

From:

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Interaction	Conversation analysis	Input-Interaction
	<p>talk." The NS responds as if this were a normal conversation. Therefore, the participants co-construct this "hybrid interactional form" that reflects "normal" conversation' as well as an event for language practice.</p> <p><i>Comment:</i> This is clearly an emic perspective that attempts to get inside the head of the participants.</p>	<p>thrown off by the unexpected response to a seemingly formulaic response. The Input-Interaction analysis would only look at surface facts and would not ascribe motivation to the NS as to why she responded in the way she did. Or, if such an interpretation were made, it would be bolstered by additional evidence, such as stimulated recall (Gass and Mackey, 2000).</p> <p><i>Comment:</i> The need to bolster arguments from an interaction with the participants is, of course, antithetical to a CA analysis given the distance that the researcher keeps from the investigated parties and the need to interpret from "afar."</p>

As can be seen from these two examples, the interactionist perspective does not include the same level of detail or elaboration as these aspects of conversation do not enter in to what might count as learning. Activities are not central to an interactionist framework and thus learning as increased accomplishment within an activity is not relevant (see also Gass, 2004).

10.5 Output

Up to this point we have dealt with the concept of input. We have also focused on conversational or interactional modifications that come as a result of an exchange in which a low proficiency NNS is involved. There is one final concept that needs to be mentioned, and that is comprehensible output (see Swain, 1985, 1995, 2005).

Input alone is not sufficient for acquisition, because when one hears language one can often interpret the meaning without the use of syntax.

For example, if one hears only the words *dog, bit, girl*, regardless of the order in which those words occur, it is likely that the meaning *The dog bit the girl* is the one that will be assumed rather than the more unusual *The girl bit the dog*. Similarly, if one hears a sentence such as *This is bad story*, one can easily fill in the missing article. Little knowledge, other than knowing the meanings of the words and knowing something about real-world events, is needed.

This is not the case with language production or output, because one is forced to put the words into some order. Production then “may force the learner to move from semantic processing to syntactic processing” (Swain, 1985, p. 249). In fact, the impetus for Swain’s original study was the lack of second language development by immersion children even after years of academic study in that second language. Swain studied children learning French in an immersion context, suggesting that what was lacking in their development as native-like speakers of French was the opportunity to use language productively as opposed to using language merely for comprehension. She compared results on a number of different grammatical, discourse, and sociolinguistic measures of sixth grade children in a French immersion setting and sixth grade native French speaking children. The lack of proficiency on the part of the immersion children, coupled with their apparent lack of productive use of French, led Swain to suggest the crucial role for output in the development of a second language.

It is trivial to state that there is no better way to test the extent of one’s knowledge (linguistic or otherwise) than to have to use that knowledge in some productive way—whether it be explaining a concept to someone (i.e., teaching) or writing a computer program, or, in the case of language learning, getting even a simple idea across. However, output has generally been seen not as a way of creating knowledge, but as a way of practicing already existing knowledge. In other words, output has traditionally been viewed as a way of practicing what has previously been learned. This was certainly the thrust behind early methods of language teaching in which the presentation-practice (i.e., drill and repetition) mode was in vogue. A second traditional role assigned to output was that it was the way in which additional (and perhaps richer) input could be elicited. The idea that output could be part of learning was not seriously contemplated prior to Swain’s important paper in 1985, in which she introduced the notion of comprehensible output or “pushed” output. What is meant by this concept is that learners are “pushed” or “stretched” in their production as a necessary part of making themselves understood. In so doing, they might modify a previous utterance or they might try out forms that they had not used before.

Comprehensible output refers to the need for a learner to be “pushed toward the delivery of a message that is not only conveyed, but that is

conveyed precisely, coherently, and appropriately” (Swain, 1985, p. 249). In a more recent explication of the concept, Swain claimed that “output may stimulate learners to move from the semantic, open-ended, non-deterministic, strategic processing prevalent in comprehension to the complete grammatical processing needed for accurate production. Output, thus, would seem to have a potentially significant role in the development of syntax and morphology” (Swain, 1995, p. 128).

Mackey (2002) empirically demonstrates this notion through the following example and the comments that followed this learner’s struggle with the appropriate word.

(10-22) Example of pushed output

NNS: And in hand in hand have a bigger glass to see.

NS: It’s err. You mean, something in his hand?

NNS: Like spectacle. For older person.

NS: Mmmm, sorry I don’t follow, it’s what?

NNS: In hand have he have has a glass for looking through for make the print bigger to see, to see the print, for magnify.

NS: He has some glasses?

NNS: Magnify glasses he has magnifying glass.

NS: Oh aha I see a magnifying glass, right that’s a good one, ok.

Recall comments following this episode:

In this example I see I have to manage my err err expression because he does not understand me and I cannot think of exact word right then. I am thinking thinking it is nearly in my mind, thinking bigger and magnificate and eventually magnify. I know I see this word before but so I am sort of talking around around this word but he is forcing me to think harder, think harder for the correct word to give him so he can understand and so I was trying. I carry on talking until finally I get it, and when I say it, then he understand it, me.

The recall comments come immediately following the episode. As is clear from these comments, this learner understood that her language was not clear and struggled to come up with the appropriate expression. She was pushed through the negotiation sequences to make her language clearer.

The question becomes: In what ways can output play a central role in the learning process?⁴ We consider four possible ways that output may provide learners with a forum for important language-learning functions:

- (a) receiving crucial feedback for the verification of these hypotheses; (b) testing hypotheses about the structures and meanings of the target language; (c) developing automaticity in IL production; and (d) forcing a shift from more meaning-based processing of the second language to a more syntactic mode.

Izumi, Bigelow, Fujiwara, and Fearnow (1999) specifically investigated the noticing function of output, finding partial support for this hypothesis and pointing out the need to balance cognitive and linguistic demands. In particular, participants were exposed to written input and had to underline words that they felt would be essential to their subsequent reproduction of the same passage. The experimental group was then given a production task, whereas the control group was not. This was followed by a second exposure (again with underlining) and a second reproduction by the experimental group. Participants noticed the targeted feature (past hypothetical conditional, such as *If Kevin got up early in the morning, he would eat breakfast*) and incorporated the feature into their output, but this did not carry over into a posttest. In a second phase, both groups produced a written essay on a topic that called for the use of the target form. Despite the fact that the results after the first phase did not show retention on the posttest, there was greater improvement on this written essay by those who had produced output than by those in the control group, who had not been involved in a production task in phase 1, thereby suggesting that output may indeed be important for acquisition.

Izumi and Izumi (2004), in a study on the acquisition of relative clauses, had an experimental treatment that allowed for an "output" group and a "non-output" group, finding that the output group did not outperform the non-output group. Their output task was a production task which may not have allowed for the focus on form that they had intended. In another study, McDonough (2005) found evidence for language use (output), but her participants were engaged in an interactive task that forced attention to form, unlike the type of task in Izumi and Izumi's study.

McDonough (2005) tested the output hypothesis directly in her study of Thai learners of English. In a study investigating the acquisition of English questions, four groups carried out communicative tasks. The four groups focused on salience (enhancement) and opportunity to modify following feedback. Examples from each of the four groups are provided below:

- (10-23) Enhanced opportunity to modify
 NNS: what angel doing in this situation?
 NS: what angel doing? Huh?
 NNS: what is angel doing?

In this example, the response directs attention to the inaccurate form followed by a clarification request which gives the learner an opportunity to modify his or her output.

- (10-24) Opportunity to modify
 NNS: what happen for the boat?
 NS: what?
 NNS: what's wrong with the boat?

Here, there is a request for clarification but no enhancement or drawing attention to the problematic part of the utterance.

- (10-25) Feedback without opportunity to modify
 NNS: What we do with it?
 NS: What we do? Uh, let's see well we could talk about the purpose if you want.

The NS in this example points to the problem through the response—that is, makes the error salient—but continues without giving the learner an opportunity to modify her language.

- (10-26) No feedback
 NNS: where you going the last holiday?
 NS: to Laos

Despite the error, there is no feedback, only a response. Her detailed study provides evidence that the best predictor of acquisition, in this case operationalized by the acquisition of more advanced questions, is the opportunity to modify one's speech.

In sum, output is generally considered to have a positive effect on learning, although results have been mixed. Some research (e.g., Izumi, Bigelow, Fujiwara and Fearnow [1999] and Izumi and Bigelow [2000]) found output to be beneficial, but Morgan-Short and Bowden (2006) did not. Two recent metaanalyses of the effect of output (Keck, Iberri-Shea, Tracy-Ventura and Wa-Mbalaka (2006) and Mackey and Goo (2007) yielded different results, although it must be kept in mind that the operationalization of pushed output differed in these studies. Output, then, as merely repetition may be less useful than output where learners are given opportunities to incorporate new forms into their production.

10.5.1 Feedback

Interactional feedback is an important source of information for learners. Most generally, it provides them with information about the success (or, more likely, lack of success) of their utterances and gives additional

opportunities to focus on production or comprehension. There are numerous ways of providing feedback to learners from the explicit (stating that there is a problem) to the implicit (feedback during the course of an interaction). In this and the subsequent sections, we address the role of feedback and suggest ways that different types of feedback may impact learning. Figure 10.1 illustrates this concept with the mediating factor of attention.

Through interaction, learners' attention is drawn to some element(s) of language with the possible consequence that that element/those elements will be incorporated into a learner's developing system.

In chapter 6, where we discussed the role of negative evidence (information that a particular utterance is deviant vis-à-vis target language norms), it was pointed out that, at least with regard to children, it cannot be a necessary condition for acquisition. What, then, about second language learning? It is undoubtedly the case that adults (at least those in formal learning situations) do receive more correction than children, and it may further be the case that adults must have negative evidence (i.e., that it is a necessary condition) in order to accomplish the goal of learning a second language (Birdsong, 1989; Bley-Vroman, 1989; Gass, 1988a; Schachter, 1988). While this research has been based primarily on theoretical arguments, there is some empirical evidence that negative evidence is in some instances necessary for second language acquisition.

White (1991) considered the development of adverb placement by French children learning English. She was interested in the question of how learners learn not to do something in the L2 that is present in the native language. In particular, French learners of English have to learn that English allows subject-adverb-verb (SAV) order (*He always runs*) and that it does not allow subject-verb-adverb-object (SVAO) order (**He drinks always coffee*). White's study consisted of five classes of French NSs learning English as a second language (two classes at grade 5 and three classes at grade 6) and one control group of monolingual NSs of English. One of the grade 5 groups and two of the grade 6 groups were given explicit instruction on adverb placement as well as exercises and correction on adverb placement; the other groups were given instruction on questions using the same type of exercises but no explicit instruction on adverbs. The classroom treatment lasted two weeks. All children were given pretests, posttests immediately following the treatment sessions, a second posttest five weeks later, and a follow-up test a year later. The tests consisted of grammaticality judgment tasks (with correction), preference tasks, and a sentence-manipulation task. By comparing the groups' performance, White was able to show that negative evidence did indeed promote the learning of adverb placement. However, the effects of the treatment were not as long-lived as anticipated, as the two groups did not differ on their performance one year following the treatment.

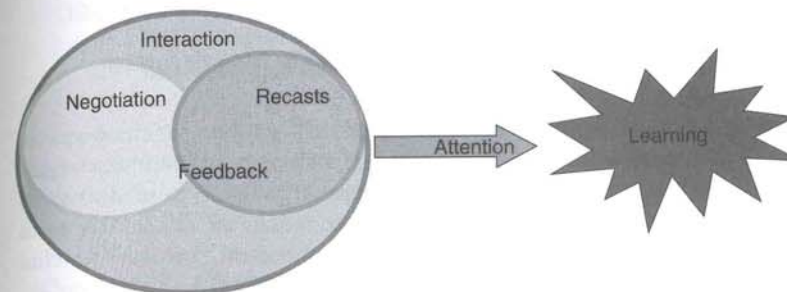


Figure 10.1 A model of interaction.

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10.5.1.1 Negotiation

Negotiation serves as a catalyst for change because of its focus on incorrect forms. By providing learners with information about incorrect forms, negotiation enables learners to search for additional confirmatory or nonconfirmatory evidence. If we accept that negotiation as a form of negative evidence and as a way of providing feedback serves the function of initiating change, we need to ask what factors determine whether the initiated change results in permanent restructuring of linguistic knowledge. As with any type of learning, there needs to be reinforcement of what is being learned. This is schematized in Figure 10.2. If additional input is not available, learners do not have the opportunity to obtain confirmatory/nonconfirmatory evidence. This, in fact, may explain the results of White's study. Without additional focused evidence, it is not surprising that the learners did not retain knowledge of English adverb placement. In other words, acquisition appears to be gradual and, to state the matter simplistically, takes time and often requires numerous "doses" of evidence. That is, there is an incubation period extending from the time of the initial input (negative or positive) to the final stage of restructuring and output.

Although White's study is important in showing that negative evidence may be necessary to trigger a permanent change in a learner's grammar, it does not show that positive evidence (i.e., input) alone is insufficient. (In fact, the question group of White's study received little information about adverbs from the naturalistic classroom data to which they were exposed.)

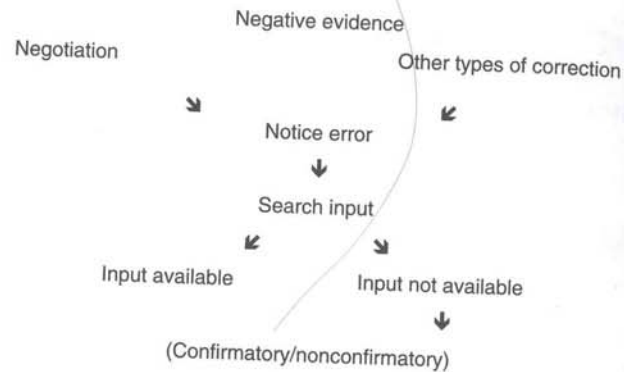


Figure 10.2 Function of negative evidence

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Trahey and White (1993) conducted a follow-up study to determine the effect of positive evidence. Their study consisted of two grade 5 classes of French students learning English. Both classes were given an input flood of English adverbs (positive evidence only) over a two-week period. The same timetable as that used in the earlier White studies was used with the exception of three-week rather than five-week follow-up testing and no testing one year later. What they found was that input was sufficient for learners to notice that SAV order is possible in English, but that it was not sufficient to detect the ungrammaticality of SVAO sentences. Thus, these two experiments showed that positive evidence can reveal to learners the presence of information in the second language that is different from their native language, but that negative evidence is necessary to show what is not possible in the second language when it is possible in the native language. Trahey (1996) showed that an abundance of positive evidence a year after exposure yielded knowledge of grammatical sentences, but did not succeed in eradicating the ungrammatical sentences. Thus, positive evidence alone is not sufficient.

Other studies of feedback have also suggested that feedback obtained through negotiation serves a corrective function (Gass and Varonis, 1989; Pica, Holliday, Lewis, and Morgenthaler, 1989). The latter study is interesting in that the authors provided the first systematic evidence that learners respond differentially to different types of feedback. In their study one important focus was on different types of NS signals to NNS errors. They found that the greatest amount of modification comes in response to clarification requests, as in the following example (Nobuyoshi and R. Ellis, 1993, p. 204):

- (10-27) NNS: He pass his house.
 NS: Sorry?
 NNS: He passed, he passed, ah, his sign.

as opposed to seeking confirmation through modeling. What this suggests is that the fact that the NNS is "forced" to make the actual correction, as opposed to hearing and perhaps thinking about the correct form, is in itself a facilitator to acquisition. But again, we are left with the unknown factor of longer-term retention.

One study that suggested longer-term retention after focused attention is that of Nobuyoshi and R. Ellis (1993). Learners had to describe a series of pictures that depicted events that had happened the previous weekend and the previous day. The experimental group received feedback through clarification requests that focused on past tense forms. The control group did not receive such focused feedback. The results can only be considered suggestive given the very small sample size. However, in the experimental group, two of the three subjects were able to reformulate the correct forms after feedback and were able to maintain the correct forms at a subsequent administration one week later. In the control group, none of the subjects showed an accuracy gain.

Similarly, Lightbown (1992) compared corrective feedback provided by teachers immediately after the occurrence of an error in a communicative activity versus feedback on audiolingual drills or pure practice activities. She found that in both cases learners were able to self-correct, but only in the first case was the self-correction incorporated into their second language systems, as evidenced by use of the targeted form outside of the classroom.

An early study on the effect of corrective feedback on grammatical reorganization was carried out by Carroll, Roberge, and Swain (1992). The comparison was between groups with corrective feedback and groups with no corrective feedback. The linguistic focus was on regular noun formation in French. After receiving training on the relationship between verbs and nouns (e.g., *attel -attelage*, "harnessed"/"harnessing"), learners were given new words to manipulate. Some participants were corrected and others were not. The results showed that corrective feedback was important in the learning of individual items, but that it had little effect on a learner's ability to generalize this information to new items.

Takashima (1995), in a study of Japanese learners of English, investigated the effects of feedback that was focused on particular morphological form (past tense and plural)⁵ versus feedback that was communication-oriented. The focused feedback was in the form of clarification requests (*Sorry?*, *What did you say?*). Groups of students had to work together to make up a story based on a sequence of pictures, of which each student in the group had only one. One student was then

nominated to tell the story to the class. This was the actual feedback or session as the teacher provided either focused morphological feedback or content feedback. The accuracy rate for past tense increased at a faster rate during the time of the study (11 weeks) in the focused morphological correction group as opposed to the content correction group. Further, the magnitude of the difference increased as a function of time. Improved accuracy was noted for the particular student who was corrected (in front of the class) as well as for those students who were in the class observing the interaction. Interestingly, when considering the actual reformulations by individual students, there was no correlation between the reformulated utterances and improvement on the use of the structure on tests. This further suggests that the actual interaction does not constitute change itself, but is only a catalyst for later change. Illustrative of this is the following excerpt from Takashima (1995, p. 77), in which the first clarification request appears to fall short of the mark in that the student makes no change, but as the storytelling continues, the student seems to be more sensitive to the past tense forms, even self-correcting in the last turn.

- (10-28) S = student; T = teacher
 S: One day, the fairy, sting the magic wand to Cinderalla.
 T: Sorry?
 S: One day, the fairy sting the magic wand to Cinderalla.
 T: OK.
 S: Cinde, ah, Cindaella changed into, the beautiful girl.
 (Laugh) Ah, and, the, Cin, Cinderella wen Cinderella went to the palace by coach. The, the prince fall in love at a first glance.
 T: Sorry?
 S: Ah, the prince fall in, falled falled in love Cinderella at a first glance. And they dance, they danced . . . Ah, Cin, Cinderella have, Cinderella have to go home.

Here, the input has been enhanced through clarification requests and the output has similarly been enhanced (Takashima's term), apparently as a function of the input enhancement.

10.5.1.2 Recasts

Recasts are another form of feedback, though they are less direct and more subtle than other forms of feedback. A recast is a reformulation of an incorrect utterance that maintains the original meaning of the utterance, as in 10-29, where the NS reformulates the NNS's incorrect question (Philp, 1999).

- (10-29) NNS: Why he want this house?
 → NS: Why does he want this house?

Recasts are complex. For example, is it a partial recast? A full recast? A response to a single error or to multiple errors (how many changes are made)? We present two examples that illustrate forms that recasts can take. In 10-30, a recast with rising intonation, the auxiliary is added and the verbal morphology is corrected (Philp, 1999, p. 92). In 10-31 the verb form is corrected (from future to subjunctive, required after *avant que*) without rising intonation (Lyster, 1998, p. 58).

- (10-30) NNS: What doctor say?
 NS: What is the doctor saying?
 (10-31) S = student; T = teacher
 S: Avant que quelqu'un le prendra.
 before someone it will take
 "Before someone will take it."
 T: Avant que quelqu'un le prenne.
 before someone it takes
 "Before someone takes it."

There have been a number of recent reviews of recasts in the second language literature, focusing on experimental as well as theoretical concerns (Nicholas, Lightbown, and Spada, 2001; R. Ellis and Sheen, 2006; Long, 2007; Mackey and Goo, 2007). Because recasts are an indirect form of correction, it is not clear to what extent they are relevant to acquisition. There have been a number of empirical studies focused specifically on the effectiveness of recasts. The results from these studies are mixed.

Lyster and Ranta (1997) collected data from children in Grades 4–6 enrolled in French immersion programs. Their research considered recasts by teachers following errors and, importantly, the reaction by the student ("uptake," in their terminology) in the subsequent turn. They argued that uptake "reveals what the student attempts to do with the teacher's feedback" (p. 49). Even though there were numerous instances of recasts found in the data, they did not appear to be particularly effective. Rather, students were more prone to repair utterances following other types of feedback.

Unfortunately, an immediate response may not be revealing, in that learners may be "mimicking or repeating without true understanding" (Gass, 2003, p. 236). This makes recasts a somewhat elusive concept to deal with and research often produces mixed results. For example, Mackey and Philp (1998) found that an immediate response by a learner was not necessarily related to development, whereas Nabei and Swain

(2002) and Lyster (2004) found the reverse. As noted elsewhere in this chapter, it is not always possible to judge what the effects of learning are by immediate reactions.

Lyster (1998), using the same database as reported on in the Lyster and Ranta (1997) study, divided recasts into four types depending on two features: (a) declarative; (b) interrogative; (c) confirmation of the original utterance; or (d) additional information. Lyster found that there was some confusion between the corrective and approval functions of recasts. He argued that recasts may not be particularly useful in terms of corrective feedback, but they allow teachers to move a lesson forward by focusing attention on lesson content rather than on language form.

Lyster (2004), in a study that took place in immersion classrooms, compared the benefits of recasts and prompts. By prompts, he includes the following four types:

(10-32) Clarification requests

Student: Et le coccinelle . . . "And the (M) ladybug . . ."

Teacher: Pardon? "Sorry?"

Student: La coccinelle . . . "The (F) ladybug . . ."

(10-33) Repetitions

Student: La chocolat. "(F) Chocolate."

Teacher: La chocolat? "(F) Chocolate."

Student: Le chocolat. "(M) Chocolate."

(10-34) Metalinguistic clues

Student: Parce qu'elle cherche, euh, son, son carte.
"Because she's looking for, um, her, her (M) card."

Teacher: Pas son carte. "Not her (M) card."

Student: Euh, sa carte? "Um, her (F) card?"

(10-35) Elicitation

Teacher: Il vit où un animal domestique? Où est-ce que ça vit? "Where does a pet live? Where does it live?"

Student: Dans un maison. "In a (M) house."

Teacher: Dans . . .? Attention. "In . . .? Careful."

Student: Dans une maison. "In a (F) house."

Data were collected within the context of a fifth-grade-content French immersion classroom. Teachers either provided no feedback, recasts, or prompts. The focus was on French grammatical gender. Determination of learning was made through both oral and written tasks following the five-week treatment sessions. He found that form-focused instruction with prompts was more successful than with recasts, based on the written measures. There was not a significant difference on the oral assessment measures. This study was conducted in a content-based classroom

where there are numerous nonlinguistic demands made on the learner, possibly making it difficult to focus on the subtle corrective function of recasts.

The results of a study by Ammar and Spada (2006) are similar to those of Lyster (2004). Their study took place in intensive English classes (L1 French) in Montreal with Grade 6 pupils. The target grammatical area was possessive determiners (*his/her*), a structure notably difficult for French learners of English. Prompts turned out to be more effective than recasts. The effectiveness of recasts depended, in part, on proficiency level, with more advanced learners receiving more benefit than learners of lower proficiency.

Ellis, Loewen, and Erlam (2006) looked at metalinguistic explanation (explicit feedback) and recasts (implicit feedback), finding that on tests of both explicit and implicit knowledge the metalinguistic explanation group outperformed the recast group, most likely due to recognition of the overtly corrective nature of metalinguistic feedback. Explicit feedback benefited both implicit and explicit knowledge.

In general, a number of studies have suggested that there is a positive effect for recasts on later learning (see Nicholas, Lightbown, and Spada 2001 and Mackey and Goo, 2007 for reviews). Leeman (2003) looked at noun-adjective agreement in Spanish in attempting to determine the benefits of recasts, particularly because they serve to provide positive evidence in a salient way. She had three experimental groups: (1) recasts, which she proposed provided both negative evidence as well as enhanced salience of positive evidence; (2) negative evidence; and (3) enhanced salience of positive evidence. She found that the first and third groups (recast group and enhanced salience of positive evidence group) showed post-treatment benefits. In this way she was able to separate out the various parts of recasts (positive and negative evidence). Thus, it appears that recasts are useful due to the enhanced salience provided in recasts rather than negative evidence. Han (2002) investigated consistency of use of past tense morphology. She found that recasts were beneficial, but proposed four conditions for their usefulness: individualized attention, consistent focus, developmental readiness, and intensity.

McDonough (2007), in a study of the acquisition of past tense in an interactive context, compared clarification requests and recasts, finding that both positively influenced the acquisition of past tense. However, in a study on the acquisition of the comparative and past tense, R. Ellis (2007) considered the effect of recasts and metalinguistic feedback, not finding a positive effect for recasts. However, the treatment time in his study was much shorter than in other studies investigating the impact of recasts on the development of English past tense morphology.

Ishida (2004) considered Japanese morphology in her study of recasts.

In general, her results show a positive and lasting effect for recasts. As did Han (2002), she points to the need to consider developmental readiness in a full understanding of the utility of recasts. Iwashita (2003) considered the acquisition of Japanese word order and locative-initial constructions. She investigated more than just recasts, but in general found different effects for interaction moves (recasts, negotiation, models). Recasts were beneficial only for one of the verb forms. This further suggests the need to determine developmental readiness in order to fully understand the effect of recasts or any other interactional move. Mackey and Philp (1998) also found positive learning effects following recasts for the development of question formation.

McDonough and Mackey (2006) provide a detailed study on recasts looking at the relationship between: (1) recasts and learning and (2) learning and immediate responses to recasts. In an interaction-based study with Thai learners of English, they considered the acquisition of English questions. There were two experimental groups (recast and no feedback). Within the recast group, there were two recast types, as in 10-36, where there was an opportunity to respond, and 10-37, where there was no response opportunity.

(10-36) Recast with opportunity to respond—from McDonough and Mackey (2006)

Learner: Why he must say it like that?

NS: Why did he say that?

Learner: Yeah.

(10-37) Recast with no opportunity to respond—from McDonough and Mackey (2006)

Learner: How many sister you have?

NS: How many sisters do I have? I have one sister.

They characterized responses to recasts in one of two ways: as a pure repetition or as what they termed a primed production, where there was some novel production. Examples of each are given in 10-38 and 10-39 below.

(10-38) Repetition—from McDonough and Mackey (2006)

Learner: When it happen?

NS: When did it happen?

Learner: When did it happen?

(10-39) Primed production—from McDonough and Mackey (2006)

Learner: Why he hit the deer?

NS: Why did he hit the deer? He was driving home and the deer ran out in front of his car.

Learner: What did he do after that?

Their study included three posttests and development was operationalized as two questions with unique lexical items in different tasks. Both recasts and primed production were predictive of ESL question development. What was particularly interesting is that mere repetition of the recasted form (uptake in Lyster and Ranta's framework) was not correlated with development.

Other studies that show a positive effect for recasts point to two main problems with recast studies: the concept of uptake and the data to be included in analysis. Mackey and Philp (1998) pointed out that uptake (as defined by Lyster and Ranta, 1997) may be the wrong measure to use in determining effectiveness. Their data represented an attempt to go beyond the turn immediately following a recast. They make the point (cf. Gass, 1997; Gass and Varonis, 1994; Lightbown, 1998) that, if one is to consider effectiveness (i.e., development/acquisition), then one should more appropriately measure delayed effects. In particular, Mackey and Philp considered the effects of interaction with and without recasts on learners' knowledge of English questions. Their results showed that, for more advanced learners, recasts plus negotiation were more beneficial than negotiation alone. This was the case even though there was not always evidence for a reaction by the learner in the subsequent turn.

A study by Long, Inagaki, and Ortega (1998) also attempted to determine the role of recasts (in this case as opposed to models). They investigated (a) the acquisition of ordering of adjectives and a locative construction by English learners of Japanese, and (b) the acquisition of topicalization and adverb placement by English learners of Spanish. Their results were mixed inasmuch as only one of the learner groups (Spanish) showed greater learning following recasts as opposed to models. Furthermore, these findings were true for adverb placement only.

A problem having to do with the data used for analysis was noted by Oliver (1995). Frequently, after a recast, there is no opportunity for the original speaker to make a comment. This may be due to a topic shift, as in 10-40 (Oliver, 1995, p. 472), or the inappropriateness of making a comment because the recast had been in the form of a *yes/no* question and the appropriate response would not be a repetition, but a *yes/no* response.

(10-40) From Oliver (1995, p. 472)

NNS: A [c]lower tree.

NS: A flower tree. How tall is the trunk?

When the lack of opportunity/appropriacy is included, the percentage of "incorporated" recasts greatly increases. Lyster (1998) argued that the context of language use in these studies (child-child dyadic interactions in Oliver's research and teacher-student interactions in his own research) is different and that, in fact, in classrooms the teacher often keeps the

floor, thereby (as mentioned earlier) drawing attention to content and not to language form. In his 2004 study, Lyster compares recasts with prompts (see examples 10-32 to 10-35 above) finding the superiority of prompts to recasts given the opportunity for some form of uptake.

There is one final issue to address before concluding this section on feedback. What do learners perceive? In a study by Mackey, Gass, and McDonough (2000), data were collected from 10 learners of English as a second language and 7 learners of Italian as a foreign language. The study explored learners' perceptions about feedback provided to them through task-based dyadic interaction. In the interactions, learners received feedback focused on a range of morphosyntactic, lexical, and phonological forms. After completing the tasks, learners watched videotapes of their previous interactions and were asked to introspect about their thoughts at the time the original interactions were in progress. Examples of the interactions and the recall comments of the learners follow.

(10-41) Morphosyntactic feedback (perceived as lexical feedback)

NNS: C'è due tazzi.

"There is two cups (m. pl.)."

INT: Due tazze-come?

"Two cup—what?"

NNS: Tazzi, dove si può mettere té, come se dice questo?

"Cups (m. pl.), where one can put tea, how do you say this?"

INT: tazze?

"Cups (f. pl.)?"

NNS: ok, tazze.

"Ok, cups (f. pl)."

Recall: I wasn't sure if I learned the proper word at the beginning.

(10-42) Phonological feedback correctly perceived

NNS: Vincino la tavolo è.

"Near the table is (the correct form is *vicino*)."

INT: Vicino?

"Near?"

NNS: La, lu tavolo.

"The? table."

Recall: I was thinking . . . when she said *vicino* I was thinking, OK, did I pronounce that right there?

(10-43) Lexical feedback correctly perceived

NNS: There is a library.

NS: A what?

NNS: A place where you put books.

NS: A bookshelf?

NNS: Bok?

NS: Shelf.

NNS: Bookshelf.

Recall: That's not a good word she was thinking about library like we have here on campus, yeah.

The results showed that learners were relatively accurate in their perceptions about lexical, semantic, and phonological feedback. However, morphosyntactic feedback was generally not perceived as such.

Consequently, it is not always clear that learners perceive feedback in the way it was intended (see also, Hawkins, 1985). Thus, there may be a differential role for feedback in different linguistic areas, as suggested by Pica (1994). For example, perhaps morphosyntactic feedback is not noticed because, as is typical in a conversational context, individuals are focused on meaning, not on language form. Phonological and lexical errors can interfere with basic meaning and hence need to be attended to on the spot if shared meaning is to result; the morphosyntactic examples in the Mackey, Gass, and McDonough (2000) study generally dealt with low-level nonmeaning-bearing elements.

10.5.2 Hypothesis testing

The notion of hypothesis testing has been central to research in second language acquisition for a number of years (see Schachter, 1983, 1992). Output, particularly when it occurs as part of a negotiation sequence, is a way of testing a hypothesis. This is not to say that hypotheses are being consciously tested every time a second language speaker produces an utterance. It is to say, however, that through negotiation and through feedback, learners can be made aware of the hypotheses that they are entertaining as they produce language. That is, the activity of using language helps create a degree of analyticity that allows learners to think about language (see section 10.5.3).

Swain (1995, pp. 133–134) suggested that learners are in fact involved in testing hypotheses and that they use the forum of interaction to work through those hypotheses. In support of this position, Swain presented the following example from two second language learners (age 13) in attendance at an immersion program in Canada. The teacher had just read aloud a text, and the students, having taken notes on the reading, worked in pairs to reconstruct the text as closely as possible in terms of both content and form. The sentence they were working on in this example is: *En ce qui concerne l'environnement, il y a beaucoup de problèmes qui nous tracassent* ("As far as the environment is concerned, there are many problems that face us") (Swain, 1995, pp. 133–134; translation, pp. 143–144).

- (10-44) K = student; G = student; T = teacher
- K: Wait a minute! No, I need a *Bescherelle* (verb reference book). Please open the *Bescherelle* at the page with, OK, at the last page (i.e., the index). OK look for *tracasse*, one page two pages.
- G: *Tra, tra, tracer.*
- K: *Tracasser* page six. Look for it please.
- G: No problem.
- K: It's on page . . .
- G: Verb (on page) six. OK, it's the same as *aimer* (i.e., it is conjugated in the same way and *aimer* is given as the standard example for all verbs with this pattern of conjugation).
- K: Let me see it please (reading from the page). The *passé simple* (K is trying to find a first person plural version of the verb which sounds like *tracasse*, the word he has written in his notes, but is unable to find one).
- G: Perhaps it's here.
- K: No, it's just *nous aime* (pause) ah, the present. *Tracasse*. Isn't it *aimons, tracasse* (to teacher who has just arrived)? You don't say *nous tracasse* (what he has written down in his notes). Shouldn't it be *nous tracassons*?
- T: It's the *problems* that are worrying us (deliberately not directly giving the answer).
- K: *Nous tracassons.*
- G: *Oh* (beginning to realize what is happening).
- K: Yeh? (So what?)
- G: The problems which are worrying us. Like the (pause). It's the problems (pause) like, that concern us.
- K: Yes, but *tracasse* shouldn't it be *<o-n-s>*?
- G: *Tracasse*. It's not a, it's not a (pause), yeh, I dunno (unable to articulate what he has discovered).
- K: OK, it says problems which worry us. Therefore, is *tracasse* a verb that you have to conjugate?
- T: Uh huh.
- K: So is it *tracassons*?
- T: It's the **problems** which are worrying us.
- G: Us, it's it's not, yeh, it's the problems, it's not, it's not us.
- K: *Ah! E-n-t* (third person plural ending) OK. OK.

As Swain explains, the question here relates to the morphology of the French verb and the use of a relative clause. The difficulty lies in the

fact that Student K had taken the French phrase *nous tracasse* without taking into consideration that the entire constituent was *qui nous tracasse* ("that we are faced with"). In the first instance, it appears that *nous* "we" is the subject and that the verb should therefore be *tracassons* to agree with the first person plural subject. In actuality *nous tracasse* is part of the relative clause *qui nous tracasse*, with *qui* "that" as the third person subject. The entire dialogue is one in which Student K is at first puzzled, then verbalizes the problem and then works to understand the syntax and hence the morphology. In sum, it is through this interaction that this child is able to come to a correct conclusion after an initial faulty hypothesis.

Another piece of evidence supporting the fact that learners test hypotheses through production is self-correction. Negotiation sequences produce many instances of corrective feedback to learners, from NSs and NNSs alike. And, importantly, these instances appear to have long-lasting effects on language development in some cases. In the following examples (Gass and Varonis, 1989, pp. 80-81), it appears that Hiroko is "ready" to accept a correction. Her quick and easy acceptance of Izumi's *at* suggests a tentativeness that bespeaks of hypothesis testing, rather than a conviction of the correctness of her own utterance.

(10-45) Hiroko: Ah, the dog is barking to—

Izumi: At

Hiroko: At the woman.

(10-46) Hiroko: A man is uh drinking c-coffee or tea uh with uh the saucer of the uh uh coffee set is uh in his uh knee.

Izumi: In him knee.

Hiroko: Uh on his knee.

Izumi: Yeah.

Hiroko: On his knee.

Izumi: So sorry. On his knee.

In this negotiation, it appears that both Hiroko and Izumi are tentative and are in a sense "fishing" for the right form. This is supported by the frequent hesitation on the part of Hiroko in her initial utterance and by the apology on Izumi's part at the end. Other examples suggest the longer-term retention that results from these negotiations. This can be seen in 10-47 (Gass and Varonis, 1989, p. 78).

(10-47) Atsuko: Uh holding the [kʌp].

Toshi: Holding the cup?

Atsuko: Hmm hmmm . . .

(seventeen turns later)

- Toshi: Holding a cup.
 Atsuko: Yes.
 Toshi: Coffee cup?
 Atsuko: Coffee? Oh yeah, tea, coffee cup, tea cup.
 Toshi: Hm hm.

In this example, the initial clarification request by Toshi suggests to Atsuko that something is wrong with her pronunciation of the word *cup* [kʌp]. This indication caused her to notice something in her pronunciation that did not match the expectation of her partner. The remainder of the dialogue was one of hypothesis testing in which she matched her phonetic formulation against that of her partner's.

It should be noted, however, that Pica (1988, p. 68) did not find a large number of instances of self-corrections following feedback, leading her to suggest that "it was not evident from the data that the NNSs were testing hypotheses during negotiated interactions." In contrast, a later study by Pica, Holliday, Lewis, and Morgenthaler (1989) showed that clarification requests yielded modifications in learner output. The authors suggested that learners "test hypotheses about the second language, experiment with new structures and forms, and expand and exploit their interlanguage resources in creative ways" (1989, p. 64). The fact that in Pica's 1988 analysis of the effect of feedback she only considered immediate responses to feedback suggests only that the interaction did not result in immediate change, not that it did not stimulate change. There may be other variables in operation when determining whether or not there is an effect for feedback. Lin and Hedgcock (1996) analyzed data from classroom learners of Spanish (NSs of Chinese) versus well-educated (but not schooled) learners of Spanish (also NSs of Chinese). They found differences between these two populations in their ability to detect ungrammaticality and to incorporate negative feedback provided to them.

More direct evidence of hypothesis testing, however, comes from Mackey, Gass, and McDonough (2000), in which they used a stimulated recall procedure (see Gass and Mackey, 2000). They videotaped interactive tasks and immediately following replayed the video, asking learners what they were thinking about at the time of the interaction. Example 10-48 (from their study, but not published therein) below illustrates the notion of hypothesis testing.

(10-48) Hypothesis testing (INT = interviewer)

- NNS: *poi un bicchiere*
 then a glass
 INT: *un che, come?*
 a what, what?

NNS: *bicchiere*
 glass

Recall by NNS: "I was drawing a blank. Then I thought of a vase but then I thought that since there was no flowers, maybe it was just a big glass. So, then I thought I'll say it and see. Then, when she said 'come' (what?), I knew that it was completely wrong."

I'll say it and see suggests that she was using the conversation as a way to see if a hypothesis was correct or incorrect.

10.5.3 Automaticity

A third function of output is the development of fluency and automaticity of processing (see chapter 8). As discussed earlier, the human mind is a limited processing system. Certain processes are deliberate, requiring a significant amount of time and working memory capacity. Others are routine and automatic, involving less time and capacity. McLaughlin (1987, p. 134) claimed that automatization involves "a learned response that has been built up through the consistent mapping of the same input to the same pattern of activation over many trials." Here we extend this notion to output, claiming that the consistent and successful mapping (practice) of grammar to output results in automatic processing (see also Loschky and Bley-Vroman, 1993).

10.5.4 Meaning-based to grammar-based processing

In some sense the study of output began with an understanding of the difference between meaning-based and grammar-based use of language. Swain's initial hypothesis stated that output "may force the learner to move from semantic processing to syntactic processing" (1985, p. 249). This notion has been dealt with throughout the book and is not re-elaborated on here. Suffice it to say that processing language only at the level of meaning will not and cannot serve the purpose of understanding the syntax of the language, a level of knowledge that is essential to the production of language.⁶

In sum, output provides learners the opportunity to produce language and gain feedback, which, through focusing learners' attention on certain local aspects of their speech, may lead them to notice either (a) a mismatch between their speech and that of an interlocutor (particularly if as part of the feedback a linguistic model is provided) or (b) a deficiency in their output. Noticing, then, leads to reassessment, which may be an on-the-spot reassessment or involve longer-term complex thinking about the issue. This latter process may be bolstered by the gathering of additional

information through a variety of sources (e.g., input, direct questioning, and looking in grammar books and dictionaries). This, in essence, is the process of learning (see also Swain and Lapkin, 1995).

10.6 The role of input and interaction in language learning

What is the function of input and interaction? As a first step to learning, a learner must be aware of a need to learn. Negotiation of the sort that takes place in conversation is a means to focus a learner's attention on just those areas of language that do not "match" those of the language being learned.

The view of input and interaction that has been presented in this chapter appears to be in opposition to the view of language learning constrained by principles of Universal Grammar (see chapter 6). However, the goal of both perspectives is to come to an understanding of how second language grammars are formulated in light of the fact that the evidence learners have about the second language is so limited. In broad terms, as noted in chapter 6, learners have two kinds of linguistic information at their disposal. The first is known as positive evidence and refers to that limited set of (generally) well-formed utterances to which learners are exposed. The second, negative evidence, consists of information provided to a learner that her or his utterance is deviant in some way. Consider the following example:

- (10-49) NS: Did you fly to Singapore yesterday?
 NNS: Did I flied here yesterday?
 NS: Pardon?
 NNS: Did I flied here yesterday?
 NS: Yes, did you fly here yesterday?

In 10-49, the first NS utterance provides positive evidence to this NNS about question formation. The second NS utterance provides feedback indicating that there is something incorrect/incomprehensible about the NNS utterance. The third NS utterance also provides indirect feedback to the learner (correct modeling) that the NNS utterance is incorrect. This is what we have been referring to in this chapter as negotiation.

When we look at the literature on child language acquisition, we find that claims have been made that negative evidence is neither frequent nor necessary for acquisition (e.g., Pinker, 1984; Wexler and Cullicover, 1980) (see also chapter 6). As children do not receive much correction, it cannot be a necessary condition for acquisition. In this view, how then does acquisition take place? What has been posited is a set of innate properties that limit the possibilities of grammar formation. The claim is that if