAs in lab-hour settings. They have not mastered such English structure as passive voice and English information structure and cannot automatically produce the constructions in their spontaneous utterance. The lack of competence brings the light of L2 learning to both syntax and semantics. Advanced L2 learners and educators together need to pay more attention to how to command appropriately the language on these levels to make their

utterances functional to a given context.

Inter-turn multiple self-corrective actions punctuated the difficulties that a Korean TA was faced with as an instructor and as a nonnative speaker. Spontaneity of question-answer based interactions required immediate retrieval of content knowledge, while processing the L2 repertoire in order to represent content knowledge in linguistically and interactionally appropriate manner. In this demanding context, Korean TAs repaired troublesome production only after their students' turn, so that the proper production occurred at the third, fifth, or seventh turns. This result was strikingly different from other native-nonnative speaker conversation data because the Korean participants in this interaction volunteered to make their production better-fit to the English form although there was no explicit sign of misunderstanding from their interlocutors, i.e., American students. They continuously monitored their production, which made them disregard the acknowledgment from the recipient in the second turn and reshape his turn. Therefore this self-selected correction was more like the same-turn self-correction.

The microethnographic description of the interaction in this academic setting discovered substantial roles of other semantic resources such as gesture and bodily movement played important roles in communicating intended meanings and actions. During the talk, participants were engaged not only in the talk but also in the larger activities and participation frameworks, which were often displayed through mutual orientation made by their bodies. Their bodily movement in this lab setting also functioned as a device to help the nonnative TAs communicate with their cognition; their communicative intention was transmitted to the visual resources, which prompted the TAs' meaning making process. Thus, the TAs' gesture visually enacted meaning and provided important clues about the speaker's perception of interaction. Recall excerpt (8), in which the termination of interaction was heralded by the two participants' bodily disorientation from each other. The Korean TA's self-correction was terminated alongside his movement. Gesture also filled the void of talk while a Korean TA was searching for a word. Recall excerpt (9) and (10) that showed gestural intervention into the Korean TA's self-selected correction. The TA's thinking gesture filled the break in interaction and showed on-going cognitive process on the TA's intrapsychological plane, and heralded upcoming production of the concept that was being represented in the gesture. The examples demonstrated that correction was carried out in the coordination of the entire relevant resources. Linguistic and non-linguistic resources all played roles in the nonnative TAs' efforts to gain control of their production.

It is important to consider if the nonnative TAs' self-corrective actions were functional to their native English speaking students. Although the TAs' self-repairing actions reflected their efforts to make L2 production more resourceful for their native English-speaking recipients, the students might understand the frequent occurrences as a simple sign of

incompetence in the language, and more importantly evidences of lack of content knowledge. Therefore, although the TAs and the students achieved shared understanding of a specific item during interaction, there remained misunderstanding about the TAs' interactional achievements through the repairing actions. In other words, the students may have thought the TAs were not as competent as they were supposed to be as the instructors. Consequently they may have affected their learning in general. In other professions, the negative effects may include failures in international negotiations, false image of incompetent scholars etc. Therefore, in English education for advanced learners, we need to be more concerned with how to coordinate L2 and its effects on participant alignment, while still paying attention to acquisition of proper command English syntax and semantics.

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APPENDIX
Transcription Notation[7]

1. Intonation
   Rising intonation: ↑   Falling intonation: ↓
   Stress: <u>text</u>
2. Temporal features
   Pause: (tenths of a second)   Short untimed pause: - - -
   Spoken slowly: <text>   Spoken rapidly: >text<
   Lengthened syllable: :   Word cutoff: -
   Latched talk: =   Overlapping speech: []
3. Intensity
   Spoken softly: °text°   Spoken loudly: TEXT
4. Breathing
   Audible breathing: H   In-breath: .h
   Out-breath: h
5. Transcriber's comments
   Paralinguistic behavior: ((behavior))
   Unclear or unintelligible speech: ( )

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7   This transcription notation was developed and refined by Jefferson (in Atkinson & Heritage, 1984).