

Dealing with communication problems in the instructional interactions between international teaching assistants and American college students

Shiao-Yun Chiang*

State University of New York at Oneonta, Communication Arts, Oneonta, New York, USA

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This study proposes that communication problems may be procedurally managed in intercultural interaction. Drawing upon a number of office-hour interactions between international teaching assistants and American college students, this paper examines the linguistic and cultural sources of communication problems. The close analyses of these interactions revealed that problematic understanding could be managed in the communicative procedures of correction and prevention. The findings here suggest that procedural knowledge is particularly important for achieving mutual understanding in education contexts.

Keywords: problematic understanding; bilingual teachers; communicative competence; discourse analysis; procedural understanding; office-hour interaction

Introduction

Most studies of multicultural education have been focused on an increasingly diverse student body in the United States (cf. Banks 2006). For the past two decades, however, the number of foreign-born instructors in American universities has been rising due to the globalization of education as well as the social, economic, and institutional changes in the United States (Marvasti 2005). In 2006, the Council of Graduate Schools reported that 53 percent of graduate students in engineering, biology, and physics were foreign-born (CGS International Graduate Admissions Survey 2006). It is quite a common practice that US research universities depend on international teaching assistants (ITAs) to teach American college students (ACs) basic undergraduate courses in these technical areas.

The increasing percentage of foreign-born instructors calls for a shift in the focus of attention from the diverse student body to the diverse instruction teams. In 2005, *The Chronicle of Higher Education* reported that the North Dakota State Representative Bette Grande had proposed a bill that foreign-born instructors should not be assigned any instructional tasks if they cannot speak English clearly, while students 'would be entitled to withdraw from the class with no academic or financial penalty – and would even get a refund' if they file a report that they cannot understand 'what the heck their foreign-born instructors are saying' (Gravois 2005, A10). This legal action reflects a nationwide concern that the foreign-born instructors' linguistic problems influence US higher education adversely. The concern certainly has drawn attention from scholars in education across the nation. Starting

*Email: chiangs@oneonta.edu

with Bailey's seminal research on the foreign TA question in the early 1980s, an increasing number of studies have been conducted on ITAs' instructional performance in terms of language and culture.

ITAs' language proficiency is regarded as the most common problem in existing studies. For example, Hinofotis and Bailey (1980) surveyed a large number of undergraduate students at the University of California, Los Angeles, and found that pronunciation was perceived as the most important issue in ITAs' oral communication. Anderson-Hsieh and Koehler (1988) conducted an experiment on ITAs' class presentations at the Iowa State University and found that ITAs' speaking rate and accent had a critical effect on ACSs' listening comprehension of course materials. Tyler, Jefferie, and Davies (1988) examined ITAs' teaching demonstrations at the University of Florida and found that ITAs' prosodic features such as stress, intonation, and pause always led to ACSs' perception that their lectures were disorganized and unfocused. Williams (1992) examined ITAs' planned and unplanned discourses in several major US research universities (names unrevealed) and found that their unplanned discourses contained less markers for structuring lectures, which reduced ACSs' listening comprehension. Pickering (2004) compared native speaker (NS) instructors' lectures to ITAs' in a major US research university and found that ITAs showed a considerably weaker control of intonational structure, which affected ACSs' listening comprehension.

ITAs' sociocultural differences are also considered as a main problem in existing studies. For example, Bernhardt (1987) reported from his personal observation that ITAs could often develop some unrealistic perceptions of ACSs due to their lack of knowledge about American society and higher educational systems, which in turn caused ACSs to form a negative attitude. Bailey (1982, 1984) found through her ethnographic studies that ITAs were often handicapped in the classroom as they were uninformed about American cultural norms that allow a greater variety of behaviors and much more freedom for instructors and students to jointly negotiate their behavioral patterns. Rubin (1993) found from his observations of the training workshop at the University of Georgia that ITAs often felt uncomfortable about the participative learning style, and they were unable to form a good rapport with ACSs. Axelson and Madden (1994) found from their observations of a large number of ITAs' instructional activities at the University of Michigan that ITAs were often unable to construct different discourse patterns in different educational contexts (e.g. classroom, lab, and office hours) due to their lack of access to American professional discourse styles. Tyler (1995) found from her examination of a videotaped office-hour interaction that the ITA and ACS participants' different sociocultural expectations affected their perceptions of each other's roles and created their misinterpretations of each other's messages. Chiang and Mi (2008) found from their analyses of a number of office-hour interactions that ITAs' sociocultural differences caused some uncertainty for ACSs to understand their communicative intentions.

Generally, existing studies described ITAs' linguistic and sociocultural differences as givens that are expected to produce understanding problems for ACSs. ITAs often find themselves in a position of disadvantage when they are engaged in any instructional activity. Accordingly, many US universities have created programs to assess ITAs' communicative competence (cf. Hoekje and Williams 1994) and to train ITAs (cf. Gorsuch 2003; Jia and Bergerson 2008). In spite of all the administrative effort for preparing ITAs, *International Herald Tribune* reported on 25 June 2005 that interviews with ACSs in a number of universities across the nation indicated that the problem remained acute and even influenced ACSs' decisions about what majors to pursue. The issue was found especially serious in disciplines like science, technology, engineering, math, and a few other relatively technical

areas where ACSs most likely attribute their academic failure to ITAs' instructions (cf. Seymour and Hewitt 2000).

ACSs are living in a global world, and US higher education is becoming an integral part of the process of globalization. In this sense, the use of ITAs as instructors is not only a considerable economic benefit to American universities but also a great social resource for preparing ACSs to better understand global cultures. Thus, it is vitally important to help ITAs and ACSs deal with their communication problems so that a productive learning environment can be fostered in a globalized society. To achieve this goal, we need to gain insights of the actual ITA–ACS instructional interactions so as to find out what communicative resources may be utilized to reach mutual understanding. Drawing on the conception of procedural understanding, this paper provides some in-depth analyses of a number of ITA–ACS office-hour interactions in an attempt to explicate the specific procedures in which problematic understanding may be managed.

Problematic understanding

Problematic understanding is used here as a generic label for any communication incident in which participants fail to recognize the meanings of an utterance. In existing studies, problematic understanding is labeled and examined in various ways. For example, the term *misunderstanding* may refer to any problem in speech production and reception (Dascal 1999), a disparity between the speaker's and hearer's semantic analysis of an utterance (Milroy 1984), or different levels of problematic talk (House, Kasper, and Ross 2003). The term *miscommunication* may refer to both misunderstanding and incomplete understanding (Gass and Varonis 1991), a recognition that a person's intentions have not been read accurately by another (Banks, Gao, and Baker 1991), or a misinterpretation of different levels of meanings of an utterance (Coupland, Wiemann, and Giles 1991; Gumperz 2003; Tyler 1995). The term *communication breakdown* may refer to the type of inconsistency between communicative effects and communicative intentions (Clyne 1994), a feeling of dissatisfaction that is often attributed to participants' membership in contrasting social groups (Gudykunst 2004) or participants' perception that something has gone wrong (Gumperz and Tannen 1979). Different terms may indicate different conceptualizations of the causes and conditions of problematic understanding in intercultural communication.

Intercultural interactions always contain a potential for problematic understanding, as mutual understanding is presumably embedded in speakers' linguistic competence (Chomsky 1986) and communicative competence (Gumperz and Hymes 1972). Given that intercultural communicators do not possess the same stock of linguistic and cultural knowledge, problematic understanding is bound to occur. For example, Gass and Varonis (1991) propose that problematic understanding occurs on two levels: grammatical and sociocultural. Thomas (1983) maintains that problematic understanding arises from two pragmatic failures: pragmalinguistic and sociopragmatic. Tannen (1984) shows that problematic understanding tends to appear in eight pragmatic aspects: when to talk, what to say, pausing/pacing, cohesion/coherence, listenership, formulaicity, intonation, and indirectness. Bremer (1996) finds that problematic understanding is caused by six factors: single lexical items, complexity of form/content, indirectness, abstract/hypothetical topics, ellipsis, and lack of shared schema. Gumperz (1992) demonstrates that problematic understanding is linked to contextualization cues and conversational inferences. In general, mutual understanding becomes problematic in intercultural interaction due to (1) different communicative resources that hamper individuals' composition, reception, and comprehension of linguistic and pragmatic meanings in discourse and (2) different cultural norms that

debilitate individuals' perception, expectation, and implementation of appropriate communicative acts in context.

Procedural understanding

Procedural understanding is defined here as a process in/by which mutual understandings are reached through specific procedures. The procedural achievement of mutual understanding finds its earliest expression in ordinary language philosophy. For example, Ryle (1949) makes a basic distinction between 'knowing that' and 'knowing how' when he calls for a departure from the traditional mind–body dichotomy of Cartesianism. The former refers to the propositional/factual knowledge about the world, whereas the latter refers to the procedural knowledge about how to perform things (Scheffler 1965). According to Ryle, Cartesianists would contend that 'knowing that' corresponds to the mind, whereas 'knowing how' corresponds to the body, and the former must precede, and thereby regulate, the latter. In contrast to this Cartesian view, Ryle (1949, 29) contends that an intelligent act does not necessarily follow the two-step sequence of considering some rules and then performing an action. In his view, 'knowing how' is not necessarily defined in terms of 'knowing that'. The former is a more fundamental mode of understanding than the latter. It stands for 'the possession of a skill, a trained capacity, a competence, or a technique' (Scheffler 1965, 92) that enables a person 'to detect and correct lapses, to repeat and improve upon success, to profit from the examples of others, and [. . .] to get things right' (Ryle 1949, 28–9).

The concept of procedural understanding may be methodically demonstrated in Conversation Analysis (CA) (cf. Atkinson and Heritage 1984; Sacks, Schegloff, and Jefferson 1974). Sharing the tenets of ethnomethodology (Garfinkel 1967), CA aims to explicate the sequential procedures of producing, organizing, and interpreting talk in social interactions (Heritage 1984). The basic unit of analysis in CA is the procedures of turn-taking that allow social actors to achieve interactional orderliness and mutual understanding (Schegloff and Sacks 1973). The procedural achievement of mutual understanding may be illustrated in adjacency pairs (e.g. question/answer). Sacks (1987) shows that the first part in an adjacency pair can be designed in a particular manner so as to elicit a particular type of response. This indicates that mutual understandings in interaction may be set up in a particular fashion in the turn where an initial action starts. In contrast, Pomerantz (1984) maintains that the second part in an adjacency pair may be designed in such a way as to display what kind of actions speakers are performing and what kind of stances speakers are taking. This means that mutual understanding can be revealed in the strategic deployment of turn shape (e.g. preferred vs. dispreferred response) in the next turn where speakers are supposed to respond. In short, it is in/through the moment-by-moment turn-taking procedures that mutual understandings are arrived at and interactional order is sustained.

Research questions

Drawing on the conception of procedural understanding, this study proposes to examine the actual processes of ITA–ACS office-hour interactions in an attempt to answer the following two questions:

- (1) Under what specific circumstances does a problematic understanding arise in the ITA–ACS office-hour interactions?
- (2) In what specific procedures does a mutual understanding get achieved in the ITA–ACS office-hour interactions?

The answers to these research questions should bear some practical significance for instructional interaction across linguistic and cultural boundaries. The motivation for raising these questions is that studies in CA have displayed a variety of communicative resources used to remedy problematic understanding in social interactions. If these communicative resources are found to be regularly employed in the ITA–ACS instructional interactions, and communicatively conducive to the procedural achievement of a mutual understanding, then the practical values of this study would be fourfold: (1) there exist mechanisms for managing understanding problems in the ITAs' teaching activities, (2) ITAs' discourse competence can be enhanced in the repeated uses of interactional procedures, (3) ACSs should be informed about the significant functions of these communicative resources, and (4) the ACSs' conceptual understanding of course materials may be improved in the procedural achievement of language understanding.

Data and method

The data examined here consist of 10 dyadic ITA–ACS interactions that naturally occurred in office hours. Five ITAs participated in this study, in which each conducted two interactions with different ACSs. These interactions range from 25 to 45 min in length. The five ITAs were from China, and the primary reason for choosing Chinese students is that they have received most attention in the national media and existing studies due to their Asian accent. At the time when the data were collected, the five ITAs were PhD candidates of economics at a major research university in the northeast United States and they were teaching an undergraduate course 'Introduction to Microeconomics' as a part of their PhD program requirements. The 10 ACS participants were students from these ITAs' classes, and they were all US-born NS of English. The purpose of their office-hour visits was to get help with homework or prepare for exams. They volunteered to have their conversations with their ITA instructors audio-recorded. The research protocol was approved by the university institutional review board (IRB), and the written forms of consent were obtained from all the research subjects. All the names used in the transcripts are pseudonyms for the sake of confidentiality.

The 10 interactions were audio-recorded in these ITAs' offices without the researchers being present. All the interactions were transcribed in the main techniques developed in CA (cf. Atkinson and Heritage 1984). The reason for adopting this transcribing technique is that the transcription symbols can capture most paralinguistic features such as vocal inflections, intonation, overlaps, and pauses, all of which are crucial for locating problematic understanding.

These interactions were searched for problematic understanding in two steps. First, they were reviewed turn by turn by two instructors of communication. The two reviewers compiled a list of moments in each exchange that revealed linguistic deficiencies and their related confusions. The list was then used as a guide for the subsequent playback sessions with each participant. Second, all the interactions were reviewed turn by turn with each participant alone, and each was asked to comment on any moment in which a confusion was experienced. These postinteraction reviews provided an emic description of how an interaction was carried on from a participant's own view that was informative for the researcher to identify different types of understanding problems and some contextual characteristics. The playback sessions were also audio-recorded.

Data analysis

The turn-by-turn examination of these office-hour interactions revealed only a small number of problematic understanding cases that will be explicated in the following. Some were

related to linguistic forms that produced a problem for understanding the sentence meaning, whereas others were related to sociocultural and pragmatic issues that gave rise to a problem for understanding the communicative intentions of an utterance. These specific cases of problematic understanding were managed in two types of interactional procedures: corrective and preventive.

Corrective procedure

A corrective procedure refers to the process in which participants make any communicational move to repair a problematic understanding that already has occurred in the course of interaction. The phenomenon of repair has been extensively studied in both CA and Second Language Acquisition (SLA). From the CA perspective, whether an utterance can bring forth any understanding or be understood may be exhibited in responses to it in the next turn, and thus directly observable in a sequence (Pomerantz 1984; Schegloff 1987). CA is concerned with the locations of repairs in a sequence, and its basic finding is that repairs are normally initiated in the turn following the source-trouble turn, which is termed as NTRI – an acronym for ‘next turn repair initiation’ (Schegloff, Jefferson, and Sacks 1977) – though more recent research shows that repairs may also be initiated in the third or fourth turn due to certain structural issues (Schegloff 1992, 2000). In contrast, SLA, while equally concerned about the organizations of repairs in the interactions between NS and nonnative speakers (NNS) (Varonis and Gass 1985), reports that the NNSs’ repairs of the NNSs’ language deviations are highly selective. Some of the NNSs’ language mistakes are repaired, whereas others are either delayed (Wong 2000) or simply ignored (Kurhila 2001) due to certain contextual characteristics.

The data analyses here are concerned about not only the organizations of repairs but also the specific forms in which a problematic understanding is coped with. A variety of forms have been found to initiate and repair a particular type of problematic understanding at a particular juncture of interaction. The specific formulations of repairs may be interactionally informative about the causes of an understanding problem (Gumperz 1992) and communicatively consequential with regard to the conditions of a mutual understanding (Sanders 2003).

Extract 1 contains an instance of problematic understanding for Arthur in his interaction with Mr Yao. The topic of the exchange is about the definition of consumer surplus. Mr Yao did not pronounce the key term ‘surplus’ correctly. Arthur made a clarification request for the term that he had missed before Mr Yao could finish his utterance:

Extract 1 (Abridged from the Yao–Arthur interaction)

- | | | |
|-----|----------|---|
| 189 | Mr Yao: | So basically the definition of consumer <u>surplaw</u> :::s |
| 190 | Arthur:→ | Consumer what? |
| 191 | Mr Yao: | <u>surplaw</u> :::s, <u>sales</u> |
| 192 | Arthur: | <u>surplus</u> , right |
| 193 | Mr Yao: | surplus, right |
| 194 | Arthur: | surplus right, okay, I got you. |

Arthur’s trouble with Mr Yao’s pronunciation of the word ‘surplus’ was clearly displayed in his clarification request at Line 190. Mr Yao repeated ‘surplus’ in the same way, but he followed it with an indicative word ‘sales’ at Line 191, possibly as a cue that would help

Arthur understand the word. This seemed enough for Arthur who offered at Line 192 his correction by repeating the word ‘surplus’ in its correct pronunciation. It is notable that Arthur did not directly point out that Mr Yao mispronounced the word. Arthur simply pronounced ‘surplus’ in its correct form. This seems to have been successful in that Mr Yao then repeated ‘surplus’ in the correct way. Arthur affirmed it by repeating ‘surplus’ in a softened tone, and said ‘I got you’, which shows a mutual understanding was thereby achieved.

Extract 2 contains an instance of problematic understanding for Gary in his interaction with Mr Yao. The topic of the exchange is about the role of government in market. Mr Yao did not pronounce a key word ‘quit’ adequately. Gary made a clarification request for the word he had missed before Mr Yao could go further in his explanation:

Extract 2 (Abridged from the Yao–Gary interaction)

- 87 Mr Yao: So (0.4) the (.) basic the rules are, you know, they are made by
88 government, or [you can say that sometimes gov- government
89 Gary: [Right
90 Mr Yao: kwi ((quit)) this market, then there is some self-[(0.4) discipline.
91 Gary: → [what was it, the
92 government does what to the market?
93 Mr Yao: Probably sometimes government just quit because of the de-regulations
94 today we talk about [(in class.)
95 Gary: [Quit, [they quit regulating these
96 Mr Yao: [Yeah, yeah, right.
97 Gary: disciplines.

The observable cause for Gary’s initial incomplete understanding is that Mr Yao did not say the word ‘quit’ fully. Gary seemed to have trouble understanding that word, and thereby he made a clarification request at Lines 91–92. Mr Yao reformulated his earlier explanations by introducing a new piece of information ‘deregulation’ that was discussed in class, so as to contextualize and clarify the term ‘quit’, and at the same time he pronounced ‘quit’ correctly and added an extra word ‘just’ for emphasis at Line 93. Gary seemed to have then formed an understanding of what Mr Yao had said, but to be sure, he made a confirmation check in the form of a combination of an other-repair (saying ‘quit’ correctly) and an other-reformulation (‘they quit regulating these disciplines’). Mr Yao responded to Gary’s confirmation check with ‘Yeah, yeah, right’ at Line 96, which approves his understanding.

Extract 3 contains an instance of problematic understanding for Amy in her interaction with Mr Fang. The topic of the exchange is about the derivation of the pattern of trade. Mr Fang did not pronounce a critical word ‘trade’ clearly. In the first place, Amy asked for a clarification of the term at Line 267. After a brief pause in which Mr Fang did not provide an answer, Amy then turned her clarification request into a confirmation request at line 269:

Extract 3 (Abridged from the Fang–Amy interaction)

- 263 Mr Fang: If you can (0.3) um derive this table, then you can be ((able)) to decide
264 the pattern of tray ((trade)) and the pattern of spe- specialization.
265 (1.7)
266 Mr Fang: So
267 Amy:→ Wait, how to (0.2) do what?
268 (0.6)
269 Amy:→ the pattern of trade?
270 Mr Fang: Yeah.

Amy's clarification request specified what exactly she did not understand at Line 267, while Mr Fang paused at Line 268, probably trying to figure out which part of his prior utterance she had missed. As she did not get a response, Amy then made a confirmation request ('the pattern of trade?') at Line 269 in the form of a self-reformulation of her prior clarification request. Mr Fang provided a quick approval of her understanding at Line 270.

Extract 4 contains one more instance of problematic understanding for Amy in the exchange following Extract 3. Mr Fang made an indefinite reference to a conceptual term in his preceding explanation. Amy experienced an incomplete understanding of a small component of Mr Fang's explanations for which she sought for a confirmation at Line 298:

Extract 4 (Abridged from the Fang–Amy interaction)

- 296 Mr Fang: So (.) are you sure yo- you understand the uhh (0.4) the how to derive
 297 that ↑ (0.8) now
 298 Amy: → [the (.) opportunity cost?
 299 Mr Fang: how to derive the (.) opportunity cost from the (.) table of productivity?
 230 Amy: Yeah

Amy seemed to understand what Mr Fang was asking about, but she was unable to surmise what was being referred to in his use of the pronoun 'that' at Line 297. Amy's confirmation request at Line 298 displayed her uncertainty and initiated what can be regarded either as a self-repair or self-reformulation by Mr Fang.

Extract 5 contains an instance of problematic understanding for Gary in his interaction with Mr Yao. The topic of the exchange is about the definition of informal market. The way that Mr Yao made his explanation caused some uncertainty for Gary. Gary thus made three confirmation requests to enhance his understanding of Mr Yao's explanation:

Extract 5 (Abridged from the Yao–Gary interaction)

- 70 Mr Yao: Now there's internet, right? Although they have a ware-, you know, the
 71 warehouse system, but still it's uh an electronic system.
 72 Gary: → So in, but, but, so you said the informal are generally based on, (0.2) on
 73 communication transfer.
 74 Mr Yao: Right, right, right.
 75 Gary: → Just communication transfer?
 76 Mr Yao: Right, right, right.
 77 Gary: → not physical [(0.6) picking up and going there
 78 Mr Yao: [not physical, not physical, right.
 79 Gary: Yeah. I see

Prior to this excerpt, Mr Yao explained informal market. He did not give a definition but some illustrations. Gary was not certain what was exactly meant in the illustrations, hence he used his own phrases such as 'communication transfer' and 'not physical picking up and going there' to display his tentative interpretations of what was meant in the illustrations. As shown in Line 72, Gary understood what Mr Yao said, but he experienced an understanding uncertainty regarding what was meant in Mr Yao's explanations and he attempted to reduce his uncertainty by actively seeking for clarity.

Extract 6 contains an instance of problematic understanding for Jamie in her interaction with Mr Liu. The topic of the exchange is about the calculation of percentage change. Jamie's trouble with the calculation procedure, while conceptual in substance, is seemingly related to Mr Liu's explanation style. Jamie made three confirmation requests in her attempt to achieve a congruent understanding with Mr Liu:

Extract 6 (Abridged from the Liu–Jamie interaction)

- 197 Mr Liu: So that reminded you of that.
 198 Jamie: Yeah, that is, yeah (0.5) cuz I am sitting here like why is it one?
 199 Mr Liu: One hundred percent.
 200 Jamie: → mm, so it times a hundred, a hundred, that's how we get one hundred
 201 percent, right?
 202 Mr Liu: No, no, no,
 203 Jamie: No?
 204 Mr Liu: Not one hundred, one hundred (0.2) percent. (1.2) If you (0.2) justa
 205 ((just)) time one hundred, then that makes the whole thing as (.) as one
 206 hundred, (0.2) there is no this percentage sign.
 207 Jamie: → So it's just supposed to be one hundred? (0.6) or one? =
 208 Mr Liu: = mm, no, um, what I want you to do is (0.2) multiply one hundred (0.3)
 209 percent, [(0.3) not just one hundred.
 210 Jamie: | mm
 211 Jamie: → So you want us to multiply by a hundred percent =
 212 Mr Liu: = yes, by that =
 213 Jamie: = mm

In the prior excerpt, Mr Liu called Jamie's attention to an error in her homework. Jamie mistook 1 for one dollar, but it actually stands for 100 percent. Mr Liu explained in a great length that 1 is neither one dollar nor 100, but it is percentage. Jamie spoke as if she understood the concept, but her confusion was not really cleared up as shown in Line 200. Mr Liu disapproved of Jamie's understanding at Line 202, which surprised her somewhat, and then he told her again to multiply by 100 percent with a brief reasoning at Lines 204–206. Jamie replicated what she thought she had understood in Mr Liu's utterance as a confirmation request at Line 207. Mr Liu rejected her understanding again, and then tried to make his intent clearer in a more directive sentence at Lines 208–209. It was at Line 211 that Jamie started to understand Mr Liu's intended direction as shown in her confirmation request.

Preventive procedure

A preventive procedure refers to the process in which participants attempt to avert a potential problematic understanding from being actualized through some strategic practices. Both CA and SLA have conducted extensive studies on the ways in which a prior utterance may condition and regulate the subsequent interpretation of and response to it in the next turn. For example, Sanders (1991) demonstrates that the formulation and presentation of a communicative act at a particular juncture of interaction may exert important restraints on not only the respondent's understanding of it but also the selection of different paths to reaching interactional goals. In the studies of NS–NNS interaction, Long (1981), Bremer and Simonot (1996), and Kasper (2004) all demonstrate that the NSs' linguistic adjustments

can make an utterance more comprehensible to the NNS, and thereby help to enhance the NNSs' discourse competence.

The data analyses of preventive procedures here are based on two standards: (1) some verbal modifications must be produced and (2) they must address a verbal feature of the just-completed talk that had the potential to produce a problematic understanding. For example, a self-repair or a self-reformulation before the prior formulation was responded to, wherein the reformulation can remove an ambiguity in or provide an improvement on the original. A preventive procedure was basically dependent on one party's perception and anticipation that a problem was about to arise, and thus some verbal strategies have to be used to prevent the problem from actually occurring.

Extract 7 contains an instance of problematic understanding that would potentially occur for Mr Fang in his interaction with Buffy. The topic of the exchange is about market classification. Buffy asked Mr Fang a what-question about market type, but she did not receive an immediate response, and thereby she made a self-reformulation to deal with what she might have perceived to be a problematic understanding that was about to occur for Mr Fang:

Extract 7 (Abridged from the Fang–Buffy interaction)

- 163 Buffy: and then there's, (0.2) what are the (.) other kinds of markets (.) besides
164 a competitive market.
165 Mr Fang: u::m
166 Buffy:→ like (1.0) if there's- (1.2) cause I know these are examples of (0.4)
167 competitive ↑markets.
168 Mr Fang: uh, uh,
169 Buffy:→ but (.) are there other (0.2) types of markets in general?
170 Mr Fang: uh uh (0.9) mm (0.3) actually you can divide (.) the market (0.2) into
171 many (0.3) um (1.2) many forms [. . .]

Mr Fang did not provide any substantial response to Buffy's question but an extended, vocalized pause at Line 165. This lack of uptake led to Buffy's reformulation of her original question. It is notable that Buffy started with a what-question (i.e. 'what are the other kinds of markets beside a competitive market?') at Line 163, but she then turned her what-question into a yes/no question (i.e. 'but are there other types of markets in general?') at Line 169. Arguably, this reformulation is not an improvement over the original, in that Buffy seems to have wanted Mr Fang to state or explain other types of markets (as her original question asks) and not to simply say 'yes' or 'no' as her reformulation asks. However, this reformulated question was easier to respond to. After her reformulation, Mr Fang gave a lengthy explanation that is not included here.

Extract 8 contains an instance of problematic understanding that would potentially occur for Ms Wu in her interaction with Frank. The topic of the exchange is about the diagram of supply curve. Frank asked a question without a definite reference, and then made a self-reformulation to clarify what he had intended to ask about as he anticipated that Ms Wu might be experiencing a problematic understanding from her delayed response. Frank's self-reformulation started with a description of the diagram at Line 79 and ended with a question at Line 83:

Extract 8 (Abridged from the Wu–Frank interaction)

- 75 Frank: Right here what's going on?
 76 Ms Wu: mm
 77 Frank: → in this (0.3) diagram
 78 Ms Wu: This is [for
 79 Frank: → [The supplied sh-, the supply um (1.5) [curve shifts in
 80 Ms Wu: [This is de ((the)) price
 81 ceiling
 82 (1.5)
 83 Frank: → what is it, [shifts here?
 84 Ms Wu: [I see
 85 Ms Wu: I think, um (0.1) so anyway um (0.1) when we, when we um think about
 86 the effects of the price ceiling, [you should always
 87 Frank: [yeah
 88 Ms Wu: compare it with the market equilibrium price.
 89 Frank: Okay

Frank asked Ms Wu a question about a certain diagram. He might have realized from Ms Wu's tentative response at Line 78 that his original question in line 75 ('right here what's going on?') was too ambiguous and could cause a problematic understanding for Ms Wu, and hence he tried to reformulate his first question by adding a reference ('in this (0.3) diagram') hoping to make it more concrete. As Ms Wu was offering a tentative response ('this is for'), Frank then produced a more extensive and elaborate reformulation, cutting off Ms Wu as she began her answer, now making explicit what he wanted to have explained ('The supplied sh-, the supply um (1.5) curve shifts in price ceiling' and after a further pause, 'what is it, shifts here?'). The new formulations progressively disambiguate the original question, not in response to an understanding problem, but apparently in anticipation of one that the original version could produce.

Extract 9 contains an instance of problematic understanding that would potentially occur for Ms Zhu in her interaction with Dave. The topic of the exchange is about purchasing power and its calculation. Dave asked Ms Zhu how to calculate purchasing power, but he was not certain whether she understood what exactly he was asking about, and he appealed to a comprehension check at Line 56 and then an other-reformulation at Line 59:

Extract 9 (Abridged from the Zhu–Dave interaction)

- 55 Dave: Okay, it's, but I don't understand how I get the purchasing power out of
 56 → that, do you know what I am saying?
 57 Ms Zhu: ah, I know yeah. Purchasing power (.) usually is just (.) some concept (.)
 58 you don't calculate in detail such as (0.7) um how many goods you [um
 59 Dave: → [So
 60 there's no actually numbers, just kinda like ratio?
 61 Ms Zhu: Yeah. I am just asking you (.) the purchasing power goes up or goes
 62 down

Prior to this excerpt, Dave asked about 'purchasing power'. Ms Zhu gave a few examples of the concept without providing a definition. Dave obviously was still having trouble with the concept. It was notable from his formulation of the question at Line 55 that Dave was concerned that Ms Zhu might be experiencing some difficulty in understanding

what exactly he did not understand about purchasing power. The comprehension check ('do you know what I am saying?') at Line 56 revealed Dave's uncertainty and the confirmation check at Line 59 showed his attempt to lead Ms Zhu to the direction he wanted.

Extract 10 contains an instance of problematic understanding that would potentially lead Ms Wu to a wrong direction in her responses to Erin's question. The topic of the exchange is about the definition of stock market in relation to a classification of markets. Erin asked a question that led Ms Wu to think that she was seeking a clear definition of stock market. After Ms Wu made a couple of attempts for answering the question, Erin made a few self-reformulations to prevent Ms Wu from going in the wrong direction:

Extract 10 (Abridged from the Wu–Erin interaction)

- 64 Erin: This is the stock market.
 65 Ms Wu: mm
 66 Erin: It isn't monopoly, but wha- what is the stock market (0.4) then?
 67 Ms Wu: Stock market [(0.5) uh
 68 Erin: → [> has many buyers and sellers as you said. < I mean like,
 69 (0.7) I know the stock market has many [buyers and =
 70 Ms Wu: [I think, yeah
 71 Erin: = sellers. That makes sense.
 72 Ms Wu: Then, um, so we know that (0.6) the definition of market (0.5) is (0.3)
 73 uh, (0.6) a bunch of (0.6) [buyers and sellers of a particular
 74 Erin: [buyers and sellers
 75 Ms Wu: good. [That's a market.
 76 Erin: [mm
 77 Ms Wu: So (0.4) for example, we can say (0.5) uh the rice market.
 78 Erin: Right
 79 Ms Wu: That means (0.4) so we refer to all buyers and sellers of rice. This is the
 80 market of rice.
 81 Erin: → So stock market is
 82 Ms Wu: Yeah! Stock market is [(0.4) the people (0.4) selling and buying
 83 Erin: [just a market?
 84 Ms Wu: mm stock.
 85 Erin: → But what is it? What is it? It's not uh monopoly, it's not monopoly. It's-
 86 Ms Wu: → I think it is, (0.5) it is (.) a competitive market. (0.7) It is close to (0.6)
 87 uh a perfectly competitive market.
 88 Erin: Okay

Erin made her first self-reformulation at Lines 68–69 in the form of expanding or supplementing her original question at Line 66 after Ms Wu displayed some hesitation or delay in answering that question. Erin's first self-reformulation expands the question by clarifying what she did know, so as to indicate what she was not asking. Despite Erin's clarification, Ms Wu continued to explain what Erin already had known, and she even provided more elaborations by using examples. (It is possible that Erin's unfinished utterance at Line 81 might be her attempt to prevent Ms Wu from elaborating on what she was not asking so as to lead Ms Wu to what she was asking about.) Erin made her second self-reformulation at Line 85, but she did not just ask the question ('What is it?'), she made some associations with a key term 'monopoly'. Ms Wu finally came to understand what Erin had been trying to ask about at Line 87 as she changed her answer and thus repaired her previous, misdirected response.

Discussion

These office-hour interactions contain some important communication phenomena regarding the research questions. In the data analyses above, we have identified a number of circumstances under which problematic understanding occurred and procedures in which mutual understanding was reached. The findings here may have some practical values for ITAs' instructional activities and general implications for intercultural interactions in educational contexts.

First, problematic understanding may arise from linguistic deficiencies, but not all linguistic deficiencies actually produce understanding problems. The data revealed some inadequacies in the ITA participants' pronunciation, use of words, and sentence structure, but they did not cause any major problematic understanding for the ACS participants. As shown in the first four instances, the ACSs felt that it was more difficult to understand only those special terms and key words in economics when their ITAs did not pronounce them clearly. This would require ITAs to do more oral practices on the conceptual terminology that is evidently less comprehensible to ACSs than everyday language. One noteworthy phenomenon is that there was no observable and reported problematic understanding in the interaction between Ms Zhu and Cathy though Zhu's overall pronunciation is similar to Yao's and Fang's. The postinteraction review with Cathy solved this mystery. That is: Ms Zhu had developed a habit of writing down critical words while lecturing. Cathy made the following comment in the postinteraction interview:

If I don't understand you, you write it on the board for us to comprehend, then it's not that bad. But some teachers just know the work very well, and they know it, they just talk, and it's too fast for me. If you don't sit there and talk, you can't understand them. [...] Like right now my teacher [referring to Ms Zhu] writes everything on the board, and I can understand everything, I may have one or two questions, but she explains them.

Second, cultural differences make an implicit rather than explicit difference in the procedures of interaction. Whether culture is observable and thus usable as a valid interpretive framework in interaction is a long-standing debate between Ethnography of Communication and CA (Sanders 1999). For ethnographers (Moerman 1987, 6–7), interactions are essentially 'culturally contexted', and 'all meaning is in relation to a context'. In contrast, for conversation analysts (cf. Schegloff 1987), interactions are not necessarily traceable to linguistic and cultural differences, and thereby any contextual characteristics that are interactionally exogenous are not likely invoked in CA. However, studies of intercultural interaction would make little sense without invoking cultural knowledge (cf. Blommaert 1991). If culture is defined as a transcendent or overarching structure of values and norms, and causally related to various forms of behaviors (cf. Hofstede 2001), then it is not apparent in these office-hour interactions here as it was reported in most existing studies. If culture is considered as encoded in the different forms of speech events, communication conventions, and interactional styles (cf. Gumperz 1992, 2003; Gumperz and Tannen 1979), then it is visible in the ways in which ITAs made explanations and gave instructions, and ACSs phrased questions and sought after answers.

As exhibited in Extracts 5–10, the ITA and ACS participants encountered few, if any, comprehension problems at the level of referential and propositional content, but all these interactions were rather difficult because of the different perceptions and interpretations of each other's communicative intentions. For example, Mr Yao showed quite a functional, if not great, command of English in Extract 5, but his explanation of informal market left Gary very uncertain about what exactly was meant in what was said. This explanative act of giving examples without an initial definition of the conceptual issue (see also Tyler's [1995]

discussion of Asian students' preference for inductive reasoning over Euro-Americans' deductive reasoning) did not meet well with ACSs' common needs (cf. Rounds 1994). Similarly, Mr Liu's response to Jamie's question about percentage change did not display any obvious linguistic mistakes in Extract 6, but it took several turns for Jamie to figure out what exactly she was supposed to do. This particular pattern of instructing from specific procedures to conceptual definition could create missteps, which was also noted by Tyler and Davies (1990) in their analysis of an office-hour interaction between an ACS and a Korean TA.

While ITAs' culturally shaped responses created understanding problems for ACSs, the ways in which ACSs phrased questions seemed to have puzzled ITAs. For example, the sociolinguistic conventions for framing a topic shift in Erin's question (i.e. 'It isn't monopoly, but what is stock market then?') could leave Ms Wu to wonder which part of the question should be addressed if she missed some contextualization cues (cf. Gumperz 1992). Similarly, Frank's colloquial ways for opening up a topic (i.e. 'Right here what's going on?') certainly indicated his presupposition of interactional procedures that were not definitely accessible to Ms Wu. Also, Dave's idiomatic ways for asking a conceptual question (i.e. 'How do you get the purchasing power out of that?') could leave Ms Zhu to guess what on earth he was asking about. These ACSs' questioning styles showed that sociocultural differences are indeed embedded in the NSs' habitual ways of saying things (cf. Myers 1994).

Third, problematic understanding, whether explicitly or implicitly connected to linguistic and cultural differences, does not always go unnoticed. Existing studies mostly hold that intercultural communicators are largely unaware of their conflicting interpretative frameworks (cf. Bardovi-Harlig and Hartford 1990; Tyler 1995). The ITA and ACS participants here seemed to be aware of their linguistic and cultural differences. Generally speaking, linguistic differences were highly noticeable, whereas cultural differences were less explicit but still traceable as shown in all these participants' verbal modifications. The participants' awareness of problematic understanding was not only displayed in their verbal interactions but also reported in the postinteraction interviews. For example, Erin made the following observation of her interactions with Ms Wu:

It's kinda when she doesn't understand the question, she has to think about the question, and just interpretation of what we are trying to say to each other. I'll interpret what she is saying as one thing, and she'll mean another thing. [...] If you try to say, 'if you look at it', or 'if you take a look at it', she might be like, 'if you, if you, mm, take time to see', she said that, and that'll be like, 'look at it'. 'Take time to see' will be 'look at it'. So it's kinda like instead of only trying to figure out what the answer to the question is, you also try to figure out what she is trying to say.

Fourth, problematic understanding may be remedied in the specific procedures of correction and prevention. Existing studies mostly describe ITAs and ACSs as helpless victims as problems arise in interaction (Tyler 1995). In contrast, this study shows that the ITA and ACS participants are active problem solvers. They could make a voluntary use of repetition, repair, reformulation, confirmation request, clarification request, comprehension check, etc., to correct or prevent a problematic understanding. They could make a strategic selection of these communication tactics if one did not work or if one worked better than the other. They could make mindful adjustments in their verbal expressions to better communicate their intended meanings. These procedures are used not only in these interactions under study here but also in common practices. Jamie made the following observation of her interactions with Mr Liu:

If you see there are some problems, some problems because he did not really know what he was saying, I'd just like to ask him, 'huh?' "could you repeat yourself?" and like he'll, he'll go over it and he'll try to break it down and I'll try to ask him "is this what you are talking about?" and somehow we keep on talking and like he'll fumble for more words, and I'll try, you know, to communicate with him and tell him more, and make suggestions, "is this what you are talking about?" and like somehow we'll get to the root of what he is really talking about.

Lastly, the communicative practices of correction and prevention demonstrate that procedural knowledge and positive attitude play a principal role in the achievement of mutual understanding across linguistic and cultural boundaries. While it is certainly important for both ITAs and ACSs to learn about linguistic and cultural differences, the present study suggests that it may be more important to develop the knowledge of how to perform interactions in intercultural situations. In addition to the procedural knowledge, it is critical to display a positive attitude that will motivate people to take initiatives in achieving a mutual understanding. It is noteworthy that the ITA and ACS participants here earnestly wanted to reach a mutual understanding and therefore they were active in listening to each other, mindful in speaking to each other, and cooperative in adjusting to each other. The importance of positive attitude was also shown in the ACS participants' postinteraction accounts. For example, Dave made the following comments on his ITA instructor, Ms Zhu:

I can compare her [referring to Ms Zhu] to a young American graduate student who teaches us math. I noticed that she is really making sure that we understand everything, I've never known that all foreign instructors are really bad. She's trying hard to make us understand everything. The American graduate student that I know from my math class, she just teaches it, you know what I mean? We can give her a confused look, but she is not doing anything about it.

Gary made the following remarks out of his personal experiences with foreign-born instructors:

I've only had a few instructors so far, more foreign than US. I suppose it's fair to say that the big difference is the fact of their foreignness itself, their backgrounds, and their worldviews. It's a valuable part of our education to be exposed to different people from different cultures.

Conclusion

The present study has made some responses to the common concern regarding understanding problems in ITAs' instructional activities. The primary answer is that there exist communicative procedures for correcting and preventing problematic understanding when it occurs due to some linguistic and cultural differences. While communication is the source of understanding problems for ITAs and ACSs, communication is also the means to remedy understanding problems. In this sense, the communicative practices of correction and prevention in these office-hour interactions should be most informative for pedagogical training.

In existing studies, ITAs' linguistic and cultural differences are treated as the unilateral cause for ACSs' understanding problems and therefore most training programs aim at enhancing ITAs' language proficiency in a workshop. The present study reveals that learning and teaching are not exactly two separate, cognitive processes, but a continual, interactive development. It should be particularly important for both ITAs and ACSs to develop procedural knowledge in the process of learning and instruction across linguistic and cultural boundaries. More specifically, ITAs and ACSs should be informed of how to motivate and engage each other in their pursuit of a mutual understanding (as shown in Extracts 2 and 6), how to manage uncertainty in their understanding of each other's

utterances (as shown in Extracts 5 and 7), how to make alternative interpretations of each other's intentions (as shown in Extract 10), how to conduct active listening (as shown in Extract 4), how to request for clarification (as shown in Extract 3), how to facilitate each other's message processing (as shown in Extract 8), how to adjust to each other's group differences (as shown in Extract 9), and how to initiate corrections and get things right (as shown in Extract 1). These interactional procedures should be incorporated into the pedagogical training for ITAs as well as the curriculum for ACSs to perform their instructional tasks at hand and to develop their global communication competence in the long run.

To end this paper, let us return to Ms Grande's proposal in North Dakota. According to *The Chronicle of Higher Education*, after several weeks of discussions with higher-education experts, Ms Grande started to think differently about the issue of language barriers. Her bill changed drastically after several rounds of amendments in both North Dakota House and the Senate and was turned into a vague order for the State Board of Higher Education to make a new policy on teaching assistants' communication skills. While convinced that students need to listen harder, Ms Grande still had a question: 'What if it was bearing on whether or not I was going to be able to grasp materials I was going to need for my profession?' We hope that this study could offer some answers to that question, and would help policymakers like Ms Grande to gain some insights of the dynamics of instructional interactions across linguistic and cultural boundaries.

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