An Investigation into the Effects of Output: How Do Output Task Conditions Affect Noticing?

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Abstract

An increasing number of studies have been conducted in the past two decades to validate the noticing function of output claimed by Swain (1995, 2005). However, the findings were mixed. Many of the studies did not show a clear relationship between output, noticing, and learning. Findings of studies conducted by Izumi (2002) and Uggen (2012) suggest that more research is needed to explore the effects of output, focusing on the qualitative aspects of noticing. The current study investigated the efficacy of output tasks conducted under different conditions, aiming to shed light on the relationship between output and noticing, from the qualitative viewpoint.

Two research questions were pursued: (1) How is output task type (text reconstruction or picture-cued guided writing) related to noticing of the target form? and (2) How is output task procedure (with or without an L1/L2 translation stage) related to noticing of the target form? Text reconstruction was a task to accurately reconstruct part of the input text containing the target form. Picture-cued guided writing was a task to write a few sentences, guided by a picture prompt, using the target form. An L1/L2 translation stage was a process to translate part of the input text containing the target form into participants' L1 (Japanese) and then translate the Japanese version into L2 (English).

45 Japanese university students participated in a quasi-experimental study. They were divided into three groups and carried out a sequence of input-output-input-output tasks. The three groups received input in the same manner (listening to the story); however, each group carried out an output task under different conditions. After listening to the story embedded with the target form, one group (n=10) engaged in text reconstruction whereas another group (n=15) carried out picture-cued guided writing. The other group (n=20) engaged in L1/L2 translation before carrying out text reconstruction.

Noticing was operationalized as conscious attention to the formal features in input, verbalized in participants' self-reports, following Schmidt (1990). In the current study, there were three types of participants' self-reports elicited at different times during the experimental sequence: (a) notes taken during the task, (b) responses given on the questionnaire, and (c) thoughts expressed in the retrospective interview. Notes taken during the task referred to participants' self-reports of their problems and/or noticing during the task, following Hanaoka (2007).

The results suggest that picture-cued guided writing was associated with more noticing and more understanding of the target form than text reconstruction, and text reconstruction with an L1/L2 translation stage was associated with more noticing and more understanding of the target form than text reconstruction alone. The findings are discussed with reference to focus of attention and depth of processing. Pedagogical implications drawn from the findings are discussed.

Introduction

The role output may play in second language learning has become widely accepted since Swain first published the Output Hypothesis (1985). Swain argues that output may facilitate learners' interlanguage development not only in promoting fluency but also in enhancing accuracy. According to Swain (1995, 2005), one of the accuracy-related effects of output is noticing. While trying to speak or write in their L2, learners may notice that they cannot say exactly what they want to say. As a consequence, they may consciously direct attention to input in order to solve their problems, and may notice linguistic items contained in input. Considering the importance of noticing in learning as proposed by Schmidt (e.g., 1983) and Schmidt & Frota (1986), output may play a facilitating role in learners' interlanguage development because of its noticing function.

Based on the Output Hypothesis and the noticing function of output proposed by Swain, and inspired by Schmidt's Noticing Hypothesis (1990), several studies have been conducted to empirically investigate the effects of output on noticing and L2 development. However, contrary to expectations, many of the studies did not show a clear relationship between output, noticing, and learning. Findings of Izumi (2002) and Uggen (2012) suggest that more research on the qualitative aspects of noticing is needed. The current study set out to investigate the effects of output, focusing on noticing from the qualitative viewpoint.

Theoretical background

Output and L2 acquisition. Although it is generally accepted that comprehensible input is essential for L2 acquisition, it is also recognized that there are other facilitating factors for learners' linguistic development, such as output. Swain proposed the Output Hypothesis to account for the counter-evidence against Krashen's Input Hypothesis (1982, 1985), which claimed that comprehensible input is the single most important factor in L2 acquisition. Observing students in French immersion programs in an English-speaking province of Canada, Swain found that, despite native-like proficiency in listening and reading comprehension, students lacked grammatical accuracy and sociolinguistic competence in speaking and writing. The analysis of students' performance led her to doubt the validity of the Input Hypothesis. Attributing students' non-native-like productive ability to their insufficient opportunities for output, she directed her attention to the role of output in L2 development.

Swain points out that output has a distinctive role in facilitating L2 acquisition due to the different processes involved in comprehension and production of language (1985, 1995, 2005). During comprehension, learners often succeed in understanding the meaning of the message with the help of knowledge of words and the topic, without paying close attention to linguistic forms. On the contrary, in producing output, learners need to process language more deeply by going through syntactic processing. She claims that there are roles for output, which may be "different from, or enhance those of input" (Swain & Lapkin, 1995, p.371).

Noticing and L2 acquisition. In addition to output, noticing is also widely recognized as a facilitating factor for L2 acquisition.

Necessity of noticing or attention to formal features of language for L2 acquisition was first mentioned by Schmidt (1983), and Schmidt & Frota (1986), drawing an inference from L2 learners' case studies. Schmidt & Frota defined noticing as consciously paying attention to language features in comprehended input. They proposed a "notice the gap principle" (1986, p.311), stating that a second language learner will begin to acquire the targetlike form if the targetlike form is present in comprehended input, and a learner consciously notices the gap or the difference between the targetlike form and his/her nontargetlike form.

Concerning awareness, which is equated with consciousness (1990), Schmidt posits that there are different levels of awareness (1990, 1995). The lower level, awareness at the level of noticing, refers to focal attention, that is, "conscious registration of the occurrence of some event" (1995, p.29). On the other hand, the higher level, awareness at the level of understanding, implies "recognition of a general principle, rule or pattern" (1995, p.30). Schmidt claims that noticing is necessary for learning to take place (1990, 1995).

Output and noticing. Swain argues that output may trigger noticing. She listed noticing as one of the accuracy-enhancing functions of output, along with hypothesis testing and a metalinguistic thought process (1995, 2005). Considering the important part noticing seems to play in learning, the noticing function of output claimed by Swain has been attracting attention as one of the possible driving forces for L2 development.

The noticing function of output refers to a claim that output may raise L2 learners' awareness of their linguistic shortcomings. While producing the target language, learners "may notice a gap between what they *want* to say and what they *can* say” (Swain, 1995, pp.125-126). As a consequence, they may pay attention to relevant input in order to solve their problems (Swain, 1995, 2005). Here Swain’s noticing refers to the process of L2 learners becoming aware of their linguistic problems. This noticing may trigger focal attention to linguistic features in the target language input, which relates to Schmidt & Frota’s noticing (1986), that is, consciously paying attention to language features in comprehended input.

According to Swain (2005), there are several types of noticing. For example, learners may notice something in the target language due to frequency or salience (Gass, 1997). Or, learners may notice that the form of the target language is different from that of their interlanguage. It is what Schmidt & Frota (1986) referred to as noticing the gap. Or, learners may notice their linguistic problems while they are trying to express their intended meaning. It is what Doughty & Williams (1998) referred to as noticing a hole in one’s interlanguage. Swain focuses on noticing a hole and noticing a gap generated by producing output, stressing that output may play a facilitating role for L2 learning due to its noticing function.

Previous studies

Several empirical studies have been conducted to verify the noticing function of output (Izumi, 2002; Izumi &Bigelow, 2000; Izumi, Bigelow, Fujiwara & Fearnow, 1999; Izumi & Izumi, 2004; Leeser, 2008; Russell 2014; Song& Suh 2008; Uggen, 2012). The studies consisted of a task sequence of output-input-output, or input-output-input-output. They aimed to investigate whether learners, prompted by raised awareness of their linguistic problems during the initial output stage, would direct attention to specific linguistic features in subsequent input, and whether their noticing of the linguistic features in the input would lead them to restructure their knowledge about the target language.

Although some studies such as Russell’s (2014) study of the effects of output on noticing and learning of the Spanish future tense morphology did provide evidence for the noticing function of output, many of the studies did not find a clear relationship between output, noticing, and learning. Some studies lent only partial support to the noticing function of output (Izumi, 2002; Izumi, Bigelow, Fujiwara & Fearnow, 1999; Leeser, 2008; Song & Suh, 2008; Uggen, 2012) and other studies found no unique or positive effects of output with regard to noticing and/or learning (Izumi & Bigelow, 2000; Izumi & Izumi, 2004).

There seem to be several difficulties in empirically validating the effects of output on noticing and learning. The most crucial problem may be the difficulty of the operationalization of noticing, as suggested by Izumi (2002) and Uggen (2012). In the previous studies, noticing of the target form was analyzed mainly by quantitative measures such as underlining of the target form in the input stage (Izumi & Bigelow, 2000; Izumi, Bigelow, Fujiwara & Fearnow, 1999; Russell, 2014; Song & Suh, 2008; Uggen, 2012), note-taking of the target form in the input stage (Izumi, 2002; Leeser 2008), or uptake of the target form in written production (Izumi, 2002; Izumi & Bigelow, 2000; Russell, 2014). However, discussing the results of his study (2002), Izumi stressed the need for the consideration of the qualitative aspects of attention, which may be related to how input data is processed. In a similar vein, Uggen reported in her study (2012) that stimulatedrecall, which is a qualitative measure of noticing, revealed how output was related to noticing, although underlining, a quantitative measure, did not identify the positive effects of output on noticing.

Findings of Izumi (2002) and Uggen (2012) indicate that the qualitative aspects of noticing may present a different perspective on the relationship between output and noticing, from the quantitative aspects of noticing. Motivated by findings of the previous studies, the current study investigated the efficacy of output tasks conducted under different conditions, focusing on qualitative aspects of noticing. The following research questions were addressed: (1) How is output task type (text reconstruction or picture-cued guided writing) related to noticing of the target form? and (2) How is output task procedure (with or without an L1/L2translation stage) related to noticing of the target form?

Methods

Research design

The study was a quasi-experimental study, conducted as part of regular classroom activities. Three experimental groups carried out a sequence of input-output-input-output tasks. The three groups received input in the same manner (listening to the same story); however, each group carried out an output task under different conditions (text reconstruction, picture-cued guided writing, or text reconstruction with an L1/L2translation stage). Text reconstruction was a task to accurately reconstruct part of the input text containing the target form. Picture-cue guided writing was a task to write a few sentences, guided by a picture prompt, using the target form. An L1/

L2 translation stage was a process to translate part of the input text containing the target form into participants' L1 (Japanese) and then translate the Japanese version into L2 (English). The effects of output on noticing were compared between the groups.

Participants

Participants were 45 Japanese EFL learners at a women's university in Tokyo. They were first or second year students, generally having received six years of formal English education in high school. Their English proficiency level was low-intermediate. They had English classes at university basically in English.

Participants came from an original pool of 83 learners in three intact English classes. Each class engaged in an output task under different conditions as mentioned above. For the data analysis, following learners were excluded: (1) those who did not complete all the activities on two days of data collection, and (2) those whose L1 was not Japanese. Of the remaining 63 learners, 45 learners who scored mid-range on the pretest, that is, between 7 points and 20 points out of a maximum of 30 points for the target items, were included in the final analysis (text reconstruction group, n=10; picture-cued guided writing group, n=15; text reconstruction with an L1/L2 translation stage group, n=20).

Target form

The target form was the counterfactual conditional in English, specifically, a structure with an *if*- clause referring to a counterfactual condition in the past and a main clause referring to a counterfactual situation at present. For example, one of the four key sentences that appeared in the input text was: “*If Badger had not given me his special recipe, I would not be able to bake delicious cookies now*”. This type of counterfactual conditional was not new to the participants because counterfactual conditionals including this type are covered in Japanese high schools. However the result of the pretest revealed that the majority of the learners had difficulty in using the target form correctly.

Materials

Pretest/posttest. A production test was administered to assess participants’ knowledge and productive ability of the target form. It was composed of 5 target items and 20 distractors. Participants were provided with partially incomplete sentences in English and were asked to complete the sentences to match the meaning of the Japanese text. The same test items, in different order, were used for the pretest and posttest.

Input text. The input text was based on a picture book *Badger’s Parting Gifts* (Varley, 1984). The original text was abridged by the current researcher for the purpose of the study. The abridged version was 300 words in length, maintaining the general content and seeded with the target form. A native speaker read out the input text and it was pre-recorded. Participants listened to the text while viewing the slides of the pictures from the original book depicting the scenes.

Output sheets. Three types of output sheets were prepared (output sheet for text reconstruction, output sheet for picture-cued guided writing, and output sheet for L1/L2 translation). Each of the three groups carried out an output task under different conditions, using a different output sheet. Each output sheet had a space for the written output for the respective task and a space for note-taking. Participants were asked to produce output and also to write down any problems and/or noticing during the task.

Comprehension test. A comprehension test was conducted to assess the understanding of the target form. With the help of pictures, participants were asked to recall the scenes where the target form was used. They were asked to write the meaning of the target form in Japanese.

Questionnaire. The questionnaire was composed of several questions in Japanese. Question 3 asked participants to mark the relevant box according to what they paid attention to at each stage of the task sequence. There were five boxes indicating (a) meaning of a sentence, (b) words, (c) grammar, (d) something they had not understood, or (e) other. Participants were allowed to mark more than one box for each stage.

Procedure

The study was carried out over a period of approximately one month. Data was collected from each group respectively on two days (Day 1 and Day 2). Several participants were interviewed individually after Day 2.

Experimental sequence. On Day 1, participants took a pretest. On Day 2, they carried out input-output-input-output tasks, followed by the comprehension test, posttest and questionnaire. The interval length between Day 1 and Day 2 was one or two weeks, depending on the schedule of each class.

Treatment sequence. The treatment sequence on Day 2 is shown in Figure 1. For convenience, the groups were called the RC

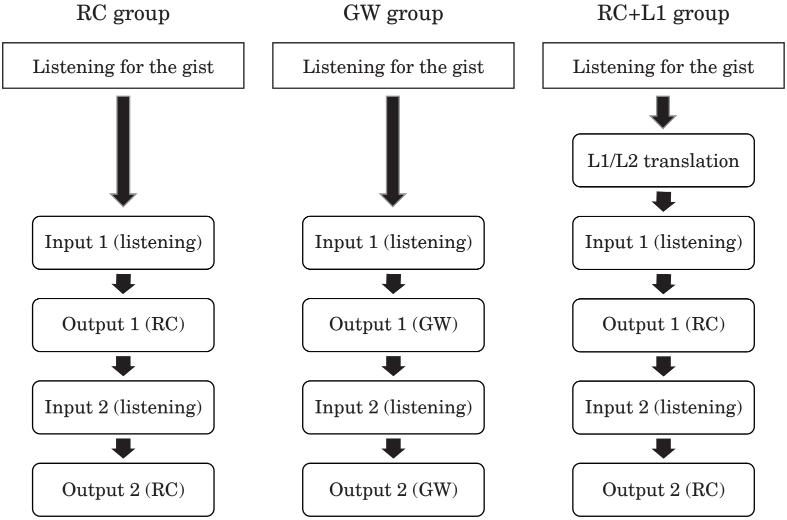
RC group
GW group
RC+L1 group
Listening for the gist
Listening for the gist
Listening for the gist
L1/L2 translation
Input 1 (listening)
Input 1 (listening)
Input 1 (listening)
Output 1 (RC)
Output 1 (GW)
Output 1 (RC)
Input 2 (listening)
Input 2 (listening)
Input 2 (listening)
Output 2 (RC)
Output 2 (GW)
Output 2 (RC)

Figure 1　Treatment sequence for each group

(Reconstruction) group, the GW (Guided writing) group, and the RC (Reconstruction) +L1 group. The RC group (n=10) engaged in text reconstruction, the GW group (n=15) carried out picture-cued guided writing, and the RC+L1 group (n=20) engaged in text reconstruction after completing L1/L2 translation. First, all groups listened to the input text, viewing the slides of the original pictures from the book on a large screen in the classroom. They were instructed to listen for the gist and not to take any notes. After listening for the gist, all groups were informed of the group's output task and followed the input-output-input-output task sequence respectively. All groups were instructed to jot down words and phrases in the input stage, for their subsequent output. They were provided with an output sheet for Output 1 and a clean output sheet for Output 2. The RC+L1 group was different from other groups at one point. This group had an L1/L2 translation stage before engaging in the input-output-input-output tasks.

Data analysis

Noticing was operationalized as conscious attention to the formal features in input, verbalized in participants' self-reports, following Schmidt (1990). There were three types of participants' self-reports elicited at different times during the experimental sequence: (a) notes taken during the task, (b) responses given on the questionnaire, and (c) thoughts expressed in the retrospective interview. Notes taken during the task referred to participants' self-reports of their problems and/or noticing during the task, following Hanaoka (2007). In this paper, the data from notes taken during the task and responses to the Question 3 of the questionnaire are presented.

Notes taken during the task. Notes taken during the task on the output sheet were analyzed in two stages. First, notes were coded into six categories that emerged from the data. The six categories were as follows: (a) grammar issues related to the target form, (b) listening-related issues, (c) words, (d) comprehension, (e) spelling, and (f) general grammar issues. A chart was made for each group, tallying the number of participants who reported noticing the issues belonging to the category (a), (b), (c), (d), (e), or (f). How many times one participant reported the same issue during Output 1 and/or Output 2 was not taken into consideration. The number of participants from each group who reported noticing the issues of each category was counted. Second, among the participants who reported noticing (a), that is, grammar issues related to the target form, the number of participants who reported understanding or "recognition of a general principle, rule or pattern" (Schmidt, 1995, p.30) of the target form was counted.

Responses to the Question 3 of the questionnaire. For each stage of the task sequence, the number of participants in each group who marked each of the five boxes mentioned above was counted and tallied. Then the total number of times each box was marked by each group from Input 1, Output 1, Input 2, to Output 2 was tallied.

Results

Relationship between task type and noticing

The first research question asked about the relationship between output task type (text reconstruction or picture-cued guided writing) and noticing of the target form. Notes taken during the task and responses to the Question 3 of the questionnaire were compared between the RC (Reconstruction) group and the GW (Guided writing) group.

Notes taken during the task. Table 1 and Figure 2 show the number of participants in the RC group and the GW group who reported noticing the issues belonging to categories (a) to (f). A larger proportion of participants in the GW group (13 out of 15) reported noticing the issues of category (a), that is, grammar issues related to the target form, than those in the RC group (4 out of 10). On the other hand, a larger proportion of participants in the RC group (8 out of 10) reported noticing the issues of category (b), that is, listening-related issues, than those in the GW group (2 out of 15). Next, among the participants who reported noticing the issues of category (a), the

Table 1　The number of participants in the RC group and the GW group who reported noticing the issues belonging to categories (a) to (f)

	(a)	(b)	(c)	(d)	(e)	(f)
RC group (n=10)	4	8	7	6	4	4
GW group (n=15)	13	2	5	3	3	3

Note. (a) grammar issues related to the target form, (b) listening-related issues, (c) words, (d) comprehension, (e) spelling, and (f) general grammar issues

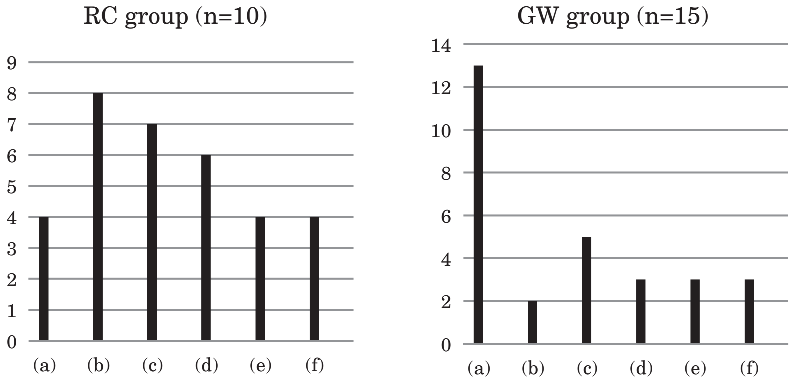

Figure 2　The number of participants in the RC group and the GW group who reported noticing the issues belonging to categories (a) to (f) mentioned above

Table 2　The number of participants in the RC group and the GW group who reported noticing (a) and those who reported understanding of the target form

	reported noticing (a)	reported understanding of the target form
RC group (n=10)	4	1
GW group (n=15)	13	5

number of participants who reported understanding of the target form was investigated. As shown in Table 2, regarding the RC group, one of the four participants reported understanding of the target form whereas regarding the GW group, five of the 13 participants reported understanding of the target form.

Responses to the Question 3 of the questionnaire. Table 3 and Figure 3 show the total number of times each box was marked by

Table 3　The total number of times each box, (a) to (f), was marked by the RC group and the GW group from Input 1, Output 1, Input 2, to Output 2

	(a)	(b)	(c)	(d)	(e)
RC group (n=10)	22	22	18	15	0
GW group (n=15)	17	17	46	21	4

Note. (a) meaning of a sentence, (b) words, (c) grammar, (d) something they had not understood, (e) else

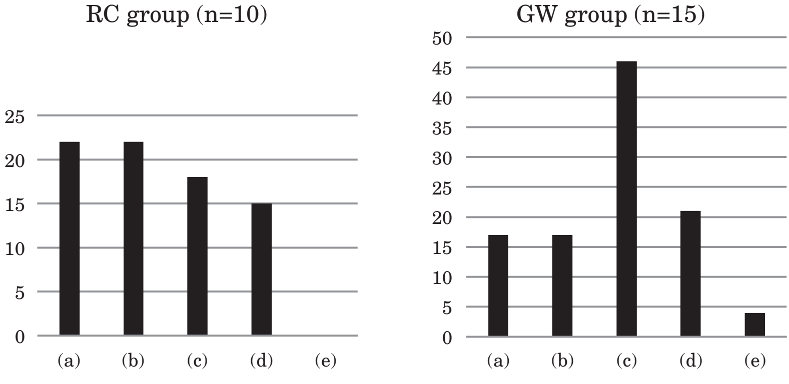

Figure 3　The total number of times each box, (a) to (f) mentioned above, was marked by the RC group and the GW group from Input 1, Output 1, Input 2, to Output 2

the RC group and the GW group from Input 1, Output 1, Input 2, to Output 2. A larger proportion of the GW participants paid attention to (c) grammar, than the RC group participants. On the other hand, a larger proportion of the RC group participants paid attention to (a) meaning of a sentence and (b) words, than the GW group participants.

Relationship between task procedure and noticing

The second research question asked about the relationship between output task procedure (with or without an L1/L2translation stage) and noticing of the target form. Notes taken during the task and responses to the Question 3 of the questionnaire were compared between the RC (Reconstruction) group and the RC (Reconstruction) +L1 group.

Notes taken during the task. Table 4 and Figure 4 show the number of participants in the RC group and the RC+L1 group who reported noticing the issues belonging to categories (a) to (f). A larger proportion of participants in the RC+L1 group (14 out of 20) reported noticing the issues of category (a), that is, grammar issues related to the target form, than those in the RC group (4 out of 10). Next, among the participants who reported noticing the issues of category (a), the number of participants who reported understanding of the target form was investigated. As shown in Table 5, regarding the RC group, one of the four participants reported understanding of the target form whereas regarding the RC+L1 group, 11 of the 14 participants reported understanding of the target form.

Responses to the Question 3 of the questionnaire. Table 6 and Figure 5 show the total number of times each box was marked by the RC group and the RC+L1 group from Input 1, Output 1, Input

Table 4　The number of participants in the RC group and the RC+L1 group who reported noticing the issues belonging to categories (a) to (f)

	(a)	(b)	(c)	(d)	(e)	(f)
RC group (n=10)	4	8	7	6	4	4
RC+L1 group (n=20)	14	17	10	8	6	5

Note. (a) grammar issues related to the target form, (b) listening-related issues, (c) words, (d) comprehension, (e) spelling, and (f) general grammar issues

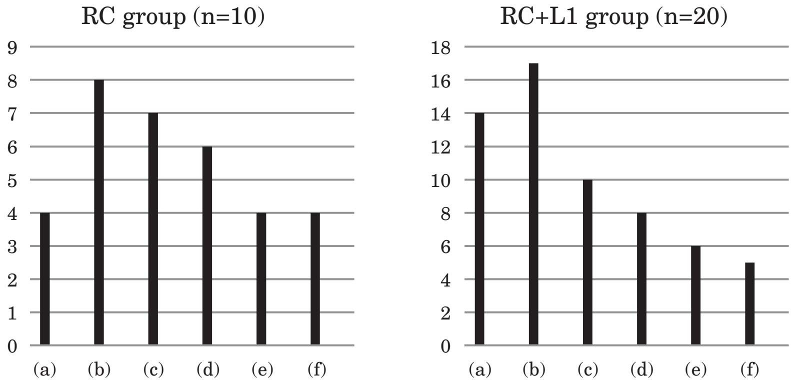

Figure 4　The number of participants in the RC group and the RC+L1 group who reported noticing the issues belonging to categories (a) to (f) mentioned above

Table 5　The number of participants in the RC group and the RC+L1 group who reported noticing (a) and those who reported understanding of the target form

	reported noticing (a)	reported understanding of the target form
RC group (n=10)	4	1
RC+L1 group (n=20)	14	11

Table 6　The total number of times each box, (a) to (f), was marked by the RC group and the RC+L1 group from Input 1, Output 1, Input 2, to Output 2

	(a)	(b)	(c)	(d)	(e)
RC group (n=10)	22	22	18	15	0
RC+L1group (n=20)	28	48	40	43	3

Note. (a) meaning of a sentence (b) words (c) grammar (d) something they had not understood (e) other

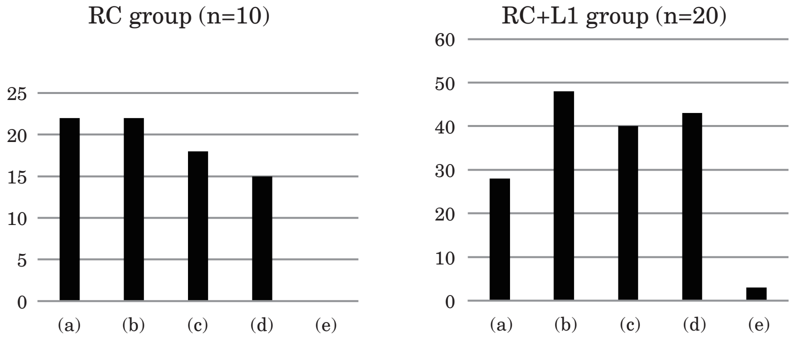

Figure 5　The total number of times each box, (a) to (f) mentioned above, was marked by the RC group and the RC+L1 group from Input 1, Output 1, Input 2, to Output 2

2, to Output 2. A larger proportion of the RC group participants paid attention to (a) meaning of a sentence than the RC+L1 group. A larger proportion of the RC+L1 group participants paid attention to (d) something they had not understood, than the RC group.

Summary of results

The results of the current study can be summarized as follows.

Concerning the task type, a larger proportion of participants in the GW group reported more noticing and more understanding of the target form than the RC group. In other words, picture-cued guided writing was associated with more noticing and more understanding of the target form than text reconstruction. With regard to the task procedure, a larger proportion of participants in the RC+L1 group reported more noticing and more understanding of the target form than the RC group. In other words, text reconstruction with an L1/L2 translation stage was associated with more noticing and more understanding of the target form than text reconstruction alone.

Discussion, Conclusions, Pedagogical implications, and Limitations

To understand the results of the current study, it may be helpful to probe into participants' focus of attention and depth of processing they engaged in. Focus of attention is related to Schmidt's (1990, 1995) noticing. Depth of processing or levels of processing is a construct first proposed by Craik & Lockhart (1972). Izumi (2002) argues that deeper and more elaborate processing of input may enhance the quality of attention.

Output task type, focus of attention, and depth of processing

Focus of attention. The focus of attention of the GW group and the RC group seems to have been different. On the output sheet, the GW group reported attending to grammar issues related to the target form, more than the RC group. In addition, on the questionnaire, the GW group reported focusing on grammar more than the RC group. It may be because, in order to carry out picture-cued guided writing, the GW group needed to induce the grammatical rule of the target form, aiming to apply the rule to writing to express meaning in the given context. In contrast, the RC group did not report as much noticing of grammar issues related to the target form as the GW group. The RC group paid attention mainly to words, meaning, and orthography for the accurate reconstruction of the input text. The RC group concentrated attention on listening to the input text in order to catch every word.

Depth of processing. Furthermore, task demands of each group may have led two groups to a different level of processing of input data. On the output sheet, the GW group reported more understanding of the target form than the RC group. It may be because picture-cued guided writing promoted deeper processing of linguistic items in the input than text reconstruction. The GW group needed to analyze the underlying rule of the target form and make form-meaning connection in order to carry out picture-cued guided writing. The cognitive process the GW group engaged in included both decoding and encoding of the target form. On the other hand, text reconstruction may not have pushed participants to process input further than to repeat the input text because the participants' goal was to reconstruct the input text word for word. Notes on the output sheet and responses to the Question 3 on the questionnaire showed that the RC group tried to understand the meaning of the input text. The RC group seemed to concentrate more on comprehension, which focuses on decoding linguistic information, than production of language, which requires encoding linguistic information.

Output task procedure, focus of attention, and depth of processing

Focus of attention. Notes on the output sheet taken by the RC group and the RC+L1 group showed a similar pattern except that the RC+L1 group paid more attention to (a) grammar issues related to the target form than the RC group. The similar pattern they showed may be due to the demand of the same task type the two groups engaged in. Both groups tried not to miss any word in input in order to reconstruct the input text accurately. However, the RC+L1 group reported more understanding of the target form than the RC group. The difference may be attributed to the cognitive process the RC+L1 group engaged in.

Depth of processing. After listening for the gist, the RC+L1 group was asked to translate part of the input text containing the target form, into Japanese. 15 participants of the RC+L1 group (n=20) produced the correct Japanese translation. However, when they were asked to put their Japanese translation in English, only 1 participant could use the target form correctly. Out of the remaining 14 participants, five reported that they were not sure how to express the intended meaning in English. Five others expressed uncertainty about their comprehension. Then, after they were exposed to subsequent input, four of the five participants who were not sure how to express the meaning reported that they noticed the grammatical pattern of the target form, or they noticed that they had made a mistake. Possibly, some of the RC+L1 group participants noticed that they could not express their intended meaning in L2. In other words, they may have “noticed a hole” (Doughty & Williams, 1998) in their L2 knowledge. Then, upon receiving subsequent input, they may have found “a gap”

(Schmidt & Frota, 1986) between their production and the target form in English. In the following process of cognitive comparison between the L1 (Japanese) system and the L2 (English) system, they may have analyzed the form-meaning connection of the target form in both languages and have reached the understanding of the underlying rule of the target form in English. The act of translation from English to Japanese, then from Japanese to English, may have promoted deeper processing of linguistic data.

Conclusions and pedagogical implications

The current study explored the efficacy of output tasks conducted under different conditions, focusing on the qualitative aspects of noticing. Focus of attention and depth of processing, related to output task conditions, seemed to affect noticing and understanding of the target form. The findings of the study indicate that tasks which require learners' cognitive effort to induce the rule from the input data and apply the rule to their output, such as picture-cued guided writing or tasks including L1/L2 translation, may promote deep processing of input. The role L1 may play in triggering noticing and promoting deep processing of input needs to be further explored.

Limitations

The current study has some limitations. First, the number of participants was small. The results cannot be generalized. Second, the RC+L1 group had more opportunities for output and longer time on task than the RC group. Therefore, it may not be very clear whether the difference between the RC group and the RC+L1 group is attributable solely to L1/L2 translation. These limitations show the directions for further research.

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