Effects of Output and Note-Taking on Noticing and Interlanguage Development

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ABSTRACT

Recent literature in second language acquisition (SLA) suggests that opportunities for output production contribute to targetlike acquisition. In the course of second language (L2) production, learners are prompted to notice the gaps and/or holes in their knowledge, and thus give extra attention to such discrepancies in subsequent input (Swain, 1995). Given that whether these gaps and/or holes are indeed noticed by the learners is crucial for successful intake, researchers have resorted to approaches such as note-taking and think-aloud as measures of noticing. This study investigates the role of written output in helping learners notice linguistic forms provided in subsequent input. In particular, it examines note-taking as a way to facilitate noticing. Twenty-three advanced English as a Second Language (ESL) learners were randomly assigned to two groups ─ a note-taking group and a non-note-taking group ─ and were asked to complete a three-stage writing task: (i) to give a written description to a picture, (ii) to compare the description to a model text, and (iii) to rewrite the description. This was immediately followed by a retrospective questionnaire designed to shed light on the "noticing process." The results suggest that written output has a positive effect on learners' ability to notice linguistic forms that they have previously found problematic in subsequent input, and that note-taking apparently helps learners better use the linguistic forms included in subsequent input in their own rewriting.

INTRODUCTION

There has been a growing consensus regarding the significance of *noticing* in the acquisition of a second language (L2) (e.g., Ellis, 1994; Schmidt, 1990). This consensus has driven many L2 researchers to investigate how learners' attention might be drawn to form in a way that promotes interlanguage (IL) development. Among the methods and approaches employed, the role of output has been increasingly acknowledged in second language acquisition (SLA) research. According to Swain (1985), production in the target language requires learners "to pay attention to the means of expression needed in order to convey his or her own intended meaning" (p. 249). Through *output*, learners are more likely to notice their inability to verbalize ideas in the L2. Upon such recognition of their lack of L2 knowledge, learners are then more likely to pay closer

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attention to input provided immediately following their output. Swain (1995) refers to this psycholinguistic process as the *noticing function of output*.

The noticing function of output has become an area of interest in L2 research; a particular focus has been on the interaction between speakers of different proficiency levels. Components of these output interactions, such as communication breakdowns, corrective feedback, and learner repairs, as well as how such components may contribute to L2 acquisition, have been extensively researched over the years. While much of the literature on the noticing function of output focuses on oral interaction, Hanaoka (2007) broadens the scope of research by investigating learners' writing. Specifically, Hanaoka examined whether written output would guide learners to notice their linguistic problems and whether such noticing would make them more attentive to subsequent model writing samples. Through the use a of a written picture description task, Hanaoka found that learners tended to pay closer attention to linguistic forms in the model texts provided immediately upon the completion of their own descriptions. Learners were able to incorporate the linguistic forms that they noticed in the model writing, and thus produced linguistically more accurate drafts of the picture description. It would seem that the learners were aware of their lack of L2 knowledge, and actively sought to improve that knowledge.

Gaining an understanding of the ways through which learners' attention may be directed to subsequent written input has the potential to inform L2 writing instruction. The present study seeks to replicate and expand on Hanaoka's (2007) study in order to further uncover the relationship between output, noticing, and exposure to model texts. This study also seeks to explore the role of note-taking as a measure of noticing. In Hanaoka's study, the researcher asked the participants to take notes on the linguistic forms that they found useful in the model writing samples. Hanaoka used these notes to keep track of which linguistic forms the students had noticed, but the note-taking process itself might have resulted in a greater level of noticing of linguistic forms in the model texts. Put another way, while the participants showed linguistic improvement in the rewriting task, this improvement may not have stemmed solely from the participants' exposure to the model sample. Rather, it may have been augmented by the participants' action of taking notes on the model writing. On a different note, this note-taking process may have prompted learners to encode linguistic forms at a deeper level beyond simply comprehension. This study empirically addresses the influence of note-taking on the processing of input by including a group that did not take notes while reading the model text.

REVIEW OF THE LITERATURE

Theoretical Framework: The Output Hypothesis

In the SLA literature, researchers have established that input plays a pivotal role in facilitating language learning. Krashen (1985), in particular, argues that acquisition occurs only subsequent to persistent exposure to abundant comprehensible input, a process through which the learner have plenty of opportunities to eventually understand the linguistic information conveyed by that input in full. Swain's (1985) study of Canadian immersion classrooms reveals, however, that despite years of exposure to input, comprehensible input alone did not promote learners' L2 acquisition to the fullest extent. Students in such settings achieved near-native proficiency only in terms of their reading and listening skills. Their speaking and writing performance still lagged behind that of their native counterparts. On this basis, Swain concluded that both comprehensible

input and comprehensible output are essential to improving fluency and accuracy in a learner's developing IL.

In her Output Hypothesis, Swain (1985) argues that when learners encounter communication difficulties, they would make a more substantive effort to get their meaning across accurately and appropriately. She believes that such attempts to make output comprehensible can foster language learning. Building upon this hypothesis, Swain (1995) identifies three facets of output: (a) noticing, (b) hypothesis-testing, and (c) metalinguistic functions. *The noticing function of output* is, by definition, the process of learners becoming aware of their lack of linguistic knowledge in the course of producing output. This noticing prompts them to restructure their existing knowledge, and to attend to future input in search of solutions to their perceived linguistic weaknesses. *Noticing*, therefore, is key to IL development. The *noticing hypothesis*, which provides the theoretical underpinnings for the output hypothesis, states that both (i) noticing the forms and (ii) understanding the meanings of these forms are vital to the conversion of input into intake (Schmidt, 1990, 1995, 2001; Schmidt & Frota, 1986). While there has been much controversy regarding the nature and types of noticing (see Robinson, 1995; Schmidt, 1990, 1995; Tomlin & Villa, 1994 for details), this study will follow the definition of noticing proposed by Schmidt, considering that Swain's proposition of the noticing function of output is based on Schmidt's definition. According to Schmidt, noticing is the kind of conscious perception of linguistic form that is necessary for successful L2 learning. After all, while the input could be made externally more salient through techniques such as textual enhancement when presented to the learner, whether those enhanced features are actually perceived would be an issue internal to the learner. Through written or oral production, learners are more likely to consciously recognize that they cannot verbalize all of what they want to express in the target language (Swain, 1995). This consequently leads them to attend to certain features in future input, which presumably facilitates their acquisition of those linguistic features.

The hypothesis-testing function of output, on the other hand, refers to the fact that output opportunities encourage learners to formulate and test hypotheses about the correct usage of the target language. Swain (1995) argues that hypothesis testing is a collaborative – rather than individual – activity, taking place through negotiations with an interlocutor. She further contends that when learners notice a gap or hole during an output opportunity, they verbalize their hypotheses, and work with the interlocutor to resolve such a problem through collaborative dialogues. The last function, namely *the metalinguistic function of output*, refers to the ways in which learners reflect on their target language use, which in turn helps them internalize such knowledge regarding the target language. These three functions of output have been empirically investigated by SLA researchers. The following section will review exclusively studies investigating the *first* function of output – the noticing function – which is particularly relevant to the present study.

Empirical Studies on the Noticing Function of Output in the Context of Writing

Only a small number of studies have focused on the noticing function of output to date. Qi and Lapkin (2001) examined the noticing function of output in a written context by asking two intermediate L2 learners to engage in writing tasks comprising three stages: (i) to write in response to a picture, (ii) to make comparisons against a reformulated text, and (iii) to make revisions. While writing the initial picture description, participants had to verbalize the problems

that they perceived in their own writing concurrently. They also performed think-aloud protocols as they compared their original writing with reformulated versions written by a native English speaker in the second stage. Through the use of think-aloud protocols, Qi and Lapkin found that most of the lexical, grammatical and discourse problems that learners encountered in the initial writing stage were apparently resolved as the participants read the reformulated versions of their writing. One week later, the participants were asked to revise their original pieces. This time around, the participants were able to correctly incorporate some of the linguistic forms with which they had trouble previously into their revisions. The learner's attentional level was also found to have an effect on how accurate his or her performance could get on the revision task. Another notable finding was that learners of higher proficiency levels noticed a greater number of reformulated linguistic forms and were better able to apply them in their revisions. More recently, Hanaoka (2007) has shown that learners may notice a *hole* in their IL (i.e., there is a void in their IL for expressing their meaning(s) in the TL) (Doughty & Williams, 1998) during a written output task; this particular kind of noticing may guide learners to pay extra attention to the way(s) the problematic linguistic forms are used in other relevant texts. As in Qi and Lapkin's (2001) study, Hanaoka investigated whether output tasks would cause learners to pay attention to subsequent input by engaging learners in writing tasks consisting of multiple stages: (a) to write a picture description, (b) to compare it with two model texts, and (c) to rewrite the original description without access to the model texts. In order to determine participants' level of noticing, Hanaoka asked them to take notes in their native language (i.e., Japanese) on whatever they noticed (i) while they were writing their initial response, and (ii) while they were comparing it against the model texts provided. From these notes, Hanaoka found that learners tended to notice lexical problems more than grammatical ones during the initial writing task. Also, when provided with the models, they were able to locate the solutions for most of the problems they had noticed, and these solutions were incorporated substantively in their rewriting. It was noted that participants with higher levels of proficiency noticed significantly more features than the lower-level participants did. Hanaoka concluded that "output might play a useful role in helping learners identify the language features they need and facilitate subsequent learning of these features" (p. 476).

In a series of studies, Izumi and his colleagues tested whether output opportunities with pertinent input would promote the correct use of the English past hypothetical conditionals (e.g., *If I had studied English harder, I would have passed the exam.*) on the part of the learners (Izumi & Bigelow, 2000; Izumi, Bigelow, Fujiwara & Fearnow, 1999). One notable difference that distinguishes Izumi *et al.*'s studies from the others mentioned earlier is that Izumi *et al.* preselected the target form(s), and attempted to draw participants' attention to this form through output tasks. Izumi and his colleagues investigated whether learners producing written output would learn the target form(s) better than those in a non-output group (an input flood group in this case). The output group was obligated to use the target form(s) in written output tasks and was then provided with written input containing many instances of the use of the grammatical form(s). The input group, on the other hand, read the same input material that was provided to the output group and was then presented with true/false comprehension questions. To determine whether learners had noticed the target form(s) when the written input was provided, each group was asked to underline instances of such linguistic form(s).

In the two Izumi studies above, the researchers found that the amount of underlined conditionals was not significantly different in the two groups. The studies thus failed to show that the output group's level of noticing was significantly higher than that of the input group. In

addition, the output group did not perform significantly better on a sequence of post-tests consisting of a grammatical judgment test and a picture-cued production test. This unexpected finding may have been due in part to the tasks that were used. In Izumi *et al.*'s (1999) and Izumi and Bigelow's (2000) studies, both the output and non-output groups were provided with artificial input, a text consisting of sentences all but two (or three) of which included the past hypothetical conditionals. The flooding of the target form may have predisposed both groups to underlining every sentence. Another possible explanation would be that the researchers' external attempt to prompt the participants to attend to certain linguistic forms in the output task may not have successfully directed the latter's actual attention to the target forms. As suggested by Williams (2001), it is ultimately the learners who decide the linguistic forms to which they are going to pay attention, most likely based on their own needs rather than those of other parties. In other words, the linguistic targets on which the researchers and teachers guide them to focus do not always coincide with what learners attend to in reality.

It is against this background that the present study takes place. It investigates the aspects of language that learners attend to when performing a written output task followed by exposure to a relevant written text. Research to date has suggested that the degree of learner-initiated focus on form is likely to increase with proficiency levels (Hanaoka, 2007; Qi & Lapkin, 2001; Williams, 2001). For this reason, this study selected advanced students as participants in the hope of examining learner-initiated focus on form to the fullest extent.

The present study, which is a replication and extension of Hanaoka's (2007) work, is motivated by the need to further explore the role of note-taking in processing linguistic forms. Since noticing is an unobservable phenomenon, studies on the noticing function of output have drawn on various introspective measures (e.g., think-aloud protocols, note-taking, and underlining) to uncover the nature of the noticing process. As pointed out by Egi (2004), "measures of noticing should accurately capture learners' cognitive processes while neither facilitating nor hindering learning" (p. 243). In other words, the use of measures of noticing should not influence the way that the participants perform a task. In Hanaoka's study, however, the use of note-taking as an attention-drawing device seemed to be an issue in Stage 2. Taking notes on the linguistic forms as they were used in the model texts might have led to a deeper level of encoding of the forms by the participants, making them more likely to incorporate those noticed forms in the follow-up writing task at Stage 3. Consequently, the incorporation of the noticed forms in the follow-up task might have been the result of both the effects of the noticing process as triggered by output and of the note-taking action in Stage 2. Hanaoka's study was supposed to examine the degree to which (a) noticing gaps and/or holes , and (b) exposure to relevant subsequent input (e.g., model texts) would contribute to the correct use of linguistic forms in the rewriting phase. However, as mentioned above, the act of note-taking itself may have contributed to a deeper level of encoding vis-à-vis such "noticed" linguistic forms. It thus seems necessary to empirically determine the effect that learners' incorporation of forms from the model texts may have on their rewriting, especially in terms of whether this might be indicative of any interlanguage development on the learners' part. Another issue with note-taking is that it does not capture the participants' noticing process in sufficient detail. While these notes may reveal what participants had noticed, they by no means explain why participants used – or did not use – the noticed forms in the follow-up writing task. In order to deal with this inherent limitation of note-taking, the present study includes an additional measure of noticing – an immediate retrospective questionnaire.

The research questions were as follows:

1. What features do L2 learners notice during an initial writing task?
2. What features do L2 learners incorporate from a native-speaker model into their rewriting?
3. Does note-taking promote learners' incorporation of targetlike forms in their rewriting?
4. What factors lead learners to incorporate targetlike forms from a native speaker's model writing into their own rewriting?

METHOD

Participants

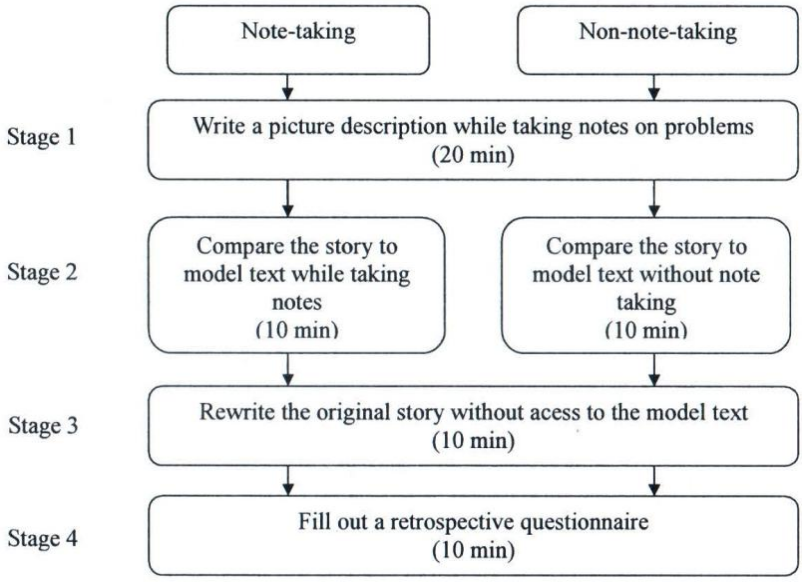
The participants were selected from two advanced English as a Second Language (ESL) classes at a university's language institute. Their proficiency levels were determined based on an in-house placement test consisting of reading, listening, speaking, writing, and grammar tasks. There were thirteen levels in total, ranging from beginner (B1 to B4), to intermediate (I1 to I4), to advanced (A1 to A4; and Advanced Study, the most advanced class). Two A4 classes were chosen for the study. Class A was made up of 11 students: eight from East Asia (Korea, Taiwan and Japan) and one each from Brazil, Germany and Ukraine. Class B consisted of 12 individuals from China, Japan, Korea, Italy, Brazil, and Colombia. At the time of data collection, the students had been in their respective classes for three months. In order to ensure a comparable level of writing ability between the note-taking and non-note-taking groups, scores on an in-class midterm essay written by all A4 students were compared. All essays were graded by the researcher and an independent rater using an analytic scoring rubric, which assesses content, language and organization, and task fulfillment. The scores were then averaged to arrive at the final scores. Participants were carefully matched, based on their midterm scores, and then randomly assigned to either the note-taking or the non-note-taking comparison group. The mean scores of the writing test were 10 and 10.5 out of 15 for the note-taking and the non-note-taking groups, respectively. There were 12 students in the note-taking group, and 11 in the non-note-taking group.

Procedure

Following the procedure in Hanaoka's (2007) study, the students completed a three-stage production task during one 50-minute class session: writing a picture description, comparing it against a model text, and rewriting it. Hanaoka included a fourth stage – a delayed rewriting task – but the present study failed to do so, due to practical difficulties in maintaining the same pool of participants. The main purpose of this output (i.e., picture description) task was to have learners recognize the gaps and/or holes in their L2 knowledge. Before administering the writing task, the researcher briefly explained the three stages involved. In Stage 1, all students were asked to write a description of a picture (see Appendix A). While Hanaoka's (2007) study used a two-picture prompt, this study used a single and relatively self-explanatory picture prompt so as to minimize the variations in what students would write about. During the picture description task, participants were also asked to take notes on the problems that they encountered. They were

given a list of the types of note-taking episodes from Hanaoka's study. (e.g., *I don't know an English word for X in the picture / I wrote X, but I am not certain whether it is grammatical*, etc.) Participants were allowed up to 20 minutes to complete the first stage. Immediately following Stage 1, they were given another 10 minutes to compare their own writing against a model text (see Appendix B). The note-taking group was instructed to jot down, on a separate sheet of paper, any useful linguistic forms they found in the model text as they compared the two texts. Examples of note-taking episodes were again provided to the note-taking group, as in Stage 1. The non-note-taking group did not take any notes during the comparison. After that, the researcher collected the participants' writing, the notes that they had taken, and the model texts back, and distributed the same picture prompt as that in Stage 1 to each participant. The participants were given up to 10 minutes to rewrite their picture description with the help of the picture prompt (Stage 3). Upon completion of the three stages, the participants filled out a retrospective questionnaire composed of four questions (see Appendix C). The purpose of this questionnaire was to obtain more detailed information regarding factors that may have influenced the learners' incorporation of any noticed forms. The questions probed into the possible reasons why the participants incorporated specific expressions from the native speaker's model text into their revisions. Figure 1 illustrates the procedure for data collection.

FIGURE 1
Procedure for Data Collection



Data Analysis and Coding

Both qualitative and quantitative analyses were performed on the participants' descriptive pieces and the notes that they had taken. In order to determine the kinds of problems that they had noticed in their written production (Stage 1), the notes taken by the participants were classified into four categories, as in Hanaoka's (2007) study. Table 1 shows examples of each coding category drawn from the database.

TABLE 1
Coding Scheme

Category (Operationalization)	*Examples*
Lexis Notes on vocabulary knowledge	*How do you call the stick that old people use to support them while walking?* *I do not know the word for a bus with two stories.*
Grammar Notes on sentence structures and particular features of grammar	*A person at the second floor or in the second floor.* *I am not sure if a baby is 'in the stroller' or 'on the stroller.'*
Content Notes on the content of a picture	*I can't tell whether the bald person in the picture is a woman or a man.*
Other Issues Notes that did not fit into any particular category	*Should my description have more details?* *Is it O.K to include my opinion?*

In addition, each participant's written descriptions from Stages 1 and 3 were compared and analyzed in order to determine what the learners had noticed from the native speaker's model. For the purpose of this analysis, noticing was operationalized as *a learner's inclusion of linguistic forms from the native speaker's model writing*. In the present study, linguistic target items were pre-selected from the native speaker's model text. In Hanaoka (2007), no targeted linguistic items from the native speaker's model had been pre-selected. Instead, the investigation relied entirely on what students reported in the form of note-taking in the analysis of what students noticed in the model writing. However, note-taking was found to be inadequate for uncovering and keeping track of the noticing process, especially because the participants incorporated more linguistic forms from the model text than they had jotted down in their notes. Adopting a slightly different approach, this study sought to measure learners' noticing of linguistic forms in the model text based on the incorporation of only certain forms suggested in the model text. These target forms were selected based on a pilot test with another group of advanced English learners studying at the same language institute. The picture description and the comparison tasks were also pilot-tested to ensure level appropriateness. The pilot test revealed that learners had difficulties with certain common lexical items and grammatical structures. These lexical items and structures were thus chosen as the target linguistic forms for the native speaker's model text. Six target structures (with additional variations) and thirteen target vocabulary items were identified in total (see Appendix D for the full list). If learners adopted a targeted form from the model that was not used in the first stage of writing, it would be

regarded as a noticed form in the native speaker's writing, and coded as either targetlike or nontargetlike. Two points would be awarded for each attempted form that was targetlike, and one point for those that were nontargetlike. If a targeted form was used several times, it would be counted as a single instance. The attempted forms were also coded for lexis and grammar. To ensure the reliability of the data analysis, the researcher coded the data until 100 per cent intra-rater agreement was reached.

RESULTS

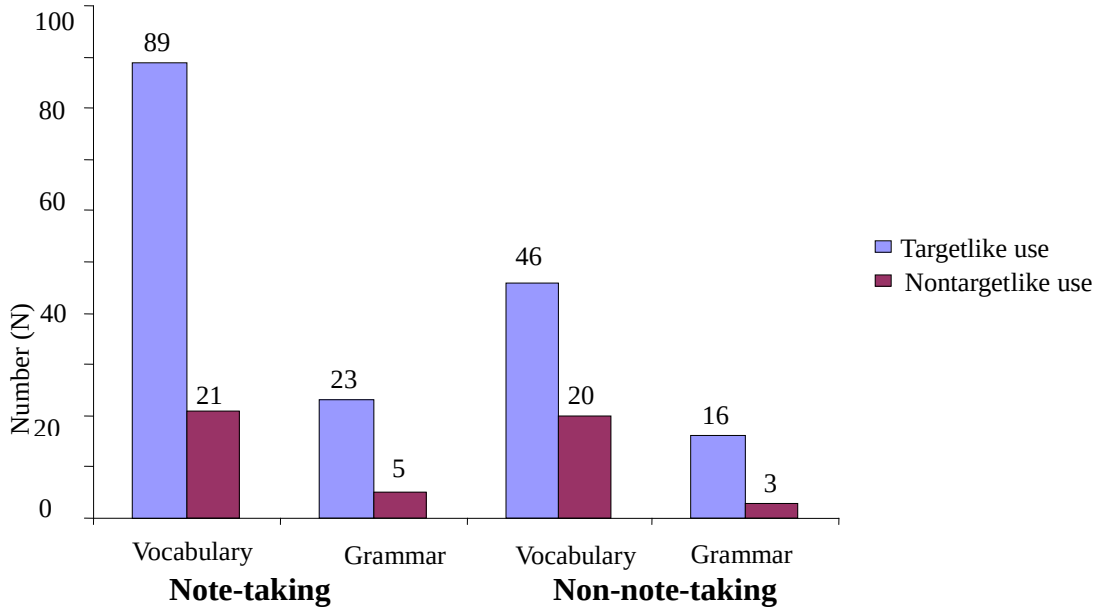
The results presented below are in the same order that the research questions are posed earlier on in the paper. The first research question concerns the types of problems that learners would notice during the initial written description task. To answer the question, the notes taken by the two groups were tallied and classified into four categories: lexis, grammar, content, and other issues. As summarized in Table 2, most learners noticed vocabulary (79%) as a problem at the moment of production, rather than grammar (11.3%), content (1.4%), or other issues (8.4%). Such lexically-oriented noticing was found across both groups. The learners' tendency to focus mainly on lexical problems during production is in agreement with William's (2001) study, in which lexically-centered, language-related episodes (LREs) made up 80% of the classroom interactions. This pattern also parallels findings obtained in Hanaoka's (2007) study. In the present study, a qualitative analysis of learners' notes revealed that most learners noticed "holes" in their lexical knowledge of terms such as *double-decker bus*, *cane,* or *stroller*. In terms of grammar, most participants noted that they were not sure what prepositions to use in descriptive phrases like "… a baby sitting *in* a stroller," or "… passengers traveling *on* a bus." The majority of the notes coded as "other issues" concerned either spelling problems, or queries about the possibility of including learners' own opinions in the descriptive writing.

TABLE 2
Frequencies and Ratios of Problems Recognized in the Initial Written Output Task

	All participants (N=23)				Note-taking Group (N=12)				Comparison Group (N=11)			
	N	%	Mean	SD	N	%	Mean	SD	N	%	Mean	SD
Lexis	56	79	2.4	1.3	24	77.4	2	1.2	32	80	2.9	1.4
Grammar	8	11.3	0.4	0.6	2	6.5	0.2	0.5	6	15	0.5	0.7
Content	1	1.4	0.0	0.2	0	0	0	0	1	2.5	0.1	0.3
Other issues	6	8.4	0.3	0.6	5	16.1	0.4	0.9	1	2.5	0.1	0.3
Total	71	100	3.1	1.6	31	100	2.6	1.68	40	100	3.7	1.4

To answer the second research question, which addresses the types of features that L2 learners would incorporate from the model text into their own output, learners' initial and rewritten texts were compared, and any corrected or newly-inserted sentences were analyzed. It was found that participants in both the note-taking and non-note-taking groups incorporated more vocabulary items than grammatical structures from the model. The note-taking group adopted a total of 138 linguistic items, with 80% involving vocabulary items. Similarly, vocabulary items accounted for 78% of the forms adopted by the non-note-taking group. Figure 2 shows the targetlike and nontargetlike incorporation of grammar and vocabulary items in the rewriting task.

FIGURE 2
Targetlike versus Nontargetlike Incorporation of Noticed Forms in Rewriting



In addition to vocabulary items, the participants also attempted to follow the rhetorical organization, tense, and even the content used in the model input in the hope of narrowing the gap between their writing and that of the native speaker. For instance, one participant simply listed sentences one by one in her first response, but attempted to organize these sentences into a coherent paragraph after studying the native speaker's model. A similar pattern was observed with the choice of tense. While several students resorted to the future tense to describe a motion in their original draft, they later adopted the present progressive, the same tense used in the native speaker's model. These findings are consistent with those of Vickers and Ene's (2006) study, in which advanced ESL learners were found to be able to locate and correct their own errors by comparing their own written output against a native speaker's text.

The third research question addresses the impact of note-taking on learners' incorporation of forms from the model input. To answer this question, each incorporated target form was tallied and compared. It was found that the note-taking group included 112 noticed forms, while the non-note-taking group included only 62. Targetlike forms accounted for 85 (76%) and 39 (63%) of each total, respectively. Each group was scored based on the proportion of targetlike use of the noticed forms. The differences in scores between the two groups are illustrated in Figure 3. In order to ascertain the statistical significance of this difference in scores, the mean scores were submitted to an independent t-test. The Statistical Package for the Social Sciences (SPSS) was used with the alpha level set at .05. The results of the t-test revealed a significant difference in the incorporation of the target forms from the model text between the two groups ($t=2.85$, $df=21$, $p=0.01$). Specifically, the note-taking procedure led to more targetlike usage in later production. The finding supports the use of note-taking as a strategy to promote individual learners' noticing of the targeted forms in the L2. Descriptive statistics for the scores are shown in Table 3.

FIGURE 3
Incorporation of Noticed Form in the Rewriting Task

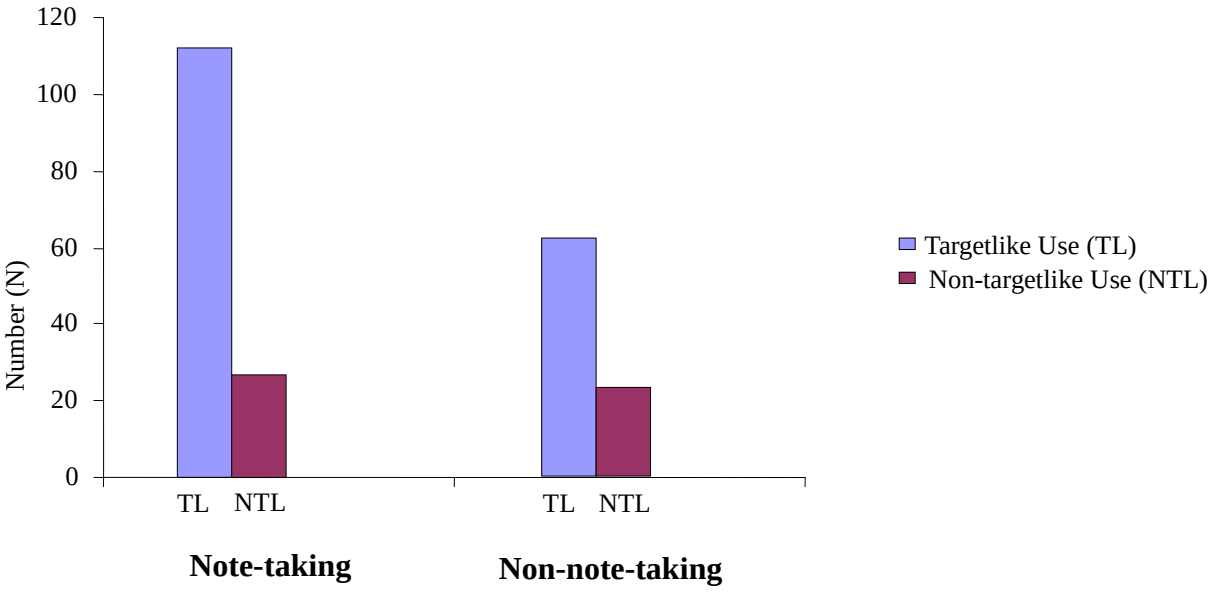


TABLE 3
Incorporation of Noticed Forms from the Native Speaker's Model

Means, standard deviations, and standard error

Condition	Mean	SD	SE
None-note-taking (N=11)	13.9	4.7	1.4
Note taking (N=12)	21	6.7	2.0

*The maximal possible score is 38
(t=2.85, df=21, p<0.01)

To examine the fourth research question, namely what factors may lead learners to incorporate correct usage from a native speaker model text into their rewriting, participants' responses to a retrospective questionnaire were analyzed. All participants acknowledged the usefulness of the model text in helping them improve their writing. They noted that the model contained solutions for the problems that they had noticed in the initial writing stage. Students also reported that they became familiar with the structure of descriptive writing (71%), and that they learned specific vocabulary items (89%). Such vocabulary learning was not confined to new vocabulary words only. Students commented that they learned the syntactic behaviors of certain words for which they had previously known the meanings only, and that the model input text consolidated their knowledge of words that they had known, but had failed to access and put into use during the initial writing task. Factors leading to the failure to incorporate input from the model text in subsequent production include a lack of understanding of particular linguistic forms (96%), and limited memory capacity for processing the necessary linguistic information available in the model input (67%). For instance, the retrospective questionnaire revealed that 20

learners (63%) noticed a word, *cul-de-sac*, in the last sentence of the model writing. Such a high rate of learners' perception of the word is not confounding, considering that elements located in the initial and final positions of an utterance are hypothesized to be perceptually more salient compared with those in the middle positions (VanPatten, 2004). However, only two of the participants who were familiar with the word, presumably due to its relevance to their major, architecture, were able to incorporate it into the subsequent rewriting task in a targetlike manner. There was also one instance of non-targetlike usage of the word: *There is a cul-de-sac park*. The rest of the learners reported that they did not incorporate the vocabulary item because they were uncertain about its meaning or were unable to recall the form of the vocabulary item.

DISCUSSION

The primary goals of this study were to identify the types of linguistic features that learners would attend to during a written output task, and to examine the kinds of linguistic features that would be noticed in a model text. An additional purpose of the study was to investigate the effects of note-taking on the noticing of linguistic forms in a given model text. Finally, it also sought to identify factors that might contribute to the learners' targetlike use of the linguistic forms provided in the model text.

The results of the investigation suggest that learners mainly focused on lexical issues, as opposed to grammatical ones, both at the moment of their own writing and while studying the model text written by a native speaker. It was also apparent that learners mainly attended to lexical items with which they had trouble while reading the model text, as evidenced by the significantly greater amount of vocabulary items incorporated from the model text into their rewriting as opposed to that of grammatical structures. In other words, learners seemed to have difficulty attending to both meaning and grammar simultaneously in both the initial production and comparison stages. Notes taken by learners in Stage 1 revealed that learners had a higher tendency to attend to the lexical items. This semantically-oriented type of noticing at the moment of production guided learners to search mainly for lexical items in the model text, resulting in the incorporation of more vocabulary items in the rewriting task. Kim and Han (2007) reported similar results in their study which investigated learners' recognition of linguistic forms using recasts. It was found that learners were more inclined to notice recasts addressing lexical problems rather than those addressing morphological or syntactic ones. One plausible explanation may have been the tendency for most learners to prioritize meaning over grammatical forms when exposed to novel L2 input (VanPatten, 2004). Another possible reason could have been that the picture description used in this study failed to generate sufficient grammatical elements to force learners to engage in greater syntactic processing.

Additionally, learners were able to draw on the native speaker's use of tenses and organization in the model text and improve their own writing. One pedagogical implication is that model texts written by native speakers could be a potentially effective feedback tool for advanced L2 learners. Considering that the ineffectiveness of written feedback by the instructor is often associated with a lack of balance among form, content, and style (Cohen & Cavalcanti, 1990), a native speaker's writing might be optimal – at least for advanced learners. According to Ellis (1994), making cognitive comparisons facilitates the acquisition of an L2. Put another way, learners would need to notice whether their language production is targetlike or not through making comparisons against certain model texts in order to trigger the accommodation and/or restructuring of their existing knowledge. Whether the provision of a native speaker's model text

would be more conducive to acquisition than the provision of written correction, however, remains an empirical question.

Note-taking was found to be effective in prompting the participants to incorporate linguistic forms suggested in the native speaker's model input. The superior incorporation of forms by the note-taking group over the non-note-taking group seems to reinforce the contention that note-taking serves to prime the participants and thereby enhance their noticing of subsequent relevant input. One probable explanation may concern the kinds of cognitive processes that note-taking induces. According to DiVesta and Gray (1972), note-taking is assumed to have an encoding function that facilitates the conversion of input stimuli into long-term memory. In a review of 57 note-taking studies, Hartley (1983, as cited in Kobayashi, 2005) found that 34 studies support the positive effect of note-taking on enhancing recalling performance. Given the growing body of findings that supports the encoding effect of note-taking in the field of educational psychology, the results of the present study should not come as surprising.

An analysis of the learners' written output in their rewriting task (Stage 3) revealed that the learners did not draw on all the linguistic information available in the model input. The reasons reported include insufficient lack of knowledge of the forms and limited memory capacity. Several factors might have led to these findings. One may have been the developmental readiness, or lack thereof, of the learners (Mackey & Philip, 1998; Pienemann, 1998; Schmidt, 1990). In other words, learners were able to notice the presence of linguistic forms in the model input only when those forms were within the range of their interlanguage system or when they had encountered them in previous learning contexts. For example, the model input included four instances of subject-verb inversion structures triggered by sentence frontal locational phrases, as in the following sentence: *In the scene is a woman walking her small dog*. However, only five participants succeeded in incorporating the structure into their rewriting. In the retrospective questionnaire, those five students reported that they had prior metalinguistic knowledge of the use of the subject-inversion rule. The other learners totally avoided using the structure either because they had only partial knowledge of the structure, or because they failed to notice it, perhaps due to their total lack of knowledge of the inversion rule. Schmidt (1990) also noted that "the availability for noticing and stages of L2 development are closely related" (pp. 142-143). Addressing the relationship between L2 learners' readiness and their ability to notice is beyond the intent of this paper, but it is another area worthy of further examination.

In terms of the incorporation of vocabulary items from the input model, learners' unsuccessful usage of the targeted vocabulary words may be partially explained by the cognitively demanding nature of the output task compared with word recognition. Even if learners came across words that they needed to convey their intended meaning as they read the model text, they were not likely to freely recall the words during the later writing task because correct production of vocabulary items entails not only the recognition of morphological or syntactic features and word class, but also the recalling of word meaning. Hence, written output tasks provide learners with opportunities to process the formal aspects of words, which then push learners to link form and meaning more accurately.

Another factor to consider is the multifaceted nature of vocabulary knowledge. Laufer and Paribakht (1998) make a distinction between passive and active vocabulary, arguing that understanding the most frequent meaning of a word does not guarantee the ability to use the word in a spontaneous manner. Similarly, de la Fuente (2006) contends that receptive vocabulary knowledge and productive vocabulary knowledge are two discrete entities. During the first written response of the current study, half of the learners reported that they did not know what

words to use to describe a scene of a car *following* another very closely. Even though *follow* is a commonly used word, the learners failed to recall the word extemporarily. Participants who incorporated the word from the input at the later production stage reported that they were unable to immediately retrieve this word on the spot despite its familiarity. This points to the importance of providing learners with opportunities conducive to the activation of passive vocabulary, such as having them retrieve words on-line (de la Fuente, 2006). Such processing, derived presumably from output tasks, is likely to lead to an enhanced level of vocabulary acquisition.

CONCLUSION

The present study, along with earlier research (Hanaoka, 2007), has found evidence for the noticing function of output hypothesized by Swain (1985). During written production, learners noticed certain gaps and/or holes in their L2 knowledge, found the relevant solutions in the model input, and incorporated them into a follow-up written output task. In addition, note-taking helped learners to process subsequent input more effectively, potentially leading to the incorporation of a greater number of noticed forms into the rewriting task. However, learners failed to optimize from the model input when they did not understand the forms or lacked the ability to recall them spontaneously. The results also suggest that receptive knowledge of vocabulary and grammar does not guarantee correct usage. Learners therefore need output opportunities that focus more on the formal aspects of linguistic forms.

The present study has a number of limitations. First, the long-term effects of output should be further examined, as in the case of Hanaoka's (2007) original study. The retrospective questionnaire revealed that students resorted to their working memory in their completion of the rewriting task; a longer time interval between the comparison and rewriting would be desirable in future research. In addition, a variety of writing tasks beyond the picture description one should be administered to a larger sample size. This would enhance the external validity, generalizability, and reliability of the study. Task repetition is another issue. This study investigated learners' progress in the use of linguistic form on a subsequent production task. However, it should be noted that giving learners another chance to write on the same picture prompt might have been the main reason why there was an improvement in the quality of their writing at the later production stage. Bygate (1996), for example, found that there was an improvement both in terms of vocabulary and syntax when students were given more than one opportunity to describe a cartoon within a short time span. Similarly, Gass, Mackey, Alvarez-Torres, and Fernandez-Garcia (1999) attested to students having better performance in subsequent output when they repeated a task. According to Gass *et al.*, task familiarity stemming from task repetition may have resulted in a lower level of processing demands, thus making more attentional resources available for focus on form. This may have enabled learners to reuse the language from the first trial during the second. Future research is needed to tease apart the effects of task-repetition and output. In order to make further generalizations about the noticing function of output, it would be desirable to study the effects of oral output as well.

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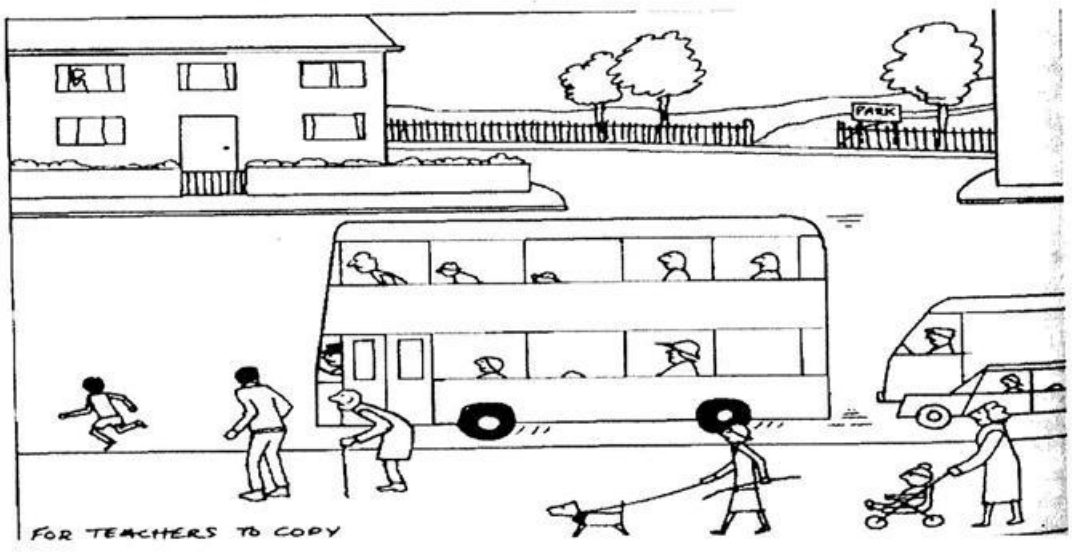
APPENDIX A

Writing Prompt



(Wright, 1989, p. 4)

APPENDIX B

Model Text Written By a Native Speaker of English

This is a street scene in a residential neighborhood. In the scene there is a large double-decker bus full of passengers and two cars following very closely. There is a young boy running right in front of the bus who looks like he might get hit. Behind the boy is a man who looks like he is talking to an old lady. The old woman is bald and is hunched over walking with a cane. Perhaps the man is there to help the old woman cross the street. Also in the scene is a woman walking her small dog while carrying a stick and another woman walking her young child who is sitting in a stroller. In the background of the scene is a large suburban style house. In the second floor is a person looking out of the window. Behind the house is a cul-de-sac that opens up into a park with a trail.

APPENDIX C

Immediate Retrospective Questionnaire

Name :
Class :

Please answer to the following questions.

1. Was a native model helpful to improve your writing? Why or Why not?
2. Why did or Why didn't you incorporate expressions in your revision from the model text?
3. When you rewrote, did you use all the words you noticed in the model input provided? Why not?
4. Have you heard about the following grammar rule? (Yes, No)

- The subject-verb inversion (changing the order of the subject and verb) occurs if the locational phrase comes first in the sentence.

  (Example) In the garden is an oak tree. (o)
  In the garden an oak tree is. (x)

4.1 If you said "yes" in question 4, did you use the rule? Why or Why not?

APPENDIX D

Targeted Linguistic Structures & Vocabulary

Target Structures/Grammar	Examples
Subject-verb inversion after an initial adverbial or a locational phrase	*Behind the boy* is a man. *In the scene* is a woman.
Walk (transitive/intransitive verb)	*walk* a dog
The Present Progressive	In the second floor *is* a person *looking* out of the window.
S looks like S+V	He looks like he is talking to an old lady.
Preposition 'in'	The baby is sitting *in* a stroller. This is street scene *in* a residential neighborhood.
Making a passive form with the verb 'get'	might get hit

Target Vocabulary
residential, neighborhood, scene, double-decker bus, bald, hunched over, cane, strick, passengers, stroller, suburban, cul-de-sac, trail