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USING STIMULATED RECALL TO INVESTIGATE NATIVE SPEAKER PERCEPTIONS IN NATIVE-NONNATIVE SPEAKER INTERACTION

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Implicit negative feedback has been shown to facilitate SLA, and the extent to which such feedback is given is related to a variety of task and interlocutor variables. The background of a native speaker (NS), in terms of amount of experience in interactions with nonnative speakers (NNSs), has been shown to affect the quantity of implicit negative feedback (namely recasts) in a classroom setting. This study examines the effect of experience and uses stimulated recall to attempt to understand the interactional patterns of two groups of NSs (with greater and lesser experience) interacting with second language (L2) learners outside of the classroom context. Two groups of NSs of English each completed an information exchange task with a L2 learner: The first group consisted of 11 preservice teachers with minimal experience with NNSs, whereas the second group included 8 experienced teachers with significant teaching experience. Immediately after the task, each NS participated in a stimulated recall, viewing a videotape of the interaction and commenting on the interaction. The quantitative results did not show a strong difference in the number of recasts used by the two groups, but it did show a difference in the quantity of NNS output between the two groups. This finding was corroborated by the stimulated recalls, which showed that those with experience—who clearly saw themselves as language teachers even outside of the classroom—had strategies for and concerns about getting the learners to produce output. Additionally, the experienced teachers showed greater recognition of student comprehension, student learning, and student problems. Those with little experience were more focused on themselves, on student feelings, and on procedural and task-related issues.

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The role of feedback in SLA has long been an issue of importance because of its potential role as a mechanism for learning. Within SLA, different approaches make greater and lesser use of the concept of feedback. For example, from the perspective of Universal Grammar (UG), the role of feedback receives scant attention given that the focus is on the learner's knowledge base; the attainment of new knowledge or the modification of existing knowledge through feedback is of little concern. The interactionist approach can be contrasted to this position in that it ascribes a high level of importance to feedback through interaction as a driving force for learning.

Traditionally, the SLA literature deals with positive evidence and negative evidence.[1] The most direct means that learners have for learning is through positive evidence, which refers quite simply to input. Input (spoken or written) consists of (generally) well-formed utterances that learners, in some sense, use as possible models for learning. Input is what learners can use as they formulate hypotheses about the second language (L2). A second type of evidence is negative evidence,[2] which refers to the information that learners receive concerning the incorrectness of an utterance. Negative evidence does not necessarily provide information about what is wrong with an utterance, only that there is something wrong.

Negative evidence occurs as a result of feedback; in nonclassroom settings, the feedback provided is most commonly implicit feedback. Generally speaking, implicit feedback occurs in interaction, as in (1). (All examples are from the current study, and the transcription key can be found in Appendix A.)

(1) NNS: Uh, this- this pot- this pot is small than on stove.
ET7: I'm sorry?
NNS: Uh, I'm sorry. The left side, uh, pot is small than- smaller tha:n
ET7: Smaller tha:n
NNS: Smaller than the pot on the sh- on the stove.

In this instance, the learner receives feedback on her utterance in the form of a signal of noncomprehension on the part of the native speaker (NS) in lines 2 and 4. Note that in this case, the learner corrects the misused comparative form in line 3.

Another common form of implicit feedback is a recast, which is the focus of this paper. Recasts have generated a significant amount of research in recent years, ever since Bohannon and Stanowicz (1988) initiated a discussion of their significance for child language acquisition. Recasts are simultaneously a form of positive evidence and negative evidence (cf. Carpenter, Jeon, MacGregor, & Mackey, this issue; Leeman, 2003) because they occur adjacent to an incorrect form. It is precisely because of their potential dual role that they form an interesting area of investigation for learning. An example from the current study is given in (2).

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(2) ET8: Is there anything on the floor to the right of the table besides the dog dish?
NNS: Just dog dish-
ET8: Just the dog dish.
NNS: And the /l/ug. /L/ound /l/ug.
ET8: But the rug is under the table?

In this instance (lines 3 and 5), the NS provides subtle indications that there is a problem with the nonnative speaker's (NNS) utterance. In the first recast, the NS simply rephrases the utterance with the correct article added. In the second recast, he correctly pronounces "rug," but also adds more information. Whether the NS intends either or both to be a correction and whether the NNS perceives them as implicit feedback is unknown (see Mackey, Gass, & McDonough, 2000). Regardless, a positive model in direct contrast to a learner error is available in the input. With regard to SLA, there is evidence of the effectiveness of recasts (Doughty & Varela, 1998; Iwashita, 2003; Leeman, 2003; Long, in press; Mackey & Philp, 1998; Philp, 2003), although acceptance of this conclusion is not uniform (Lyster, 1998a, 1998b, 2004; Lyster & Ranta, 1997).

The importance of feedback is central to the interactionist perspective (see, e.g., Gass, 2003; Long, 1996; Mackey, 1999, in press), with the emphasis on the role of negotiated interaction between NSs and NNSs or between NNSs. Long succinctly expressed this when he wrote ". . . *negotiation for meaning*, and especially negotiation work that triggers *interactional* adjustments by the NS or more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways" (pp. 451–452).

Thus, in this and other recent work (cf. Gass & Alvarez Torres, 2005; Gass, Svetics, & Lemelin, 2003; Robinson, 2003; Schmidt, 2001), attention is a crucial factor in understanding the function of negotiation. In fact, Schmidt made the strong claim that attention "is necessary in order to understand virtually every aspect of second language acquisition" (p. 3). In this view, attentional resources are directed to a gap between a learner's knowledge and information present in the target language input.[3] The gap can be a true gap, or what has been called a *hole* (Doughty & Williams, 1998; Swain, 1998), and can occur when a learner is confronted with new knowledge (e.g., a new vocabulary item). The gap can also be a partial gap whereby a learner has some knowledge of a structure, as in (1), in which the learner could only partially form the comparative form. As Gass (1997) argued, learning might take place during the interaction or negotiation might be an initial step in learning, thereby serving as a priming device that prepares the stage for later learning.

VARIABLES RELATED TO FEEDBACK

Provision of feedback is dependent on a number of variables, including, for example, the interlocutor. Additionally, task type (e.g., Robinson, 2001) and task context (e.g., Oliver & Mackey, 2003) are important variables, although

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neither will be considered here. If feedback is important or even essential to learning, one must have a clear understanding of the role of the interlocutor and other variables in this equation.

Interlocutor variables such as familiarity with one's partner, age, anonymity, gender, language proficiency, and experience with NNSs were studied first with regard to the amount of negotiation and later with a focus on the type and amount of feedback that NNSs receive. For example, Pica, Lincoln-Porter, Paninos, and Linnell (1996) found that NNS interlocutors provided their NNS partners with less modified input than did NSs, and Gass and Varonis (1986) found more negotiation in mixed-gender dyads than in same-gender dyads. Later, the focus moved to feedback on learners' nontargetlike utterances in the form of negotiation and recasts. Mackey, Oliver, and Leeman (2003) found that although there were no differences in the amount of feedback in child-child dyads and adult-adult dyads, NSs gave more feedback than NNSs in the adult-adult dyads. Hangui (2004) studied the provision of feedback in synchronous computer-mediated communication (i.e., chatting) in both anonymous and nonanonymous conditions. Although she hypothesized that more feedback would be provided in the anonymous condition because feedback might be seen as aggressive or threatening behavior, she found no differences in the two conditions.

The interlocutor variable under examination in this study is NS experience talking with NNSs. Few studies have looked specifically at this issue. One such study by Pica and Long (1986) compared the amount and type of input and interactional modifications provided by experienced and novice teachers. They found no significant differences in the number of confirmation checks, clarification requests, or comprehension checks used by the two groups. They concluded that the similarities between these two groups outweighed the differences and, thus, that classroom context has a greater effect than experience on the quantity and quality of interactional modifications in classroom discourse. Mackey, Polio, and McDonough (2004) compared preservice and experienced teachers' implementation of lesson plans with regard to incidental focus on form, including recasts and negotiation as well as explicit feedback, a feature not normally studied or found in dyadic studies. They found that experienced teachers were more likely to provide recasts and explicit feedback but were not necessarily more likely to negotiate. They completed a follow-up intervention study and found that preservice teachers were only somewhat successful in giving feedback after being taught strategies for doing so. Mackey et al. did not complete stimulated recalls with the participants in the study and, as a result, were only able to speculate on the reasons for the differences and lack thereof between the two groups. For example, although there was no difference quantitatively in the amount of negotiation—defined as an indication of noncomprehension to the learner—two competing forces might have been at work. On one hand, experienced teachers' familiarity with NNSs can lead to increased comprehension and, consequently, less need to negotiate (Gass & Varonis, 1984). On the other hand,

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teaching experience can cause one to value the importance of indicating to learners that their output needs to be modified in order to be comprehensible.

Although L2 teacher education is not the direct focus of this paper, studies from that field are relevant and informative. Some studies have attempted to probe preservice and novice teachers' perceptions of implicit and explicit feedback through observations and diary studies. Johnson (1992) found that inexperienced teachers' primary concern was maintaining the flow of instructional activities and that they were likely to regard prolonged student interaction negatively because it could interfere with classroom management. Thus, they were likely to ignore student interaction in order to maintain control. In a diary study of 26 novice English as a second language (ESL) teachers, Numrich (1996) found that novice teachers were reluctant to correct student errors in the belief that it would make their students feel uncomfortable. Brinton and Holten (1989) and Holten and Brinton (1995) suggested that novice teachers were most concerned with issues of classroom management and lesson organization and delivery. One interpretation of this finding is that preservice and novice teachers might be less likely to even notice student errors, much less feel comfortable dealing with them.

This paper extends this line of research by considering the relationship between interactional feedback and level of experience talking with NNSs. It does so not only by examining discourse between NNSs and NSs with different levels of experience but also by using stimulated recall, a technique not used in any of the previously mentioned studies, to understand NSs' perception of their provision of feedback (or lack thereof) to L2 learners as well as their general perception of the interaction.

ISSUES OF METHODOLOGY

In the history of interactionist research going back to the 1980s (e.g., Long, 1983; Pica, 1987, 1988; Varonis & Gass, 1985), the typical way to elicit data was through oral production within a task-based context. (See Foster, 1998; Gass, Mackey, & Ross-Feldman, 2005; Nicholas, Lightbown, & Spada, 2001; Nunan, 1991 for a discussion of differences in classroom versus lab contexts.) This approach was useful in the early stages of this research paradigm, but it had some notable weaknesses. For example, Aston (1986) argued against the interpretation of some early research studies (e.g., Long; Varonis & Gass), in which it was claimed that instances of negotiation were beneficial for learning. Rather, he asserted that in many instances, learners feign understanding and that these routines—rather than benefiting learning—are a source of frustration and, thus, "pedagogically undesirable" (p. 128) for learners.

Hawkins (1985) recognized the importance of collecting retrospective data from participants, which challenged the conventional means of data collection. In her study, NSs and NNSs participated in a grab-bag game in which one participant knew what an item was and the other, through questioning, had to

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guess it. Either 1 or 2 days later, each participant commented on the interaction, which provided the researcher with evidence that suggested that interpretations of interactions must proceed with caution. In (3) is an example of an original exchange from Hawkins (cited in Gass, Sorace, & Selinker, 1998, pp. 13 & 15), followed by the posttask commentary.

(3) (NNS knows what the item is.)
NS: No. Uhm, is it sharp?
NNS: Sharp? No.
NS: Is it uhm, is it smooth?
NNS: /smu/
NS: Smooth [gestures]
NNS: Yes
Retrospective comments by the NNS
NNS: "Sharp" means "touched."
NNS: (after researcher explains meaning) I should have listened in a different way.
NNS: (concerning the meaning of *smooth*) something soft and shaggy.

As can be seen, the NNS provided all of the correct responses (possibly feigning understanding) but in any event did not understand the interaction despite all of the appropriate signals suggesting that he or she did.

Because so much of interactionist research depends on appropriate interpretation of responses from learners and their partners, it is important to gather data that allow us to have a high level of confidence in our generalizations. This paper does precisely that by utilizing a stimulated recall methodology (see Gass & Mackey, 2000; Mackey et al., 2000), a subset of a wider variety of introspection methodologies.

The idea behind stimulated recall is that one can prompt participants to recall thoughts that they had while performing a recently completed task. A visual reminder of the event, such as a video or a piece of paper (e.g., for a writing task), is presented, and this visual reminder can jog one's recall of the mental processes of the original event. As Gass and Mackey (2000) noted, "the theoretical foundation for stimulated recall relies on an information processing approach whereby the use of and access to short-term memory is enhanced, if not guaranteed, by a prompt that aids in the recall of information" (p. 17). An important consideration when conducting stimulated recalls is recency. A recall, even with a stimulus, must be conducted relatively close to the event for maximum accuracy. Bloom (1954) claimed that "a subject may be enabled to relive an original situation with great vividness and accuracy if he is presented with a large number of the cues or stimuli which occurred during the original situation" (p. 25). He also assumed that "the recall of one's own private, conscious thoughts approximates the recall of the overt, observable events" (p. 26).

Two other somewhat competing introspective methodologies have been used in L2 research—namely posttask interviews and think-alouds. Interviews rely on memory without the prompts, hence making the results less

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accurate. Think-alouds are often used in research (see Leow & Morgan-Short, 2004, for an overview) but are dependent on specialized training and require a learner to do two tasks simultaneously (i.e., carry out a task and talk about it). To what extent thinking aloud affects the completion of the task is not straightforward.[4] Furthermore, think-alouds in L2 research have the added problem of what language is used during the think-aloud. Thinking aloud in a L1 while completing a task in the L2 might be difficult and unnatural, but thinking aloud in a L2 might not be feasible because of a learner's limited proficiency.

Stimulated recall is also a way of tapping into a learner's focus of attention, which is central to the interactionist approach to SLA. In other words, the extent to which someone notices something in an interaction is an indication of what the participant's attention was focused on during that event. This is not to say that commenting on something is the equivalent of noticing, with the implication that what is not commented on is not noticed. Instead, what we argue is that the methodology used in this study allows us to gain an understanding of what is noticed.

Unlike Mackey et al. (2000), who probed learners' interaction during a dyadic task using stimulated recall, this study probes NSs' perceptions about interaction, specifically about feedback in the form of recasts and negotiation. Furthermore, two groups of NSs (preservice and experienced ESL teachers) were compared for their quantity of feedback in addition to their perceptions of such feedback. The research questions for this study are as follows.

1. Does the amount of experience a NS has interacting with L2 learners affect the amount of implicit feedback provided to learners in a dyadic task?
2. How does the amount of such experience affect NSs' perceptions of learner errors and more general perceptions of interacting with NNSs in a dyadic task?

The first question is addressed quantitatively and the second is addressed qualitatively.

METHODOLOGY

Participants

This study examines the relationship between experience with NNSs and interactional feedback. We operationalized experience in terms of teaching background. Two groups of participants, preservice teachers and professional teachers with a minimum of 4 years of teaching experience, provided the data for this study. The preservice group consisted of 11 undergraduates enrolled in a required course on English grammar for a minor in ESL teaching. The students' majors varied greatly and included English, German, Spanish, special education, elementary education, and math. None had classroom teaching experience, but a few had done private tutoring. About half had either taken or were taking at the time of the study the undergraduate ESL teaching

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Table 1. Background information on experienced teachers (ET)

Experienced teachers	Teaching experience (years)	Taught abroad?
ET1	23	Yes
ET2	5	Yes
ET3	18	Yes
ET4	27	No
ET5	6	Yes
ET6	14	Yes
ET7	4	Yes
ET8	6	Yes

methodology course. The second group included eight experienced teachers currently teaching in an ESL program at the same university. All but one had taught ESL for 5 years or more; the one exception had taught for 4 years. All but one had experience living and teaching abroad. Finally, all but one held a master's degree in TESOL; ET7, the one exception, was in her penultimate semester of her master's degree in TESOL. Table 1 provides background information for the experienced teachers and Table 2 presents background information for the preservice teachers.

Procedure

The preservice and experienced teachers were each paired with an ESL student (from level four of a four-level intensive English program or from an

Table 2. Background information on preservice teachers (PS)

Preservice teachers	Tutoring experience?	Taught abroad?
PS1	Yes	No
PS2	No	No
PS3	Yes	No
PS4	Yes	No
PS5	No	No
PS6	No	No
PS7	Yes	No
PS8	No	No
PS9	No	No
PS10	Yes	No
PS11	No	No

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academic speaking and listening class[5]) with whom they carried out a communicative task. The task was a two-way information exchange activity in which each person had a picture (see Appendix B) that was similar to his or her partner's picture but differed in 10 ways. Each participant had to describe the picture to his or her partner—without the other seeing the picture—in order to discover the differences. The researcher gave them written instructions (see Appendix C) but did not elaborate on how to begin the task, nor was the teacher instructed to give feedback. Thus, the interactional feedback that resulted from the task was not controlled either in form or in response to a particular type of error (e.g., lexical, morphosyntactic). The dyads worked on the task until all of the differences were found. If they were not all found within 11–12 min, the researcher stopped the activity during a pause in the interaction. The interaction was videotaped.

Given that our focus was on NS feedback and perceptions of that feedback, the second phase of the study involved only the NSs. Immediately following the interaction, the videotape was played back to each NS by the researcher. Before playing the tape, she gave instructions to each participant, telling them that they were about to watch a video of their interaction and that they could pause the tape at any time to describe their thoughts at that point in the interaction. She also informed them that she would stop the tape at certain times and ask them to reflect on their thoughts during that point of the interaction. The researcher paused the tape when a serious error went uncorrected, when a communication breakdown occurred, or when the teacher recast.[6] Because the session was aimed at understanding the original thoughts during the interaction, teachers were instructed not to comment on their current thinking (e.g., I should have recast that error because it would have helped the learner).

Coding of Transcripts

To answer the first research question, the transcripts of the interactions between the teachers and learners were coded as follows. First, each instance of a learner utterance that contained a phonological, lexical, or morphosyntactic error was marked. Then the teacher's response to that error was coded as recast, negotiation, or ignore. *Recast* was a complete or partial correction of a learner's erroneous utterance. *Negotiation* was some indication of noncomprehension. Recasts with rising intonation can be considered an indication of noncomprehension but they were coded only as recasts, following the rationale that the response has the effect of a recast whether the NS is seeking confirmation of comprehension or not. If the teacher did not negotiate or recast, the response was marked as *ignore*. Two researchers coded 25% of the data, and the remaining data were coded by one of the researchers. The researchers achieved 94% agreement on error identification[7] and 98% agreement on the classification of the NS's response to the malformed utterance. Examples of each are given in (4)–(6).

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(4) Recast
NNS: And in the center- yeah, the two bottle.
PS1: Two bottles?
NNS: Bottles.

(5) Negotiation
NNS: Uh, duh, the picture. It like, uh, flower and vase.
PS8: OK. So wait. What's in the picture?

(6) Ignore
NNS: And the chair, it is also between the table and window, there is two the chairs?
ET8: Yes.

RESULTS

Responses of both groups to the learners' utterances are quantified in Table 3. Additionally, the number of words and errors produced by learners with the two types of interlocutors (preservice or experienced) were compared.

As shown in Table 3, the experienced teachers used, on average, more recasts (35% vs. 29%), but not more negotiation (9% vs. 11%). However, a nonparametric Mann-Whitney test indicates that the difference in the number of recasts is not statistically significant. The difference in the number of learner errors between groups (45.63 vs. 33.18) was significantly higher in the learner/experienced-teacher dyads ($p < .05$), whereas the difference in the number of learner words when talking to one type of teacher or the other (567.13 for experienced vs. 449.64 for preservice) approached significance ($p = .08$).

Table 3. Features of preservice and experienced teachers' interaction

	Preservice teachers ($n = 11$)		Experienced teachers ($n = 8$)		
Interaction measures	*M*	*SD*	*M*	*SD*	*p*-value
Learner words[a]	449.64	190.16	567.13	194.98	.08*
Learner errors[a]	33.18	11.78	45.63	16.07	.03**
Errors recast[b]	29%	12%	35%	9%	.22
Errors negotiated[b]	11%	8%	9%	36%	.42
Errors ignored[b]	60%	14%	56%	10%	.34

[a]Number.
[b]Percentage.
*Significant at the .1 level.
**Significant at the .05 level.

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DISCUSSION

The lack of a clear difference between the two groups with regard to quantity of recasts is somewhat surprising in light of Mackey et al.'s (2004) study, which found that experienced teachers were more likely to provide recasts in a classroom setting.[8] The lack of difference in negotiation, however, is not surprising and mirrors what was found in Mackey et al. Most likely, different factors are acting upon the teachers' use of negotiation. As Mackey et al. argued, on one hand, a preservice teacher might have more difficulty understanding a L2 learner, which results in more communication breakdowns that require negotiation. On the other hand, a preservice teacher might be afraid of negotiating too much for fear of embarrassing the learner or they might not see the value in getting the learner to reformulate his or her utterance. Given that both Mackey et al. and this study did not find any differences in negotiation (without a recast), this issue will not be discussed further.

Upon examining the quantitative data and the stimulated recall data, it became clear that learners produced more language when speaking with the experienced versus preservice teachers. The instructions indicated that the NS should try to get the learner to talk, but only the experienced group used question patterns that led learners to produce more language. Indeed, when the number of learner words and errors were counted, there was a statistically significant difference between the two groups. We now turn our attention to a more in-depth discussion of differences between the preservice and experienced teachers.

A few interesting differences emerged. First, we note the way the two groups began their task, which, we argue, is related to how the participants perceived their roles. Four of the eight experienced teachers began the task with some sort of general statement, or a general question, or both, as can be seen in the examples provided under the heading "Activity opening" in Table 4. This puts the burden on the learner to produce language.

Thus, in each of these exchanges, the experienced teacher appears to put the onus on the learner to talk, with a focus on getting the learner to produce language. It is conceivable that their goal was to get the learners to produce language as a way of learning. For most studies, one can only speculate that this is the case, but, as shown for ET1, ET2, and ET3 in Table 4, we were able to support this supposition through the teachers' recall comments.[9]

The beginning of the task was quite different for the preservice group. Their tendency was to begin with something quite specific, rather than with a general question that asked what was in the picture. This was the case with all of the preservice teachers with the exception of PS8, PS9, and, to some extent, PS11. The initial part of each interaction is given in Table 5.

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Table 4. Experienced teachers: opening the task and stimulated recall on the opening

Experienced teachers	Activity opening	Stimulated recall
ET1	ET1: Ok we're looking at a picture. What does your picture look like?	Ok, I was already thinking here, y'know, how much should I lead? Ok, should I- do I want to lead her a lot or how much will she talk? Y'know, that kinda thing.
ET2	ET2: Yea. Um, well, we can kind of work together to describe the picture. So why don't you start first? NNS: Oh. ET2: Just tell me what's in your picture.	I was just trying to get her to start first so that she would take the lead in communicating.
ET3	ET3: So, you have a picture and I have a picture, right? NNS: Yeah. ET3: We can see our pictures, so what we have to do is to to find what's different in my picture from your picture. NNS: Yeah. ET3: There's ten differences, right? NNS: Yeah. ET3: So why don't you tell me what's in your picture? Just generally.	I guess I was thinking, um, I'm glad she's talkative.
ET4	ET4: What can you see in your picture?	
ET7	ET7: OK. Um, why don't I start? Or you can start.	

What is interesting about these exchanges is that the preservice group often focused on procedural or task-related issues such as who would start or how they should proceed to complete the task. This was strongly reflected in the stimulated recall comments in which they overwhelmingly commented on the nature of the task at hand or their strategies (or lack thereof) for completing the task. Stimulated recall comments from most of the preservice teachers are also given in Table 5. Only one of the NSs in the preservice group evidenced the same concern regarding the need for learners to produce language. This can be seen in (7).

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Table 5. Preservice teachers: opening the task and stimulated recall on the opening

Preservice teachers	Activity opening	Stimulated recall
PS1	PS1: Um, ok. So let's start by comparing the pictures. So, is your-is your window closed?	Um, yeah, at the beginning of experiment or whatever you call it . . . activity, like I wasn't sure exactly what to do, like, and, and so, like I just, just was kinda trying to figure this stuff out without really thinking about the ESL student.
PS2	PS2: Um, is there a table in-?	I remember thinking that it was a difference and that that was the first thing that we had- I feel- I felt like he finally had found a difference in the picture. Um, and then I wasn't sure if, I wasn't quite sure at first if I had to be the one to keep asking questions or if he would start asking questions, but I think, eventually, towards the end, when we got down to the last few, we were both trying to really work on it. But I think, at first, I felt like I was doing more of the asking and he was just answering.
PS3	PS3: Ok. My picture is of a room. Is your picture of a room?	
PS4	PS4: Well, mine looks like a picture of a dining room. NNS: Um-hm. PS4: Like with a window and a china cabinet and a picture and a stove and a rug under the table. Is that what yours kind of looks like?	I remember thinking, like, I should probably start because I'm like, I'm the native-speaker, sort of, in this and um, she wasn't really saying anything, and I thought, since I have the paper and I tend towards leadership anyway, I'm like, ok, well I'll just start the conversation and see what, see what happens, so. . .
PS5	PS5: Do you want me to start? NNS: [nods] PS5: Is the window open in your picture?	
PS6	PS6: Ok, do you see any windows?	

(*continued*)

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Table 5. (Continued)

Preservice teachers	Activity opening	Stimulated recall
PS7	PS7: All right. Is your picture a picture of a kitchen?	Not really. I-I remember at the beginning, it was hard to figure out where to start. That's about it.
PS8	PS8: Ok, what's the setting of your picture?	I was thinking thank god I got one because I was-I was feeling discouraged when I said, "Well, what's the setting?" because I was hoping maybe it'd be a different room or something, so it'd be completely different. And then, with the whole window being the same, I was thinking, I don't know how I'm going to get ten, if [laugh], uh, something's not different pretty soon here, so when she, the picture was different, I was like 'yes, here we go. We're on the right track.'
PS9	PS9: So, my instructions say that you and I each have a picture, but they're both kinda different. NNS: Yeah. PS9: So, we have to try to figure out which—what the differences are. So, do you want to describe your picture?	I guess I was [clears throat] I don't know, I was just thinking that we probably had different pictures at that point, so, when-when I like, well, I guess I-I kinda thought that they were the same, but then, um, I was like, oh I have to rephrase it to say if there was, like a bunch of pictures, or just, like one, or like a bunch of flowers or just one flower. I guess that's what I was thinking, I don't know [laughs].
PS10	PS10: Um, does yours have a window?	I remember trying to think of the best way to get him to, I don't know, I couldn't-I was trying to think if it would be better for me to ask the questions or to have-or have him just describe his picture, if I should describe my picture, so, um. . .
PS11	PS11: Well, I just- we can just start by explaining some things that are in the picture and in the picture, on the wall, explain what yours looks like.	I was just trying to start anywhere, like, um. Well, you don't know where to start because you don't know what he has wrong, so I just picked something central that's obvious: the picture on the wall.

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(7) Comment PS3: I was thinking, like, "How can I ask these questions where he's not just saying 'yes, yes' to the similarities?" um, 'cause I was trying to find the differences. So I remember thinking, like, "how can I get him to use English language rather than 'yes' or 'no.'"

Given the methodological focus of this paper, we turn to ways in which stimulated recalls were able to reveal patterns that could not be discerned through an inspection of the primary data alone. As we noted earlier, there were few differences on the surface between the two groups with regard to feedback on learner errors. On all feedback measures examined—percent of errors recast, percent of errors negotiated, and percent of errors ignored—the results showed no significant differences between the two groups.[10] Without recall data, we would be left with the difficulty of discerning differences between the two groups and understanding their commonalities.

A basic difference between these two groups can be seen in their attitudes and perceptions of their role in this task and how their language reflects those attitudes and perceptions. In general, NSs in the experienced group emphasized student learning, whereas those in the preservice group focused on themselves, the ESL students' feelings, and procedural and task-related issues. We first discuss the recall comments from the experienced teachers, focusing on (a) their role as teacher, (b) their recognition of the importance of output, (c) their focus on student learning, and (d) their focus on student comprehension and student problems. Second, we contrast those results by discussing comments from the less experienced teachers, focusing on their concern with (a) themselves and their own performance, (b) student feelings, and (c) procedures and strategies for task completion.

Experienced Teachers

Role as Teacher. The experienced teachers saw their role as that of a teacher despite the laboratory setting of the study. Although one could speculate that this was the case on the basis of the interaction alone, it was only through the recall data that this became obvious. For example, in reflecting upon the interaction in (8), in which the experienced teacher and the NNS were negotiating an appropriate word, the teacher emphasized her role as a teacher in her recall comment.

(8) NNS: And, uh, right side. I don't know what is this, but, hm. Straight shape and a little peak. And have a . . .
ET2: Is it like a little lid on the top of the thing? A top.
NNS: Yes, yes. What is this thing? (points at the lid on ET2's water bottle)
ET2: We would probably call it just a top or a lid.
NNS: Yeah. Ah, top.
ET2: Top is more general.
NNS: Oh, ok.

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ET2: If you just- yeah- the top of the bottle. But if you want to be more specific, maybe the lid.
NNS: Hmmm.
ET2: Um, ok.
Comment ET2: That was just like a teaching moment for me-

Language Production. In the previous subsection, we discussed opening routines and demonstrated the experienced teachers' strong tendency to want the NNSs to produce language. This is emphasized in the recall comments by these teachers throughout the entire interaction. For example, often the words *get him/her, have him/her, ask him/her* were used, which indicated that the experienced interlocutor was focusing on the NNS's performance. This can be seen in the examples provided in (9).

(9) Comment ET1: . . .I want to just see what she can say. . .
Comment ET1: I should have had her asking me questions. . .
Comment ET2: I was just trying to get her to start first. . .
Comment ET6: So I was gonna to try to get him to shape-to describe
Comment ET6: I was going to try to see if he knew the word *cabinet*
Comment ET7: I was just trying to get her to describe it. . .
Comment ET7: . . .and then trying to help her get it out.
Comment ET7: Just trying to get her to elaborate. . .

Focus on Student Learning. Another area of emphasis evident from the experienced teachers' recall comments was a focus on student learning. In the exchange in (10), the teacher emphasized the importance of the task as a language learning experience for the student.

(10) ET1: Ok. Ok, so you have flowers under the wine. The wine bottle- ok, when you look at that place where there's the wine cup and the wine goblet and then the bottle, is the bottle sitting in the left side of that square?
NNS: Yeah.
ET1: Yeah.
NNS: Lef-t. Righ-t pot.
ET1: Yeah. Canister. Hmm. What do we do? When we can't find anymore? Do we run out of time? How long do we keep going?
NNS: [laughs]
ET1: Let's see. Ok, let's see. Ok, if you were to add something, what would you want to add to this picture?
NNS: And?
ET1: Add.
Comment ET1: That this could be even more fun if she started to create something, that this would be a more- that it would be a good language experience for- for possibly her and as well as, uh, for me to see what she would create. I can't find anything, so why not?

The teacher in (11) had the learner focus his attention on a particular part of language, in this case the vocabulary item *shade*, thereby demonstrating her sensitivity to the relevance of this approach for learning.

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(11) NNS: Nothing.
ET6: There's nothing? Do you have a shade on your window?
NNS: No.
ET6: So it's open so anyone can see inside?
NNS: Uh, I have a dog- dog dish.
ET6: What?
NNS: Dog- dog. . .
Comment ET6: I remember thinking there I couldn't quite understand him, and I wanted him to focus on it, um, "dog dish," and then he did, and I- I asked him where. But, going back to the shade issue, um, I wanted him to tell me if he had a shade or not, but I didn't know if he knew the word "shade," and it turns out later that he didn't know the word "shade," and that's why I asked about, "is there- are there curtains?" to try to get him to focus on it.

Focus on Student Comprehension and Student Problems. Not only do interlocutors experienced in talking with NNSs focus on how interactions aid learning, they also show awareness of the need to focus on learner comprehension, as shown in (12) and (13). Both examples suggest ways of facilitating comprehension—in the first case, by slowing speech and in the second, by using simpler vocabulary.

(12) ET5: I have flowers in my picture. Where- where are they? On your picture?
NNS: Uh, flower.
ET5: Um-hm.
NNS: Birst, um, I don't know. Um. . .
ET5: Did you say some birds?
NNS: Birds, no.
ET5: No. Ok. What do you see?
(long pause)
NNS: Pot.
ET5: A pot?
NNS: For- for flower.
ET5: Ok, you see a flower-
NNS: Yeah.
ET5: a flower pot?
NNS: Yeah. Do you have it?
ET5: Um, I have some flowers in a pot.
NNS: Uh-huh.
ET5: Is your pot empty or does it have flowers?
NNS: Pot-
Comment ET5: I remember thinking there that I was probably talking way too fast and- and confusing her. Like I probably should have just slowed down. Um, and I have no idea where the "birds" came from.

(13) ET5: There is no design or art.
NNS: No design.
Comment ET5: I- I was stumped for a word there. I- you know, I want to say there's no "pattern," but I didn't think she'd know that, so I switched to "design" and then "art," which was useless.

Thus, in general, the experienced teachers could not shed their normal teacher role and demonstrated this quite clearly through their interactive

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styles (as noted earlier in their ability, for example, to get learners to use language), but much more so through their recall comments. On the other hand, preservice teachers, although they did not ignore their potential teacher role, were more inclined to be concerned about issues related to themselves, students' feelings, procedures, and the strategies that they could use for task completion.

Preservice Teachers

Focus on Self. In contrast to the experienced teachers, preservice teachers often expressed their own feelings about the interaction. This is illustrated in the recall comments in (14). In the first three examples, the preservice teachers—unlike what was seen with the experienced teachers who focused on NNS comprehension—are concerned with their own comprehension. In the fourth example, the teacher expresses confusion; in the fifth, feelings of discouragement; and in the sixth, a feeling of desperation.

(14) Comment PS7: I remember not understanding what he meant by "longer."
Comment PS7: I remember here, it was hard to figure out what he was talking about.
Comment PS6: Here, I didn't know what- I didn't under- I didn't hear him too clearly and didn't know what he said the first time. So, I was trying to figure out what he was saying.
Comment PS3: Yeah. Actually, I remember thinking I was kind of getting um, not confused, but throughout the whole time we were having similar things and then I got tripped up on that his picture frame didn't have the same picture as mine. And so, I didn't feel like I was directing anything. I feel- I felt like I was trying to find the similarities and forgot that there were differences, so, that's kind of what was going through my head. And then, I didn't really know how to support, um, for him to describe more of what was in his picture.
Comment PS8: I was thinking thank god I got one because I was- I was feeling discouraged when I said, "Well, what's the setting?" because I was hoping maybe it'd be a different room or something, so it'd be completely different. And then, with the whole window being the same, I was thinking, I don't know how I'm going to get ten, if [laugh], uh, something's not different pretty soon here, so when she the picture was different, I was like "yes, here we go. We're on the right track."
Comment PS11: Here I was getting desperate. [laughs] If that makes any sense. . .

Students' Feelings. The preservice teachers expressed empathy for the students. For example, in (15), PS3 recalls giving the student a word because the student was struggling. This is in contrast to the experienced teachers, who saw the benefits of students' struggles with words. PS4 also shows that she wants to be helpful in (16).

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(15) Comment PS3: There, um, I- he was struggling to- he just didn't have the vocabulary to know it was a tea kettle or a pitcher. And so, um, I just said what it was instead of him trying to figure it out.

(16) Comment PS4: I remember thinking, like, sh-, um, like her language skills, like, I'd never spoken to her before, so I didn't really know, like, what level she was, and um, sh-, I thought she was kind of reserved as well, so that, like, played into it, so I didn't know if she was actually reserved or she just was tentative, you know, with her skills and stuff. So, part of it was, like, trying to be as helpful as possible, you know what I mean?
I: Um-hm.
Comment PS4: To help the, help it go more smoothly, I guess.

Correction is, of course, a delicate issue, and what might appear to be part of a normal conversation might in fact be interpreted as criticism. Preservice teachers appeared to be sensitive to this possibility, as illustrated in (17).

(17) PS2: Um, is there anything else? Besides the pot on the stove? (long pause) Nothing? Ok. Um, let's see. Are there any people in the picture?
NNS: No peoples.
PS2: No people? Uh-
Comment PS2: Um, I just remember him saying, "peoples," and saying, "people," just to see if, um, as a correction, maybe, but not trying to say that I was correcting him.

In her stimulated recall comment, this preservice teacher noted that she corrected the NNS without making it seem obvious that she was correcting him. Similarly, in (18), the stimulated recall comment reveals that the preservice teacher showed empathy to the student.

(18) NNS: Glasses, um. Two coffee cups.
PS3: Ok, what's below the coffee cups? A tea kettle?
NNS: Pouring water.
PS3: A tea kettle
NNS: Yeah.
PS3: Then what's-
Comment PS3: There, um, I- he was struggling to- he just didn't have the vocabulary to know it was a teakettle or a pitcher. And so, um, I just said what it was instead of him trying to figure it out.

Procedures and Strategies. Some NSs in the less experienced group were focused on the procedures of the task. For example, PS9 expressed this focus in the first comment in (19). PS7 was concerned about how to start (second comment), whereas PS2 wondered about who was to ask questions (third comment).

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(19) Comment PS9: I just remember thinking, I don't know if that's one to write down because we already specified that she had two drawers and I had three, so I wasn't sure if the handles on my third drawer were really an extra one, but we had four to go, so I wrote it down anyways.
Comment PS7: Not really. I-I remember at the beginning, it was hard to figure out where to start.
Comment PS2: I remember thinking that it was a difference and that that was the first thing that we had- I feel- I felt like he finally had found a difference in the picture. Um, and then I wasn't sure if, I wasn't quite sure at first if I had to be the one to keep asking questions or if he would start asking questions, but I think, eventually, towards the end, when we got down to the last few, we were both trying to really work on it. But I think, at first, I felt like I was doing more of the asking and he was just answering.

Faced with a difficult conversation and the need to sustain the conversation for a prolonged period of time, the preservice teachers often thought about their strategies for completing the task, as seen in the recall comments in (20).

(20) Comment PS9: I just remember, like I remember thinking I can use [laugh] the desk for a prop on that.
Comment PS2: I did-I was thinking that it's pretty obvious that her-her 'l's and her 'r's- she's not distinguishing mine. I can tell when she's repeating the words that I'm saying and I was thinking, I don't even know if I can, like, enunciate it well enough for her to make the distinction because I- I know that-that's just typical, so I was thinking, I- maybe I'll do some gestures and see if that comes out okay because I knew she wasn't hearing the distinctions I was trying to make by saying, you know, "shelf" and like over-pronunciating it, thinking, oh maybe if she just hears what I'm saying she'll know, I-so I thought, oh, I'll make a hand gesture, but. . .

Experienced and Preservice Teachers: Commonalities

In planning this study, we expected to find differences in the two groups of teachers in terms of corrective feedback, including, in particular, the use of recasts. As noted earlier in this paper, there were no significant differences in the use of recasts. This lack of difference in use is further corroborated by the recall comments; only two of the experienced teachers and four of the preservice teachers mentioned recasting, modeling, or correction. Recasts from each group are given in the following examples. In (21), the preservice teacher provided a recast and then commented on it following the exchange, even using the word *recast*.

(21) PS3: How many chairs are around- at the table?
NNS: Two chairs and the chair is located in the back side of table.
PS3: The chairs are facing-
NNS: They line up, it seems like. And, the flower on the table are, uh, the vase for the flower is, look like a ship.
PS3: It looks like a ship?

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NNS: Yeah.
PS3: What kind of flowers are they?
Comment PS3: Well, he was saying, "it look like a ship" and so I just recast it to "It looks like a ship?" And then he said, "yeah!" So, it's kind of saying it in the proper grammar for him to hear it.

In another example, following an exchange in which there was a sequence of recasts, the preservice teacher commented on her role as a language provider.

(22) PS3: To the left of the tea kettle?
NNS: Two bottle.
PS3: Two bottles?
NNS: Yeah.
PS3: Is there anything below the two bottles?
NNS: Um, three plats.
PS3: Three plates?
NNS: Yeah.
PS3: And what-
Comments PS3: Um, basically, when he was struggling with certain vocabulary or ways of saying stuff, I just tried to say it back to them- him, um, kind of just reiterating what he was saying, what he was trying to say so he could hear it the way, um, you can say it.

In (23) and (24), examples of similar language from the experienced teachers are provided.

(23) NNS: Skare is the width and length same- same?
ET7: Yeah, all four sides-
NNS: Yes.
ET7: are the same in a square.
NNS: Rectangle is difference sides?
ET7: Right, right.
NNS: The table, um- behind the table, there are two chair.
ET7: Right, two chairs.
NNS: I guess the chair is may of wood.
ET7: Made of wood, yeah. [both laugh]
NNS: Yeah, I guess.
Comment ET7: That I was recasting the "made of wood."

(24) ET2: Ok, are you talking about the window, still?
NNS: Picture.
ET2: On the left?
NNS: Yes. L-right.
ET2: Ok, right. Yours- your picture. . .
NNS: Haf wall. Prame.
ET2: A frame.
NNS: A picture-
ET2: A picture frame, yeah.
Comment ET2: I was just trying to clarify what she was saying. I don't remember exactly what I was thinking other than trying to make sure "frame" was the word, so I was using recast to try to clarify her pronunciation.

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Although both groups used recasts, they were differentiated by the fact that even when dealing with corrections, the preservice teachers (as noted previously) were often concerned with the learners' feelings, whereas the experienced teachers did not mention such concerns.

In sum, both groups participated in and recognized the corrective function of task-based interaction. It might be that this corrective function is basic to nonclassroom interaction with NNSs; that is, the concept of correction might not require a sophisticated understanding of language learning or language teaching.[11] Where the two groups diverged was in areas that require a greater knowledge of the mechanisms involved in language learning—namely, the significance of output and the significance of getting learners to struggle with their language; what we might call a form of hypothesis testing (Gass, 1997; Swain, 2005). Also, important to this special issue on methodology, this difference could be confirmed only through a supplement to actual interactions.

Although not part of the original study, the issue of foreigner talk discourse became important as we considered the stimulated recall comments. Briefly, early studies on foreigner talk (see Gass & Selinker, 1994, and Larsen-Freeman & Long, 1991, for reviews) suggested that when addressing NNSs (particularly those with limited proficiency), NSs adjust their speech (e.g., by slowing down, using simpler language, enunciating more clearly, or adding gestures). What emerges from the stimulated recall data in this study are comments that suggest deliberate attempts at speech modification by NSs—something that the earlier literature was unable to address.

Thus, the stimulated recall part of the data gives us a window on the NS-NNS interactions, which provides data that cannot be gleaned from the interaction alone. Furthermore, we argue that what is revealed is important as one attempts to understand the relationship between interaction and experience and the development of an ability to interact with learners in a way that promotes learning.

LIMITATIONS

This study revealed certain limitations of the methodology, and we now turn to suggested refinements that need to be taken into account in future research. As noted in Gass and Mackey (2000), stimulated recalls have to be done carefully lest the results not be an accurate representation of actual thoughts during the original process. These authors provided a sample set of instructions for participants, which state, in part:

> I'm going to put the remote control on the table here and you can pause the video any time that you want. So if you want to tell me something about what you were thinking, you can push pause. If I have a question about what you were thinking, then I will push pause and ask you to talk about that part of the video. (pp. 59–60)

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Who stopped the tape in this study might have resulted in different types of comments. In Mackey et al. (2000), the researchers told participants that the researcher would stop the tape or the participants could stop the tape if they wanted to make a comment. In the vast majority of the cases, it was the interviewer who stopped the tape. In this study, the same pattern did not hold. In many cases, particularly with the experienced teachers, it was the participant rather than the researcher who stopped the tape. This did not allow the researcher to ask the lead question "What were you thinking about right then?" which is a crucial part of the directions as specified in Gass and Mackey. This is made clear in the following examples, in which the participants stopped the tape.

(25) NNS: It is. . .
PS9: What?
NNS: My picture, it is of a flower.
PS9: Of a flower?
NNS: Yes.
PS9: Does it have anything else on the picture?
NNS: No.
PS9: No? Ok, mine's a little bit different. Mine has a sun and a mountain and a river.
NNS: Different.
PS9: That's different, ok! [laughs]
Comment PS9: I was thinking that [laughs] I wanted to describe my picture to her so she would understand why I was writing it down that it was different.

(26) NNS: Yeah.
ET1: Can you tell me what's in the- like in the first- like at the top- what do you see up there?
NNS: Top?
ET1: Yeah.
NNS: Hmm.
ET1: Well, for example, mine has, like, what looks like a wine cup and a wine goblet.
NNS: Oh, yeah, yeah.
ET1: Do you have that?
NNS: Yeah. Wine cup and-
ET1: A wine goblet. So one has a stem and one is fatter.
NNS: Yeah. Top of- top- at the top.
ET1: Is it at the top?
Comment ET1: Ok, I was already- here I was thinking, "does she understand the difference between wine glass and wine goblet?" y'know, and, "how can I know what she's seeing?" [laughs] That's part of what I was thinking. Want to be able to see though your eyes right now.

As can be seen, the teacher in both instances gave the interviewer no opportunity to pose the lead-in question and, furthermore, there had been no error on the part of the student so that this would not be a relevant moment for recall comments.[12] For the interviewer to have jumped in might have been

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perceived as rude by the participant and could have jeopardized the remainder of the session.

One of the difficulties with stimulated recalls, as Gass and Mackey (2000) noted, is that it is easy to get off track and do a reflection on the episode rather than voicing one's thoughts about the interaction. This was more likely to happen in the comments for which the teacher stopped the tape than when the interviewer stopped the tape at the target points and asked specifically about the person's thoughts. An example of this contrast is seen in (27), in which the teacher stopped the tape, and (28), in which the interviewer stopped the tape.

(27) NNS: Yes. Same?
ET2: Well, they are similar, but my glasses are two different shapes.
NNS: Ah.
ET2: Are your glasses two different shapes?
NNS: One is such as wine glass.
ET2: Ok, the one on the left?
NNS: Yeah.
ET2: Ok. Me, too.
NNS: One. . .
Comment ET2: I didn't know how to describe the shape of that glass, either.

In this example, it is not at all clear if ET2 is referring to her thoughts at the time she paused the tape or to her thoughts at the time of the exchange. From the same teacher comes the following example.

(28) NNS: Yes and hav-a two window.
ET2: Ok. So, it's like a window that you're looking through and there's three-
NNS: Six pieces.
ET2: Yeah, yeah. Ok. Um, why don't you describe to me what's on each of the shelves?
NNS: Ah. Firs-to shelf, um-
ET2: You mean the top one?
NNS: Yes. Top one-
ET2: Ok.
NNS: left one ha-va two glass.
ET2: Two glasses.
NNS: Yes. And, uh, right one ha-va two cup.
ET2: Ok, two glasses-
Comment ET2
I: Do you remember what you were thinking then?
ET2: Well, I remembered right before she started that consciously thinking at some point before this, um, little description of the shelves that I needed to try to get her to be talking more, so. . .

Unlike (27), in this comment it can be more convincingly argued that the NS' thoughts relate to her thoughts at the time of the interaction.

Finally, for the sake of comparison, we present an example from this same teacher in which the recall comments appear to reflect what she was thinking

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about both at the time of the exchange and at the time of the recall comment. In the example provided in (29), the tape was stopped by the teacher.

(29) NNS: I have a two.
ET2: What?
NNS: I have a blind.
ET2: A blind?
NNS: Yes.
ET2: Is it pulled down a little bit?
NNS: Yeah.
ET2: Ok, we're still-yep, I have a blind. The blind is black. It's dark. Is your blind?
NNS: My blind is like stripe.
ET2: Ok, so that's one difference.
NNS: Oh.
ET2: So we can write that down.
NNS: Your blind is jus-ta black?
ET2: Right.
NNS: Oh.
ET2: Right, right.
NNS: My picture have a window light- window light have a prame- prame.
Comment ET2: I was really confused here. She was talking- like the word picture was being used to describe the picture within the picture, and I think that was causing some communication problems here. 'Cause I remember thinking, "what is she talking about?" and I'd lose my train of thought for which picture she was referring to: the bigger picture or the picture within the picture.

The beginning of the recall statement seems to reflect ET2's thoughts at the time of the recall, but embedded in the entire statement is a specific comment that refers to the time of the exchange.

CONCLUSION

The goal of this study was to use stimulated recall to investigate the relationship between experience with NNSs and interactional feedback. We hypothesized, based on the findings of Mackey et al. (2004), that less experienced interlocutors would not recast and we hoped, through stimulated recall, to determine if this was because they did not notice errors, did not know how to deal with the errors, or felt it was simply impolite to correct the learner. The quantitative findings, however, did not reveal a significant difference in feedback behaviors, nor did the majority of participants from either group comment on giving feedback. Even though there was a trend in the direction of the experienced group recasting more, the difference was not robust. One very likely reason for this unexpected similarity is that those in the preservice group, who had only a brief introduction to the importance of feedback in language learning, were able to some extent to provide that feedback in a dyadic context even though they were focused on their own performance, as revealed in the stimulated recall. Without the stimulated recall data, one might inappropriately conclude that the lack of difference was due to the experi-

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enced teachers' providing relatively less feedback in a nonclassroom setting. We cannot say, however, that the lack of classroom context caused the experienced teachers to recast less often; the experienced teachers clearly saw themselves as teachers, even in the context of a research-oriented laboratory task, and were trying to help the learners throughout the task. A more appropriate conclusion is that being outside of the classroom context helped the preservice teachers to recast more because they did not have to focus on classroom management and lesson issues.

The other important finding is that different levels of teacher experience had an effect on learner production. The quantitative data revealed that the experienced teachers were able to get learners to produce more output, thus making more errors for which there was an opportunity for them to give feedback. The stimulated recall confirmed that the experienced teachers were consciously aware of the importance of output (see Swain, 1985, 1995, 2005; Swain & Lapkin, 1995), particularly in terms of helping learners notice features of the L2 and testing hypotheses. What was not clear in the stimulated recall was how the experienced teachers came to their beliefs about output; that is, whether such beliefs developed intuitively from teaching experience or whether they were familiar with Swain's writing and research. Furthermore, although much research on variables related to feedback exists, we know of no research that examines interlocutor variables on the quantity of a learner's output.

There are implications from this study for language teacher education as well as L2 research methodology. Inexperienced teachers are aware of the importance of feedback but simply need more practice in how to implement it in the classroom. What they might not be aware of is the importance of the various functions of output in language learning, nor are they skilled in how to generate output. Finally, this study has illustrated how stimulated recall can confirm findings and reveal additional findings in L2 research.

NOTES

1. Within the UG literature, a third type of evidence used for learning is known as indirect negative evidence—an "indirect means of letting the learner know that a feature is not possible because it is never present in the expected environment" (Plough, 1994, p. 30). A discussion of this type of evidence goes beyond the scope of this paper.

2. We distinguish between negative evidence, which is considered from the perspective of the learner, and negative feedback, which is what is provided to the learner. Examining negative evidence entails considering what evidence a learner uses to construct a L2 grammar; examining negative feedback considers what is provided to the learner and might focus on how the learner uses that feedback. Focusing on what the learner does with the feedback would be the next step.

3. We are agnostic in this paper as to the nature of attention; that is, it is not relevant to consider whether attention is a limited-capacity system or whether we are looking at an interference system whereby there is an involuntary attention shift. (See Robinson, 2003, for further elaboration on these positions.)

4. It appears that thinking aloud might affect some portions of a task and not others. This topic is beyond the scope of this paper, but see Stratman and Hamp-Lyons (1994) for one study that addresses this issue.

5. Students in the academic speaking-listening class who did not have test scores equivalent to those in the intensive program were excluded from the study.

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6. What constituted a serious error was somewhat subjective. Furthermore, the researcher was not able to stop the tape after every recast.

7. We calculated this by taking the total number of utterances identified by at least one researcher as containing an error and finding the percentage of that number that both researchers agreed were malformed.

8. Neither the preservice nor the experienced teachers in Mackey et al.'s (2004) study were familiar with the students; that is, neither were teaching classes that they normally taught and they met the students for the first time during the study. In this study, none of the experienced teachers was paired with a current student, yet they might have had that student in a prior semester.

9. ET4 had no recall comments on the opening sequence.

10. We recognize that the lack of significant differences might, in part, be due to the small number of participants in this study.

11. We reemphasize the fact that the preservice teachers were enrolled in an undergraduate course in which concepts such as feedback and recasts were discussed.

12. A reviewer suggested that further researcher training might have alleviated the problem. Of course, that is a possibility. However, it seemed that the lack of opportunity (without rudely interrupting) was the primary issue.

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APPENDIX A

TRANSCRIPTION KEY

ET = Experienced teacher

PS = Preservice teacher

L = Learner

I = Interviewer

: = Lengthened vowel

( ) = Comments added by researchers

[ ] = Extralinguistic information

- = False start or interruption by other speaker

Comment = Data from stimulated recall

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APPENDIX B

PICTURES USED IN TASK (*Source:* Mackey & Gass, 2005.)

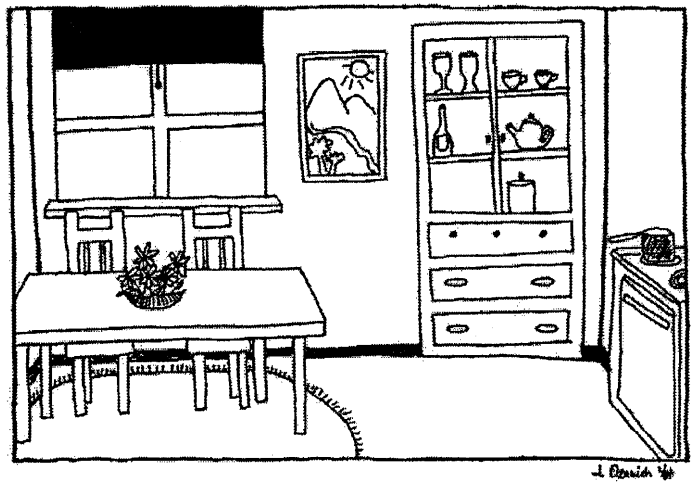


Figure 1.

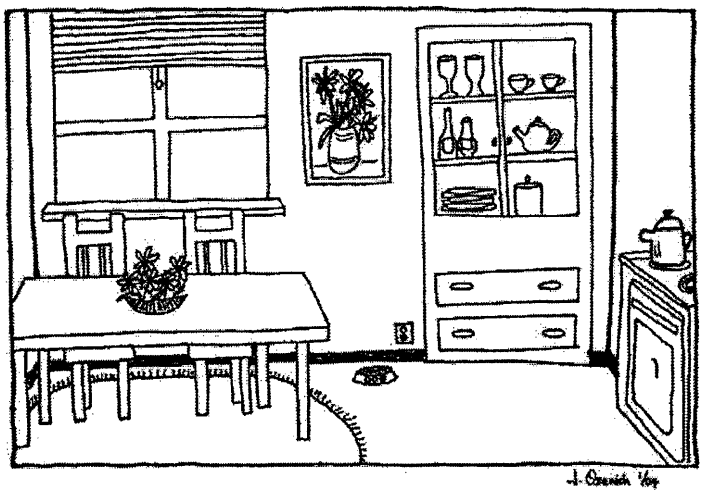


Figure 2.

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APPENDIX C

INSTRUCTIONS GIVEN TO PARTICIPANTS

Difference Discovery: Student

This is an activity that teachers and students might do in language classes. You and the teacher have similar pictures. You may not look at each other's picture. Your task is to discover the 10 differences between your pictures by speaking and asking questions in English. Try to describe your picture. When you and the teacher agree that you have found a difference, the teacher will write it down. The activity will be videotaped.

Example differences:

Your picture has a door and the teacher's picture does not.

Your picture has a bird in the window and the teacher's picture has a squirrel.

Difference Discovery: Teacher

This is an activity sometimes done in foreign or second language classes. You and the student have similar pictures. You may not look at each other's picture. Your task is to discover the 10 differences between your pictures by listening, speaking, and asking questions in English. You should write down each difference discovered. Encourage the student to talk as you would in class. The activity will be videotaped.

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