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s my feelings
interaction: I
"I see." "Oh,
a question."
!" "I agree."

On learner uptake: Manipulable sources of variation, motivating factors, and psycholinguistic mechanisms

Tomohito Ishikawa

The purpose of this article is to speculate on sources of variation in, psycholinguistic mechanisms for, and factors stimulating learner uptake of second language (L2) input (Robinson, 2004) during monologic task performance. The organization of this article is as follows. In the first section I illustrate L2 uptake. In the next section L2 uptake is related to the time-honored notion of "islands of reliability" (Dechert, 1984) and semantic motivations for "noticing the hole" (Doughty, 2001), followed by the description of basic assumptions held in major L2 speech production models. In the final section I summarize the major points of the arguments and present a figure of "successful" L2 uptake during monologic task performance. This paper also argues that L2 uptake under monologic task performance should be viewed as one of the learner's problem-solving mechanisms.

Illustration of L2 uptake

Uptake of L2 items has been defined in different ways in the L2 literature (e.g., Allwright, 1984; Ellis, Basturkmen, & Loewen, 2001; Lyseter & Ranta, 1997). In the present article, the term "L2 uptake" is used in a fairly restricted sense; that is, it is the learner's use of the presented L2 linguistic items that the learner is exposed to prior to or during monologic task performance. In what follows I illustrate L2 uptake by citing three examples.

The first study that I describe is Robinson (2004). Within the con-

text of task-based language learning and performance, Robinson reports increased learner uptake in performing cognitively more demanding tasks (i.e., complex reasoning) than their less demanding counterparts. In the experiment, participants were asked to sequence a series of pictures and describe the stories that imposed varying degrees of reasoning demands on L2 learners. The tasks were one-way, closed tasks, where the information receiver was required to sequence the pictures based on the information giver's oral narration but was allowed to ask questions to the information giver. Robinson (2004) is described here is because although it does not concern monologic task performance (because meaning negotiation is possible), it is one of the few studies that explicitly addressed the effects of L2 uptake within the context of task-based performance.

In Robinson (2004), six English phrases ("modified input" in Robinson's term) were presented only to the information giver in each task. The phrases were controlled in structural terms across the three tasks and were given in the written form (e.g., "is carrying a plank" for the simple task; "is hailing a taxi" for the complex task). Those task-relevant English phrases were presented paired with the participants' L1 translations (Japanese) so that their meanings could be transparent to the information giver.

In analyzing learner language Robinson coded uptake in two ways: partial uptake (any use of one or more content words from the given expressions) or exact uptake (learners' unaltered use of the given expressions). The results showed that learners significantly increased partial uptake as the task complexity increased both in total numbers of partial uptake per task and in a ratio measure partial uptake per turn.

Although L2 uptake is not explicitly considered in her study, Kawauchi (2005, pp. 162-164) also reports her participants' uptake of L2 input (i.e., low frequency lexical items and problematic structural items) from reading texts given prior to task performance (i.e., mono-

logic narration). According to her, her low EFL learners (TOEFL 420-480) took advantage of uptake opportunities and used some of the expressions from the reading text. Similarly to Kawauchi's study, though briefer than hers, L2 uptake from reading prompts presented prior to task performance is also reported by Raupach (1984, p. 120).

L2 take, islands of reliability, and noticing the hole

Uptake of L2 linguistic expressions is associated with the time-honored notion of "islands of reliability" (Dechert, 1984) and particularly with the notion of "noticing the hole" (Doughty & Williams, 1998). In describing the notion of islands of reliability within the context of narrative retelling, Dechert remarks as follows:

If one does not know enough language to risk model independent re-production of a narrative, the only thing left to do in order to survive is to memorize and recall as much original language as possible (if one's memory capacity allows one to do that and if there is enough time available) (Dechert, 1984, p. 223)

The above-cited learner behavior is also associated with communication strategies, which generally refer to the learner's behaviors to cope with resource-deficit problems (see Dörnyei & Scott, 1997; Dörnyei & Kormos, 1998). Interestingly enough, L2 uptake described above cannot be found in the problem-solving categories summarized by Dörnyei and Kormos (1998; also see Kormos, 2006). An argument will be made that L2 uptake should be included in the list of problem-solving strategies.

Going back to Dechert's observation, it is perhaps safe to say that one of the underlying motivations for L2 uptake is the semantic motivation on the part of the speaker (Samuda, 2001) prior to or during L2 speech production. Furthermore, related to the semantic motivation

for L2 uptake is the learner's subjective experience of L2 resource-deficit problems (Dörnyei & Kormos, 1998). Although L2 resource-deficit problems include problems in retrieval, at least part of the problems are equivalent to the metaphorically termed notion of "noticing the hole" (Doughty, 2001; Doughty & Williams, 1998; Schmidt, 1990, 1993, 1995, 2001). As will become clear later, the relations between semantic motivations, detection of L2 knowledge deficits, noticing the hole, and the need for islands of reliability are all of crucial importance in understanding the psycholinguistic motivations underlying L2 uptake. While acknowledging that L2 uptake may also be motivated by knowledge-access problems and others, for the time being, I assume it is only caused in those cases where L2 knowledge representations are lacking.

Basic assumptions of L2 speech production models

Perhaps one of the commonly held assumptions by L2 production researchers is that speaking a second language is not radically different from speaking the first language in the sense that an L2 speaking model does not require additional processing components (e.g., Dechert, 1986; Wiese, 1984). From this perspective, Krashen's (1985) Monitor as specific to L2 learners can be considered exceptional. However, as Wiese (1984) points out, "all speakers monitor their speech" (p. 22) irrespective of whether they are L1 or L2 speakers. In fact, such a continuous view is perhaps best evidenced by the fact that many proposed L2 speech production models are, in one way or another, based on Levelt's speaking model (e.g., de Bot, 1992; de Bot & Schreuder, 1993; Green, 1998; Kormos, 2006; Pienemann, 1998; Poullisse & Bongaerts, 1994).

Levelt's speech production model (Figure 1) assumes three major processing components: the conceptualizer, the formulator, and the articulator. In Levelt's model, the speech processing mode is characterized as inter-/intra-component parallel processing that proceeds

incrementally (see De Smedt, 1996; Kempen & Hoenkamp, 1987). Unlike Green's (1998) model, inhibition is not assumed and the basic selection mechanism is spreading activation (see Dell, 1986; Levelt, Roelofs, & Meyer, 1999; Kormos, 2006).

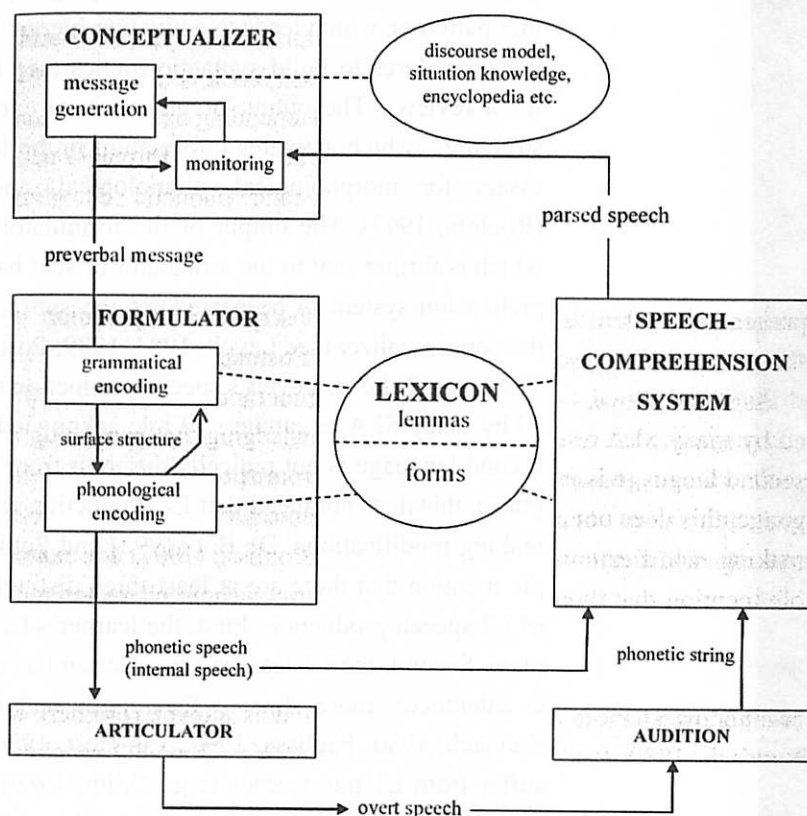


Figure 1. Levelt's speech production model (based on Levelt, 1989)

Major functions of the conceptualizer are macroplanning (i.e., what to say in what order by accessing situational and world knowledge) and microplanning (i.e., production of propositional representations) (see Guhe, 2003, for a review). The output of the conceptualiz-

er is the preverbal message that is the input to the formulator, which is responsible for syntactic and morpho-phonological encoding. Information in the preverbal message is used to activate relevant syntactic information in the lexicon (i.e., lemmas, e.g., syntactic categories and diacritic parameters for language-specific grammaticalization patterns), which leads to activating hierarchies of syntactic building procedures to build syntactic frames (see Bock & Levelt, 1994, for a review). The output of grammatical encoding is the "surface structure," which activates information in the lexicon (lexemes) necessary for morphological, phonological, and phonetic encoding (Roelofs, 1997). The output of the formulator is the phonetic plan, which is further sent to the articulator or sent back to the speech comprehension system to be parsed for the subsequent interpretation in the conceptualizer (see Levelt, 1983, 1989; Postma, 2000).

As stated above, Levelt's speech production model has been adopted by many SLA researchers. While acknowledging that producing a second language is not radically different from speaking the first language, this does not mean that L2 production can be captured without making modifications. De Bot (1992) and Poulisse (1997) for example mention that there are at least three distinguishing characteristics of L2 speech production. First, the learner's L2 knowledge is incomplete. Second, the L2 learner's production has more hesitation, shorter utterances, more slips of the tongue and is slower (Dechert & Raupach, 1980; Paulisse, 1999; Van Hest, 1996). Third, L2 speakers suffer from L1 interference (e.g., Odlin, 1989). These aspects of L2 speech processing need to be considered in adopting Levelt's model for L2 speech production along with the fact that Levelt's model is not a developmental model. Of these, the fact that the learner's L2 knowledge is incomplete is the most relevant aspect for the purpose of the present article.

Psycholinguistic factors and mechanisms involved in L2 uptake

Given that noticing the hole is one of the instigating factors for L2 uptake, along with the learner perception of islands of reliability, it has to be captured in psycholinguistic terms. First, when formulation takes place at the conceptual level, its cognitive representations should be available, but the corresponding lexical representations (i.e., lemmas and lexemes) and necessary L2 syntactic building procedures (Pienemann, 1998) are lacking. In many cases, however, it is likely that the syntactic category of the intended word may be available. The lack of necessary information for formulation is not a "necessary" condition for L2 uptake. It is a "motivating" condition, which concerns L2 knowledge representations.

Secondly, it is claimed here that noticing the hole should be semantically motivated by tasks' conceptual demands (e.g., Robinson, 2001b, c, 2004, 2005; Samuda, 2001). In other words, these should be "necessary" semantic/conceptual motivations since the argument concerns "task performance" and how task demands require them. Traditional drills and explicit teacher instructions to use certain structures and words do not draw on this semantic/conceptual motivation and so are outside the scope of the current argument.

Thirdly, given that the conceptualizer is not "aware" of the information in the lexicon in Levelt's model, it must be detected by virtue of monitoring. Once the monitor detects a problem, an alert signal is sent, and the current formulation process comes to a halt (e.g., Izumi, 2003; Kormos, 1999; Poulishse, 1993).

Fourth, when the learner detects the formulation problem thanks to monitoring, this leads to noticing the hole. At this point, several options in L2 deficit problem-solving mechanisms identified by Dörnyei and Kormos (1998) may be available (Table 1, also see Dörnyei, & Scott, 1997; Færch, & Kasper, 1983; Poulishse, 1993). In this case, the learner's pre-existing knowledge can be seen as a number of potential islands of reliability, and, noticing the hole guides

learner perceptions of the need for further islands of reliability.

Alternatively, when useful L2 input is available, it is likely to be perceived as a specific instance of an island of reliability. Learner perceptions of L2 input as islands of reliability occur during mental rehearsal of the L2 input (Robinson, 1995, 2003), during which L2 input is incorporated into the learner's current speech production system. In fact, this is the moment Izumi (2003) envisages as the one when the learner's interlanguage system is most open to change.

PSM class	PSM type	PSM subtype
Lexical PSM	Content reduction	Message abandonment Message reduction Message replacement
	Substitution	Code switching Approximation Use of all-purpose words Complete omission
	Substitution plus	Foreignizing Grammatical word coinage Literal translation
	Macro reconceptualization	Restructuring
	Micro reconceptualization	Circumlocution Semantic coinage
	Appeals for help	Direct appeals for help Indirect appeals for help
Grammatical PSM	Grammatical substitution Grammatical reduction	
Phonological and	Phonological retrieval	Tip-of-the-tongue phenomenon
Articulatory PSM	Phonological and articulatory substitution	Use of similar sounding words
	Phonological and articulatory reduction	Mumbling

Table 1 *Taxonomy of L2 problem-solving mechanisms (PSM) related to resource-deficit problems (based on Dörnyei & Kormos, 1998).*

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Once L2 input is incorporated into the learner's current L2 production system to varying extents, the learner may resort to additional problem-solving mechanisms (see Table 1). This is because presenting L2 input does not necessarily solve all the problems.

Additional remarks

Three additional remarks must be added here. First of all, as pointed out earlier, there would be some cases, where L2 uptake may be motivated by knowledge-access problems. Most relevant in this context is the performance dimensions of task complexity (see Robinson, 2001b, 2001c, 2004, 2005, 2006), for example, whether the task requires one operation to be performed verbally (e.g., speaking on the phone) or two simultaneously (e.g., speaking on the phone and watching the news on TV). When the performance task demands are high as in the latter case, there would be an increased chance that the learner would have problems in retrieving the intended lexical information.

Even in this case, however, the processes involved in L2 uptake are fairly similar to the ones mentioned above. Thus, the monitor detects a formulation problem, which leads to the learner's urgent need for islands of reliability, which in turn eventually leads up to L2 uptake when the input is available. In contrast, if the L2 input is not available, the learner resorts to problem-solving mechanisms related to knowledge deficit problems. "Knowledge deficit" may sound misleading here; however, as mentioned elsewhere, the term implicates retrieval problems as well. This is one of the reasons I mentioned earlier that lack of L2 knowledge representations is a "motivating" condition but not a "necessary" one. It has to be acknowledged here that compared with the effect of conceptual demands of tasks, these performance demands would show less systematic effects on L2 uptake because in principle these influences have nothing to do with semantic/conceptual motivations for L2 uptake. Although imposing time

pressure is claimed to affect the utility of the L2 input (Loschky & Bley-Vroman, 1993, p. 138), this presupposes conceptual demands of tasks.

Secondly, there may be some cases, where the learner decides to use (part of) the L2 input even when the speaker possess L2 expressions and can access them. The motivations for this type of uptake are numerous (e.g., de Bot, 1992; Izumi, 2003; Loschky & Bley-Vroman, 1993). The speaker may regard the input as more native-like; L2 uptake may be out of uncertainties about the speaker's own knowledge; the learner may want to use the input in order to consolidate existing knowledge, or the use of input may provide more efficient means to complete the task, and so forth.

Thirdly and finally, as briefly mentioned earlier, I argue that at least some of the cases of L2 uptake during monologic task performance should be viewed as a learner's problem-solving strategy that is related to problems of L2 knowledge deficit. In fact, as implicated in the preceding argument, L2 uptake bears functional similarities to many of the problem-solving strategies. As the learner relies on his or her pre-existing knowledge in order to overcome the current L2 deficit problems (e.g., Dörnyei & Kormos, 1998; Swain & Lapkin, 1995), so he or she relies on externally available L2 input, although the use of additional problem-solving mechanisms can serve to embellish the presented L2 input, as revealed by "partial uptake" in Robinson (2004). Given that "appeals for help" is a problem-solving strategy (also see Loschky & Bley-Vroman, 1993, p. 137 and p. 157), there is no a priori reason to reject the view that L2 uptake is a problem-solving mechanism.

The argument developed in this article is summarized schematically in Figure 2. The gray-colored boxes represent manipulable factors involved in L2 uptake. So, they constitute major *manipulable sources of variation*. These factors include:

- (i) Dimensions of both conceptual and performance demands of L2 monologic tasks (Gilbert, 2006; Ishikawa, 2006; Robinson, 2001b, 2001c, 2004, 2005, 2006)
- (ii) Task-dependent L2 input parameters of the degree of structural involvement of task-essentialness, utility, and/or naturalness (see Loschky & Bley-Vroman, 1993; Robinson, 2004)
- (iii) Relatively task-independent input parameters of some of the focus on form techniques described by Doughty and Williams (1998) such as timing and availability of L2 input, input modality, and quantity of input

In contrast to the gray-colored boxes, the other boxes represent the above-mentioned hypothetical *psycholinguistic mechanisms* and the major *motivating factors* that are not necessarily manipulable. Most of these also seem to be highly sensitive to the learner's individual differences factors (e.g., Bowden, Sanz, & Stafford, 2005; Ishikawa, 2005; Robinson, 2001a). Finally, L2 uptake is represented in the oval figure to show that it is an observable behavior.

It should be noted that Figure 2 summarizes major processes and conditions; however, in effect the sequence of these steps is not as automatic as represented in the figure. For instance, even when the L2 input is presented to the learner, he or she may fail to use (part of) it due to temporary attention and memory lapses, which may or may not be ascribable to performance demands of tasks. In such cases, the speaker may resort to some of the L2 problem-solving strategies. Alternatively, of course, even when the learner notices the input, he or she may decide not to use, or to "avoid" it and favor other linguistic expressions. Figure 2 therefore should be seen as representing "successful" conditions, manipulable factors, and psycholinguistic steps that can be taken towards L2 uptake.

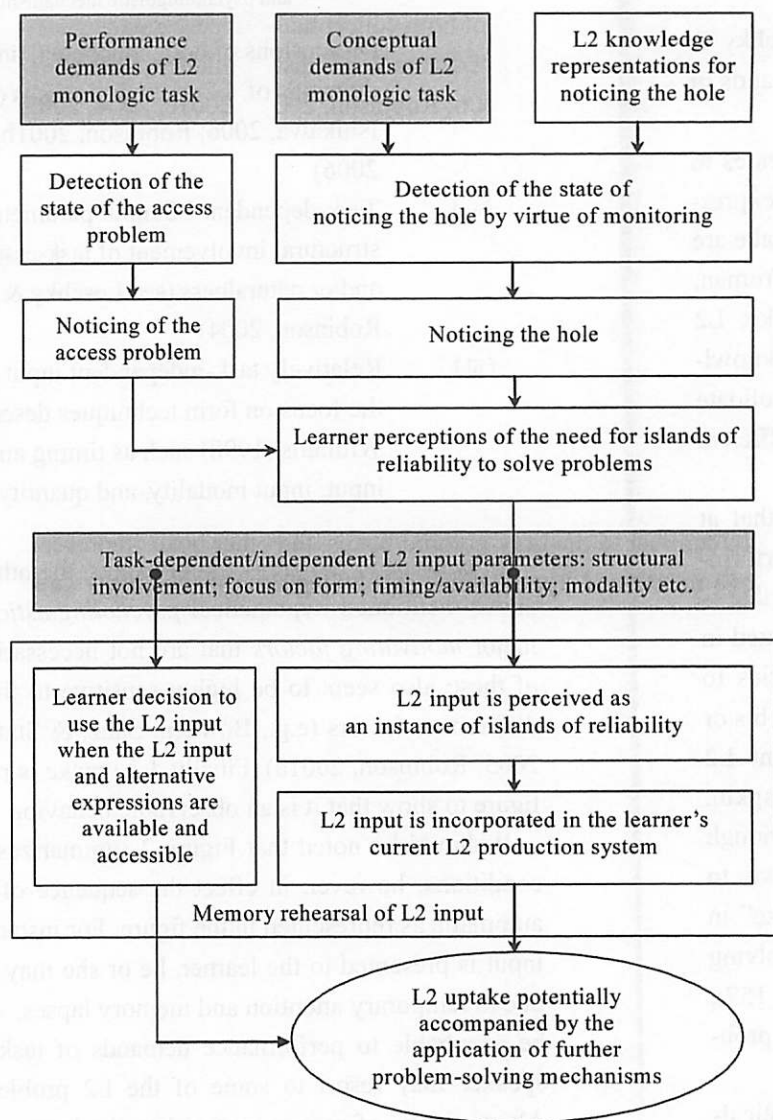


Figure 2. A schematic representation of sources of variation, hypothetical major factors and psycholinguistic mechanisms contributing to successful L2 uptake under monologic task performance

Conclusion

In this article I speculated on manipulable sources of variation in, psycholinguistic mechanisms involved in, and motivating factors contributing to L2 uptake during monologic task performance. Attempts were also made to relate this variation, these mechanisms, and these factors within the task-based framework developed by Robinson. The paper also argued that L2 uptake should be viewed as one of the learner's problem-solving strategies, especially as these are prompted by attempts to use the L2 on increasingly complex tasks.

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