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Effects of Structured Input and Meaningful Output on EFL Learners' Acquisition of Nominal Clauses

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Abstract

The current second language (L2) instruction research has raised great motivation for the use of both processing instruction and meaningful output instruction tasks in L2 classrooms as the two focus-on-form (FonF) instructional tasks. The present study investigated the effect of structured input tasks (represented by referential and affective tasks) compared with meaningful output tasks (implemented through text reconstruction cloze tasks) on the acquisition of English nominal clauses (NCs). The study sought to investigate if (1) both input and output instruction would lead to significant gains of knowledge in acquiring NCs, and (2) there were any significant differences between learners' receptive and productive knowledge of nominal clauses. First-year undergraduate students studying at four intact university classrooms participated in the study. The effectiveness of the tasks was determined by a noun-clause recognition test and a sentence combination production test administered both as the pretest and posttest. The results revealed that both processing instruction and meaningful output instruction helped the learners

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improve their receptive knowledge of grammar effectively; nevertheless, the processing instruction group did not significantly outperform the meaningful output group in their gains of receptive knowledge of grammar. The findings further illustrated that meaningful output instruction group significantly outperformed processing instruction group in their productive knowledge of grammar.

Keywords: Processing instruction; Meaningful output instruction; Receptive knowledge; Productive knowledge

Introduction

Second language acquisition (SLA) research has recently demonstrated a need for classroom activities that promote both receptive and productive knowledge of language aimed at interactive communication with a focus on form in L2 classrooms (Doughty & Williams, 1998; Ellis, 2003; Long, 2006; Pica, 2007). One way of promoting such opportunities is through pedagogical tasks that encourage processing the received input, while at the same time providing opportunities for production activities with attention to form is another effective way of doing that (Pica, Kang, & Sauro, 2006 ; Swain, 1995). Long (1991) presented his focus on form (FonF) approach as a reaction to the inadequacies of traditional approaches to grammar teaching as well as the disadvantages of communicative approaches with the primary focus on meaning. This research suggests that, besides meaning, some type of focus on grammatical forms is necessary if learners are to develop high levels of accuracy in the L2.

According to Fotos and Nassaji (2007), FonF must be a component of a broader L2 instructed learning that should provide ample opportunities for meaningful and form-focused instruction and a range of opportunities for L2 input, output, interaction, and practice. Considering the mixed outcomes reported so far, more research studies are obviously required to determine the effect of input-based and output-based FonF approaches on grammar acquisition. Hence, the present study sought to explore the impacts of two FonF variables, namely processing instruction and meaningful output instruction, on the acquisition of L2 nominal clauses.

Review of the Related Literature

Processing Instruction

According to VanPatten (2009), the rationale behind processing instruction (PI) is that (1) learners need input for acquisition, (2) a major problem in acquisition

might be the way in which input is processed by learners, and (3) we might be able to devise effective input enhancement or focus on form to aid acquisition of formal features of language if we can understand how learners process input.

A great deal of research has empirically investigated the effectiveness of PI. Several studies have, to date, been conducted to compare PI with output-based grammar instruction such as traditional instruction (TI) (Benati, 2005; Cadierno, 1995; Farley, 2004a, 2004b; VanPatten & Cadierno, 1993a, 1993b; VanPatten & Wong, 2004). A number of other studies have investigated meaning-based output instruction (MOI) (Benati 2005; Farley, 2004a; Morgan-Short & Bowden, 2006). Some others, however, have focused on the analysis of communicative output instruction (COI) (Toth, 2006). VanPatten and Cadierno's (1993a) study was the first to focus on the investigation of the relative effectiveness of comparing PI and TI. They concluded that PI was superior to TI. The results revealed that the PI group significantly improved in both the comprehension and production tests while the TI group performance displayed significant progress only in the production test. Some studies were conducted to replicate their results (e.g. Benati, 2005; VanPatten & Wong, 2004).

Structured input tasks are developed on the principles of input processing instruction. Structured input tasks are specifically designed to contain input that facilitates FMCs. They are designed to persuade students to focus on the target structure for the purpose of processing it for meaning. The fundamental constituents of PI frame involve provision of explicit grammar explanation as well as referential and affective activities (VanPatten, 1996). Referential and affective activities are jointly termed "*structured input activities*" within the scope of PI. To decrease learners' inadequate processing of input, these activities are deliberately organized in a structured manner (VanPatten, 2004b).

Referential activities are regarded as one of the two essential components in the domain of structured input activities. To carry out referential activities successfully, learners are required to attend to the targeted grammatical form and interpret its meaning. To make referential activities more practicable, they involve learners in activities with right and wrong options. Subsequently, learners will be able to distinguish their correct and wrong answers on the basis of the received feedback. The last element in the PI framework is the affective activities in which learners have to merely perform the tasks in meaningfully oriented contexts containing the targeted linguistic feature. VanPatten (1993, p.439) argues that learners are required to respond to affective activities "by

expressing their own beliefs, opinions, or feelings" related to their personal experience.

Meaningful Output Instruction

Swain (1985, 1995) has argued that there are important roles for output in L2 acquisition and comprehensible input is essential yet insufficient for successful L2 acquisition. What the learners need is being given the opportunities to practice L2 production in both written and oral communication. According to Swain, output forces learners to move from semantic processing involved in comprehension to syntactic processing needed for production. VanPatten (2004a, 2004b) also states that output might act as a tool to draw learners' attention to something in the input and play a role in the development of both fluency and accuracy.

Swain (1985, 1995, 2005) identified three functions of output in L2 acquisition: (1) a noticing (or triggering) function, (2) a hypothesis testing function, and (3) a metalinguistic function. A number of studies have examined the noticing function of output and provided empirical evidence for its presence and relationship with L2 learning (Izumi, 2002; Izumi & Bigelow, 2000; Jabbarpoor & Tajeddin, 2013; Rezvani, 2011). Opportunities for language production seem to encourage the learners to consciously reflect upon language, while thinking about what to say and how to say it. Ample evidence coming from L2 interaction research suggests that learners have been actively involved in hypothesis testing by trying out new modified linguistic utterances as a result of producing output and receiving feedback (Doughty & Pica, 1986; Long, 1985; Tajeddin & Jabbarpoor, 2013).

A variety of output tasks such as text reconstruction cloze, dictogloss, jigsaw, and text-editing have so far been used to examine the effectiveness of output practice in second language classrooms. A reconstruction cloze task resembles dictogloss in many respects. However, it differs from it in that during the reconstruction phase, learners receive a cloze version of the original text. In the cloze version, certain linguistic forms that are identified by the teacher as the focus of the task can be removed from the text. Thus, the task involves two versions of a text: (a) an original version, which is read to students or is given to the students as a reading text, and (b) a cloze version (Nassaji & Fotos, 2011). Students are then asked to reconstruct the text by supplying the missing items in the cloze version. The advantage of a cloze reconstruction task is that it requires students to reproduce specific target structures.

The role of output in SLA can at least be looked upon from two perspectives (Morgan-Short & Bowden, 2006). The first perspective suggests that both input and output practice develop corresponding comprehension and production skills (DeKeyser, 1997, 2001; DeKeyser & Sokalski, 1996). From a second perspective, although input is essential to SLA, it might also bring about mental processes that affect acquisition both directly and indirectly (Swain, 1993, 1995, 1998; Swain & Lapkin, 1995). The present study is motivated by the idea that both input-based instruction and meaningful output-based instruction can be effective for SLA as many previous studies have attempted to compare the two options under a variety of research designs (Allen, 2000; Collentine, 1998; DeKeyser & Sokalski, 1996; Erlam, 2003; Nagata, 1998; Salaberry, 1997).

Purpose of the Study

Although VanPatten and his colleagues' studies regarding the impact of PI on the learning of grammar have displayed desirable findings (Cadierno, 1995; VanPatten & Cadierno, 1993a), a number of other studies have been conducted with mixed findings. Some have presented evidence supporting the advantage of PI over traditional output-based grammar instruction, whereas others have not reported similar results (Allen, 2000; Benati, 2005). Research by Swain (1985, 1995) and her colleagues, however, has shown that L2 production plays an important role in SLA. Thus, when learners attempt to produce the L2, they notice that they are not able to say what they want to say (Robinson, 2001a, 2001b), and this "pushes" them to achieve greater accuracy.

The present study built on the previous research to examine the effects of structured input instruction and meaningful output instruction on the acquisition of English nominal clauses. Accordingly, the following research questions were addressed:

1. Do processing instruction and meaningful output instruction have any significant effects on EFL learners' receptive and productive knowledge of nominal clauses?
2. Are there any significant differences between processing instruction and meaningful output instruction in EFL learners' receptive and productive knowledge of nominal clauses?

Method

Participants

The participants of the present study were first-year undergraduate university students majoring in the English language. The criteria for the selection of this group were a proficiency test, a multiple-choice recognition test, and a production test of sentence combination. The purpose of both recognition and production tests was to measure the participants' knowledge of English nominal clauses (NCs). The bio data of the participants revealed that they belonged to the approximately similar English language proficiency background.

The participants who failed to meet the selection criteria were discarded from the study. The recognition and production tests not only served as the pretests for the participants, but also were used to select those students who did not show any knowledge of NCs before treatment.

The participant pool was comprised of 139 students, 75 of whom were eliminated at different phases of the study for a number of reasons. Those participants who answered the pretest items with scores higher than the expected chance scores or failed to illustrate any indication of knowledge of NCs on the pretest were discarded from the final analysis. Some other participants were eliminated due to incomplete task performance or population mortality. There were 31 participants in the processing instruction group and 33 in the meaningful output group. Participants were between 19 to 27 years of age.

Instrumentation

In the pretest phase, the participants were given three tests: (1) The Oxford English Language Placement Test, (2) a sentence combination test acting as a controlled production test, and (3) a noun-clause recognition test. Two different written tests were used to assess the participants' knowledge of English NCs immediately after the treatment phase: a noun-clause recognition test aimed at testing their receptive knowledge and a sentence-combination test measuring the participants' productive knowledge.

According to the manual, the Oxford English Language Placement Test is designed to measure: (1) the test takers' knowledge of the second or foreign language (i.e., their grammatical and pragmatic knowledge); and (2) their ability to use this knowledge to communicate a range of meanings while reading (Purpura, 2004). The sentence- combination test (SCT) was a 20-item controlled production test adapted from Doughty (1991). This test expects the participants to combine two sentences in such a way that the underlined words

in the first sentence could be identified by using the information in the second sentence. A 30-item multiple-choice recognition test (MCRT) was developed according to the guidelines presented by Leow (2001), and Leow and Morgan-Short (2004) to evaluate the participants' receptive knowledge of the six functions of NCs under investigation.

The grammatical structures intended to be taught in the study were NCs functioning as subject, direct object, object of preposition, direct object in reported speech, adjective complement, and subject complement. *If, whether*, *that (the fact that)*, *where (ever), when (ever), what (ever), how, who (ever), whom (ever),* and *which (ever)* are among the most prevailing conjunctions that initiate NCs. One experimental group received structured input tasks and the other output reconstruction tasks.

In each treatment session, the learners were presented with two reading texts. Each text was flooded with NCs with an expected variety of target functions, ranging from four to six in each text with a different frequency for each single function. On the whole, there were eight treatment texts on common social topics. Izumi (2002) divided the input texts into a number of shorter, semantically coherent subsections, each consisting of a combination of four to nine sentences to elucidate the processing load on the learners. Table 1 demonstrates the frequency of the NC functions in each text, the number of sentences per paragraph, the number of words per sentence, and the readability indices determined for the reading texts on the Flesch Reading Ease Scale ranging from 74.9 to 90.1.

Table 1

The Readability Indices for the Reading Texts

	Flesch reading ease	Flesch-Kincaid grade level	sentences per paragraph	words per sentence	number of NC functions per text
Text 1	90.1	3.4	6.6	11	4
Text 2	81.2	4	9	8.6	4
Text 3	83.4	4	9	10.2	5
Text 4	83.1	5.1	4.6	14.2	5
Text 5	86.5	4.3	7.2	12.5	5
Text 6	87.7	4.1	6.7	12.3	6
Text 7	81.9	5.2	4.2	13.8	5
Text 8	74.9	6.9	3.8	16.4	5

The range of readability indices demonstrates that the texts were appropriate for lower intermediate learners. They were compatible with the proficiency level of the participants in the present study who were shown to be at the same level in view of the pretest results.

Treatment

The treatment phase involved three different tasks. The first task was a comprehension task in which the learners were asked to read the texts and answer the follow-up multiple-choice comprehension questions flooded with NCs both in the stems and distracters of test items for both experimental groups. The second task was a production task that required the learners in output group to reconstruct the texts as accurately as possible through a controlled reconstruction cloze activity. The third task involved structured input activities that challenged the processing instruction group.

Treatment in the Structured Input Group: Participants in the input processing group received structured input activities which were of two main types: referential and affective (VanPatten, 1996). VanPatten (2004b) defined referential activities as the activities for which there is a right or wrong answer and the learner must rely on the targeted grammatical forms in order to get the meaning. From a practical viewpoint, learners can be asked text-based true/false questions or multiple-choice questions in order to direct the learners' attention toward the functions of target structures for the purpose of helping them grasp the meaning more effortlessly. Sample 1 exemplifies referential activities:

***Sample 1*: Structured Input Tasks: Referential Activities**

A. *Read the following sentences carefully and select "true" (T) if it is true, but mark "false" (F) if it is not true according to the passage.*
   1. Who stole money from Dana on the bus was a rude, evil person.
      T F

B. *Read the following sentences and decide which choice completes the sentence correctly according to the passage.*
   1. "Get Low" is…….
      a. what people call the guitar player
      b. how people name the piano player
      c. where people go for pleasure

C. *Read the following sentences and indicate whether <u>the underlined part</u> in each sentence is the doer of the action, receiver of the action,*

describes the doer, describes the modifier, describes the receiver or none of them.

1. The fact that Dana has been driving a bus for 15 years has made her an experienced driver.
   a. It is the Doer. b. It is the Receiver.
   c. It describes the Doer. d. It describes the Modifier.
   e. It describes the Receiver. f. It describes none of them.

Affective activities are those that do not have any right or wrong answer, requiring learners to provide their agreements or opinions about a set of events. The affective tasks are aimed at providing more exemplars of the target forms in the input by engaging learners in processing information about the real world. Sample 2 demonstrates two types of affective activities used in this study.

Sample 2: **Structured Input Tasks: Affective Activities**

A. *Read the following sentences carefully. Select "true" (T) if it is true about you, but mark "false" (F) if it is not.*
   1. The fact is that Dana Miller is a third shift bus driver. T F

B. *Read the following sentences carefully and indicate whether you would personally "agree" or "disagree" with each of them.*
   1. It seems really exciting that Dana has preferred to work the night shift.
      Agree Disagree

Treatment in the Meaningful Output Instruction Group: Participants in the output group involved in the text- reconstruction cloze task selected on the basis of a number of reasons. First, laying emphasis on comparisons between the interlanguage output and the target language input can potentially be provided by a reconstruction task. Second, it is essentially a meaning-based pedagogical activity that permits learners to devote some attentional resources to form and provides both the data and the incentive for the learners to make IL-TL comparisons (Thornbury, 1997). Third, it requires students to reproduce specific target structures (Nassaji & Fotos, 2011). It is also characterized as a remarkable problem-solving task (Brett, 1994). Sample 3 represents a text-reconstruction cloze task.

Sample 3: **Text Reconstruction Cloze Task**

Fill in the blanks with the most appropriate phrase or clause according to the text you just read.

Who plays the guitar carries his heavy guitar on the bus every Friday night. He plays at a nightspot downtown. "Get Low" is what…….……That is because he likes to play the guitar on his knees. Get Low feels that……
…….. if the bus is not too crowded since he believes that
……..... Of course, he knows that the bus is seldom crowded at night.

The design of the reconstruction cloze task in this study followed the design of the input texts with coherently meaningful subdivisions, each consisting of a range of four to nine sentences left with a number of blanks to be filled with both grammatically accurate and meaningfully appropriate noun phrases and NCs. The distance between the blanks was determined on the basis of the principles of developing the standard task measures, but the intention was to measure the phrase and clause production knowledge. Therefore, textually, both grammatical and meaningful distance had to be equally taken into account to maintain the discoursal integrity of the text. According to the results gained from the piloting procedure, the head connectors of NCs were provided as logical activators of the participants' short-term memory. The treatment groups were instructed to take notes of every word that they thought was significant to comprehend or reproduce the text. To prevent the possibility of direct copying, time of exposure was also controlled. According to Bialystok (1979), asserting no time limit may encourage the learners' explicit knowledge. However, if learners are given limited time to respond, they may be encouraged to rely on their implicit knowledge (Ellis, 2004).

Data Collection and Analysis

The present study followed a pretest-treatment-posttest design involving two treatment groups. The date collection procedure lasted seven complete 90-minute teaching sessions, two for the pretest and homogeneity purposes, four for the treatment, and one for the posttest. During the pretest phase, which took place two weeks before the treatment, the participants received the Oxford English Language Placement Test, a multiple-choice recognition test, and a sentence-combination test. On the basis of the findings of the pilot study, the

participants were instructed to complete the multiple-choice recognition test in 20 minutes and the sentence-combination test in 30 minutes.

For the homogeneity purpose, both the recognition and controlled production tests were aimed at controlling the participant's prior familiarity with the target structures. The participants who scored above the expected chance score were excluded from the study. The chance score was calculated using N/A formula (i.e., the total Number of the items divided by the number of the Alternatives). Since there were 30 target items on the recognition test and 20 target items on production test with each item having four alternatives, the expected chance score was found to be 8 for the recognition test and 5 for the production test.

To answer the first research question, the data obtained from the pretest and posttest phases were analyzed through four separate dependent samples t-tests to separately compute the significance of the difference between the pretest and posttest means of each of the two groups. To address the second research question, two independent samples t-tests were employed to calculate the significance of the variation between the two groups' posttest means.

Results

The first research question focused on the impacts of the processing instruction and meaningful output instruction on EFL learners' receptive and productive knowledge of nominal clauses. To address the question, a comparison was made between the results of the pretest and posttest of the two experimental groups. Table 2 shows the descriptive statistics for the two groups.

Examining the mean column in Table 2 indicates that the recognition posttest mean score of the processing instruction group (M = 21.16) was higher than the recognition posttest mean score of meaningful production group (M=20.00). This suggests that the participants under processing instruction condition performed better on recognition posttest in comparison to those in meaningful production. The total number of questions on the recognition test was 30. Thus, the highest estimated mean score was expected to be 30.

Table 2 also shows that the production posttest mean score of the meaningful output group (M=15.48) was higher than the production posttest mean score of processing instruction group (M=13.84). This indicates that the participants receiving meaningful output instruction performed better on the production posttest than those receiving processing instruction. Since the total

number of test items on the production test was 20, the highest mean score was estimated to be 20.

Table 2
Descriptive Statistics for the Two Instructional Groups on Recognition and Production NC Tests

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Processing Recognition Pretest	5.97	31	1.90	.34
	Processing Recognition Posttest	21.16	31	2.53	.45
Pair 2	Output Recognition Pretest	5.85	33	1.98	.34
	Output Recognition Posttest	20.00	33	2.46	.42
Pair 3	Processing Production Pretest	3.10	31	1.30	.23
	Processing Production Posttest	13.84	31	1.89	.34
Pair 4	Output Production Pretest	3.06	33	1.43	.25
	Output Production Posttest	15.48	33	1.52	.26

To find out if the difference between the pretest and posttest mean scores in the treatment groups were statistically significant, a paired sample t-test analysis was conducted. The results (Table 3) indicate that the mean differences between the pre-test and post-test for both groups is statistically significant both in receptive and productive knowledge of NCs at the .05 level:

Table 3
Paired Samples t-Tests for the Two Instructional Groups on Recognition and Production NC Tests

		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	Processing Recognition Pretest-Processing Recognition Posttest	15.19	2.33	.41	36.31	30	.00
Pair 2	Output Recognition Pretest-Output Recognition Posttest	14.15	1.95	.34	41.59	32	.00
Pair 3	Processing Production Pretest-Processing Production Posttest	10.74	1.82	.32	32.76	30	.00
Pair 4	Output Production Pretest-Output Production Posttest	12.42	1.76	.30	40.36	32	.00

Processing instruction recognition, t (30) = 36.31, p = 0.000
Meaningful output recognition, t (32) = 41.59, p = 0.000
Processing instruction production, t (30) = 32.76, p = 0.000
Meaningful output production, t (32) = 40.36, p = 0.000

The difference between the pretest and posttest in each group was demonstrated by the calculation of the effect size for each group. The effect sizes for each group also demonstrated that more than 90% (large effect size) of the difference between the pretest and the posttest in every group was accounted for by the effect of the instruction. Thus, the effect size was significant for both groups: processing instruction (recognition), d = .95; meaningful output (recognition), d = .95; processing instruction (production), d = .95; and meaningful output (production), d = .97. According to Cohen's (1988) scale, effect-size estimates, represented by Cohen's d (a standardized mean difference between groups), are interpreted as small (d = .20), medium (d = .50), and large (d = .80).

Admittedly, the results reveal that the two instructional options, functioning as FFI approaches to SLA, helped the participants improve both of their receptive and productive grammar knowledge.

The second research question focused on the significant differences in the learners' receptive and productive knowledge of nominal clauses across the instructional options. Mean analysis, as presented in Table 4, shows that the processing instruction group (M=21.16) outperformed the meaningful output group (20.00) in the recognition test of NCs. However, treatment yielded more

gains in the production of NCs in the meaningful output group (M=15.48) than the processing instruction group (M=13.84).

Table 4
Descriptive Statistics for the Two Groups' Recognition and Production Posttests

	N	Mean	Std. Deviation	Std. Error
Processing Recognition Posttest	31	21.16	2.53	.45
Output Recognition Posttest	33	20.00	2.46	.42
Processing Production Posttest	31	13.84	1.89	.34
Output Production Posttest	33	15.48	1.52	.26

Two independent samples t-tests were employed to compare the differences across the two groups (Table 5). Differences in recognition posttest results were not found to be statistically significant at the .05 level of significance based on independent samples t-test analysis (t (31) = 1.86, p = .068). However, the differences were significant in production posttest results (t (31) = 3.83, p = .000). It is, therefore, concluded that the output instruction group did not significantly perform better than the processing instruction group in recognizing English NCs. However, output instruction group significantly outperformed processing instruction group in producing English NCs.

Table 5
Independent Samples t-test Analysis for the Two Instructional Groups on Recognition and Production Posttests

	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Processing Recognition Posttest-	21.16	2.53	.45	1.86	62	.068
Output Recognition Posttest	20.00	2.46	.42			
Processing Production Posttest-	13.83	1.89	.34	3.83	62	.000
Output Production Posttest	15.48	1.52	.26			

To account for the practical significance, the effect size was computed on the basis of partial eta squared procedure. The effect size index for the recognition comparisons was .18 and for production posttest comparisons was .28. Both of the indices are regarded as large values according to Cohen's (1988) guidelines, the values that stand higher than .14 are considered to be of large effects. This means that almost 80% of the variance in the posttests was due to the effect of the instruction. As a result, both processing instruction and output production conditions helped learners develop their receptive knowledge of grammar effectively; however, neither was more effective than the other. Conversely, it was found that meaningful output instruction helped learners develop their productive knowledge of grammar more effectively compared with processing instruction.

Discussion

With respect to the first research question, the results demonstrated that both processing instruction and meaningful output significantly affect the learners' receptive knowledge of grammar, whereas neither proved to be more effective than the other. Reviewing the SLA literature reveals that the findings of the present study confirmed those of previous studies by Doughty (2001), Doughty and Williams (1998), Izumi (2002), Long (1991), Pica et al. (2006), and Swain and Lapkin (2001). They found that meaning-based output tasks, such as guided summarizing, jigsaw, and reconstruction cloze task–are effective in promoting learners' cognitive processes including noticing, comparing, and formulating and testing hypotheses. The findings of the present study are also in line with those reported by Swain (1985). Swain argues that although

meaningful input has a vital role in the development of second language, meaningful output practice plays an important role in producing language forms accurately. Conversely, the findings of the present study are partially in line with the findings of VanPatten (1996, 2002a, 2004a, 2004b), who concluded that structured input is not only necessary, but also sufficient to meet learners' comprehension and production needs and that output practice plays a marginal role in SLA.

The results of the second research question reveal that the learners in meaningful output group were able to develop their productive knowledge of grammar more effectively than those in the processing instruction group. This helps attribute a more important role to output instruction in SLA. The results provided further empirical support for the findings of the previous studies by Izumi (2002) and Morgan-Short and Bowden (2006), who reached the conclusion that, besides input instruction, meaning-based output instruction can significantly contribute to the development of productive knowledge of language. Notwithstanding the supportive research in SLA literature, reviewing the studies by Benati (2005) and Farley (2004a, 2004b) shows that their findings are not completely supported by the results of the present study as these studies indicate that processing instruction was superior to meaning-based output instruction in the interpretation task, but resulted in similar performance to the meaning-based output instruction in the production task.

The results of the present study illustrate that processing instruction and meaningful output instruction have significant effects on the development of the learners' receptive and productive knowledge of grammar. These results are partially compatible with the findings reported in other studies. DeKeyser and Sokalski (1996) reported that the effect of input and output practice was fundamentally skill-centered. Comprehension skills were significantly developed by working on input instruction, and production skills were noticeably enhanced by meaningful output instruction. Farley (2004a) found that processing instruction functioned equally as well as meaning-based output instruction in acquisition of the Spanish subjunctive in both interpretation and production tests. VanPatten's (1996) study showed that traditional instruction involving explanation and output practice developed only L2 learners' production abilities, while input processing instruction helped learners develop both production and comprehension abilities. Farley (2001a) reported that in comparison to meaning-based output instruction, processing instruction had an overall greater effect on how learners interpreted and produced the Spanish subjunctive of doubt.

The results obtained from the present investigation provided further empirical support for the findings of the previous studies by Farley (2001b), Izumi (2002), Keating and Farley (2008), Kowal and Swain (1994), Morgan-Short and Bowden (2006), and Muranoi (2000a, 2000b, 2007), who arrived at the conclusion that, besides input instruction, meaning-based output instruction can be greatly effective in the development of productive knowledge of language. Morgan-Short and Bowden (2006) concluded that both experimental groups outperformed the control group in interpretation task. In the production task, only the meaningful output-based group outperformed the control group. These findings demonstrate that linguistic development can be achieved not just through input-based, but through output-based instruction. Additionally, supporting the functions of output hypothesis, Muranoi (2000a) argues that focus on form through guided summarizing task was effective because it promoted cognitive processes including noticing, comparing, and formulating and testing hypotheses.

In keeping with the results of the present study, Keating and Farley (2008) concluded that for the interpretation task, processing instruction was found to be superior to meaning-based drills instruction, but not to meaning-based output instruction. However, on the production task, both meaning-based output instruction and meaning-based drills instruction groups were superior to the processing instruction group. Kowal and Swain (1994) concluded that the data obtained in the dictogloss studies strongly support the output hypothesis. The results of the present study illustrate that both input-based and output-based instruction have significant effects on the development of the learners' receptive and productive knowledge of grammar. Nevertheless, these findings are not completely in line with the findings by Benati (2005), Farley (2004a, 2004b), VanPatten (1996, 2004a, 2004b), and VanPatten and Cadierno (1993a, 1993b). They found that structured input is not only necessary, but also sufficient to fulfill learners' comprehension needs because processing instruction had an overall greater effect than meaning-based output instruction on how learners process, interpret, and produce L2.

Conclusion

The results of the present research contribute to the theoretical debate on the role of meaningful output in L2 development. More precisely, the functions presented by Swain's (1985, 1995, 2005) Output Hypothesis received additional empirical support through the present investigation. VanPatten's (1996) processing instruction model does not require learners to produce output, which is not endorsed by the theoretical implications of the results of the present

study. However, VanPatten (2002a, 2002b) has warned that although processing instruction emphasizes the role of input, this does not negate the importance of output. The findings are theoretically in conformity with the findings of the previous studies (Birjandi, Maftoon, & Rahemi, 2011; Izumi, 2002; Jabbarpoor & Tajeddin, 2013; Morgan-Short & Bowden, 2006; Rezvani, 2011; Tajeddin & Jabbarpoor, 2013), who concluded that, besides input instruction, meaning-based output instruction can significantly affect the development of productive knowledge of language.

This study may promise some implications for L2 teaching. It implies that, in order to be more effective, grammar instruction should provide learners with ample opportunities to involve in both receiving and producing L2. Nassaji and Fotos (2011) emphasize that the use of such combinations of input, output, and interactive activities would ensure the maximal effectiveness. L2 practitioners can incorporate a variety of input-based and output-based strategies in their practice. In the same line, a combination of input and output activities may help learners consciously reflect on the language to be learned and form and test hypotheses about the rules underlying its structures. It follows that the shift from meaning-focused materials to form-focused materials seems indispensable in designing instructional materials.

The results revealed that meaningful output functioned more effectively in improving productive knowledge of grammar while processing instruction operated better in improving receptive knowledge of grammar. Strengthening the same line of research, further studies can be conducted with a focus on other FonF instructional options, including focus on grammar through discourse and interactional feedback. It is also advisable to measure the effect of receptive and productive gains in the following research studies by more spontaneous and complex processes than the controlled written recognition and semi-controlled written production tests used in the present study. Using less controlled and spontaneous written and oral recognition and production picture-cued tasks, free writing, and oral production tasks are particularly recommended as achievement measures. The target structures in this study were nominal clauses. Other grammatical structures can also be addressed for the purpose of investigating the practicality and effectiveness of the FonF instructional options in future studies.

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