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The Effect of Isolated vs. Combined Processing Instruction and Output-Based Instruction on the Learning of English Passives

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Abstract

The studies on the merits of processing instruction (PI) and output-based instruction (OI) have mostly treated the two approaches as mutually exclusive. To address the potentials of combining interpretation and production activities, this research compared the two isolated approaches of PI and OI with two combined approaches in which processing and output tasks were used in two opposite orders suggested by the researcher, i.e. processing-output-based instruction (POI) and output-processing-based instruction (OPI). The target structure was English passives. Participants included 185 Iranian EFL students from five intact classes, with four assigned to each treatment and one comprising a control group. Results on sentence-level interpretation and production tests administered before, immediately after, and one month following instruction indicated similar improvement for the treatment groups on the first interpretation posttest, and the superiority of POI over OPI and PI over the delayed posttest. On the first production test, POI, OPI, and OI performed equally well and better than PI, while more accurate uses of the target form were observed by POI and OPI on the delayed posttest. It was concluded that the combined approaches, particularly POI, could produce more persistent outcomes by giving learners the opportunity to both process a form and produce it.

Keywords: Processing instruction; Output-based instruction; Combined approaches, English passives

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1. Introduction

The emphasis on the significance of input and comprehension practice in L2 acquisition emerged in 1960s as a criticism of conventional production-based approaches (Shintani, 2012). VanPatten (1996) accepted the crucial role of input, but he, in contrast with Krashen (1987), regarded the simple exposure to input as insufficient to bring about L2 acquisition. He used the term 'input processing' (IP) to describe the cognitive processes required for helping the learners understand input and integrate it into their interlanguages. IP is mainly concerned with how learners process the underlying grammar and acquire it. To Lightbown (2000), such a view of input is different from other input-based approaches in that here input should be adapted or manipulated in very specific ways to help learners process it, while the other approaches assume that learners will find the input they need in communicative situations.

To VanPatten (1996), for more accurate and better acquisition, learners need to be instructed how to process input. Accordingly, he proposed a particular kind of pedagogical intervention termed as 'processing instruction'. In contrast with output-oriented approaches that emphasize *pushing* learners to *produce* the newly learned structures (Swain, 2000) , PI is concerned with *pushing* learners to *recognize* the forms in the input via employing some activities that manipulate input in particular ways to push learners away from default processing strategies.

Ever since VanPatten and Cadierno (1993) investigated the role of processing instruction in developing learners' interlanguage system, a considerable number of studies have compared its effectiveness in learning different structures and skills, both in Roman and non-Roman languages, either with uninstructed control groups (e.g. VanPatten & Uludag, 2011) or with different types of grammar interventions, particularly output-oriented options (Benati, 2001; Cadierno, 1995; Dehaven, 2016; Jabbarpoor & Tajeddin, 2013; Maftoon & Arianfar, 2014; Mountaki, 2016; Oumelaz, 2015; VanPatten, Inclezan, Salazar, & Farley, 2009; Wijaya & Djasmeini, 2017; Yamashita & Iizuka, 2017; Younesi & Tajeddin, 2014).

Almost all these studies indicated that PI could bring changes to learners' underlying knowledge. However, the pedagogical superiority of PI should not be generalized with certainty because some other types of interventions proved to have similar impacts and in some cases more persistent effects than PI. This is in contradiction with VanPatten's (2002) claim that PI has always resulted in significant gains in learners' ability to interpret and produce language, and the PI superiority to other grammar interventions hold overall.

Given the progress of studies on the isolated approaches of PI and OI and the mixed findings emerging from the relevant body of research, this study was designed to add to the literature by (a) extending documentation of PI learning outcomes to the EFL context of Iran and to the English passive structure, and (b) comparing the relative effectiveness of PI and OI approaches when delivered in isolation and in combination in two orders of POI and OPI, suggested by the researcher. In the POI, processing tasks were followed by output-oriented practice, while in the OPI, output-based tasks preceded processing practice. The motivation was to investigate whether combining interpretation and production tasks would produce more efficient and persistent results, as argued by Ellis (2006). It is suggested that if the comprehension and production practice play a unique role in grammar acquisition while employed separately, they can then complement each other in developing learners' interlanguage system. That is, the merits of one type of practice can be reinforced by the other type and vice versa (Tanaka, 2001). However, only a few attempts have recently been made to examine the effectiveness of combining both practice types. Aiming to fill this gap, the current study was designed to compare the roles of PI and OI when used individually and in combination with learning English passives.

1.1. Conceptual framework

Positions about the role of instruction include those that are in alignment with Krashen (1987), believing in the replication of natural learning in classes, and those supporting the idea that instruction does have some kind of facilitative effect (e.g., Ellis, 1994; Long, 1983). VanPatten and Cadierno (1993) questioned the either/or nature of the argument and suggested the emphasis, instead, should be on the kind

of instruction to be used and the kind of processes involved in different instructional options.

In VanPatten's (1996) model of input processing, three sets of processes are identified, namely '*input, intake, and developing system*', which are responsible for taking linguistic data in the input, converting it to intake, and making the intake available to the developing system, respectively. VanPatten (2002) clarified that "as assigning a role to output in SLA does not mean that input has any less of a role to play in acquiring a language, a focus on IP in acquisition does not obviate a role for output in or out of the classroom either" (p. 763). To him, none of the Swain's (2000) arguments for the positive functions of output conflicts with IP 's position about acquisition because all the functions can imply that output facilitates input processing, or that it gives learners the chance to practice accessing the developing system.

In PI, derived from the VanPatten's (1996) theoretical model, learners are first provided with explicit information on a grammatical structure and its relevant processing problem/s. Then, they are engaged with 'structured-input activities', namely *referential* and *affective* activities, in which input is structured in a way to provide learners with a better chance of attending to it and to push them away from default processing strategies. These activities actually differentiate PI from any other type of focus on form, and provide a more direct route for the learner to convert input to intake (VanPatten, 2002).

VanPatten and Cadierno (1993) then designed their preliminary study to examine whether altering learners' interpretation or processing strategies could affect their underlying knowledge; whether the effect was limited only to input or it could transfer to output too; and how the effect was different from that of traditional output-oriented instruction, engaging learners in various kinds of production activities immediately after instruction. They instructed a group of learners the word order and object pronouns in Spanish and warned them of a default strategy, known as *first-noun strategy*, which might lead learners to wrong interpretation of a sentence message.

The results revealed that PI learners were not only able to interpret, but were also able to accurately produce the target forms despite the fact that they had never been instructed on the production of the forms. The OI group, who were involved in producing the instructed forms immediately after receiving explicit instruction on the target form without having any chance to process the received input, was only able to produce object pronouns without knowing how to interpret them. The findings that "with PI, learners get two for one" (VanPatten, 2002, p. 771) led to the argument that instead of trying to alter how learners produce language output, instruction should aim at changing processes that inhibit acquisition, and that PI can do this more effectively than OI approaches requiring learners to produce language too prematurely.

1.2. Empirical studies

While many studies (e.g., Benati, 2004, 2005, 2016; Benati & Angelovska, 2015; Buck, 2006; de Bruijn, 2015; Ertürk, 213; Farely, 2001; Jafarigohar & Jalali, 2014; Jafarigohar, Hemmati, Soleimani, & Jalai, 2015; Oumelaz, 2015; Peart, 2008; VanPatten & Oikennon, 1996;White, 2008; Wong & Ito, 2018) provided supportive evidence for the PI superiority over other types of interventions, some others failed to produce convincing results favoring PI in that either no advantage was found for PI over other instructional options or, in some cases, they seemed to produce more durable results (e.g., Allen, 2000; Birjandi & Rahemi, 2009; Celik-Yazici, 2007; Collentine, 1998, Collentine & Collentine, 2015; DeKeyser & Sokalski, 1996; Erlam. 2003; Fahim & Ghanbar, 2014; Kondo-Brown, 2000; Nagata,1998a, 1998b; Qin, 2008; Radwan, 2009; Salimi & Shams, 2016; Toth, 2006; Wijaya & Djasmeini, 2017; Younesi & Tajeddin, 2014).

The inconsistency of the findings of PI studies has also been reported in several reviews and meta-analyses. Ellis (1999), for instance, in his comprehensive review of research on processing instruction indicated that although most studies confirmed the superiority of PI to out-put based instruction in improving learners' comprehension ability, almost no study showed its superiority in promoting learners' production ability. That is, input processing instruction might promote intake but not the acquisition, i.e., the ability to use the target features

communicatively, which implies the necessity of combining the structural syllabus of processing instruction with a communicative syllabus. This is in sharp contradiction with VanPatten's (2002) assertion that acquisition is not output-dependent and input alone is sufficient for the acquisition of target grammatical features; output is necessary for the skill building and the development of fluency or accuracy.

Nassaji and Fotos (2007) also emphasized the combined use of input and output activities to maximize their effectiveness. This might help learners to reflect on the language features to be learned consciously and develop and test the hypotheses they made about the rules underlying the target structures.

In a more recent review, Benati (2017) also concluded that "structured output tasks should follow structured input tasks to ensure learners develop the abilities to interpret and produce sentences and discourse containing a target linguistic feature. Grammar instruction should move from input to output practice" (p. 391). That is, grammar tasks should be initially designed to facilitate learners' noticing and processing forms in the input. Following it, output tasks should be used to promote language production and development of grammatical structures.

Despite many criticisms made against PI-only option (e.g., Batstone, 2002; Doughty, 2003; Mitchell & Myles, 2004) and strong arguments made for using PI in parallel with output-based instruction, only a few empirical attempts have been made to examine the effect of combining both types of practice. Tanaka (1999) was the first to combine comprehension and production practice in teaching relative clauses to Japanese EFL high school and college students. The results indicated that such a combination could lead to more effective and durable results, as compared with each practice implemented separately. In another study, Tanaka (2001) studied a less complex grammatical structure, i.e., psychological verbs in English, to see whether combining the two types of practice would lead to similar results. The findings supported the idea that using both practice options promoted better and more durable learning than using them separately. Accordingly, Tanaka suggested, "combining practice can provide a stepping stone to success in second language acquisition" (p. 25).

Mystkowska-Wiertelak (2011) also examined the effects of a combined output and input-oriented approach in learning reported speech. She found out although input activities had a more beneficial effect on the development of reported speech than the output practice, a combination of both interventions yielded the most effective and economical results.

Smith (2015) made an attempt to explore whether combining comprehension and production practice would lead to learning gains over an instructional sequence, and if alternating the two practice types would be more effective than delaying production for the development of both receptive and productive grammar knowledge. The delayed group received two sessions of comprehension practice followed by two sessions of production practice, while the alternating group received alternating comprehension and production practice sessions. The results demonstrated that both groups improved significantly over the course of the treatment, and that both early and delayed production practices were equally effective.

Similarly, Benati and Batziou (2017) investigated the effects of structured input and structured output when delivered in isolation or in combination on the acquisition of the English causative. The results indicated that learners who received structured input both in isolation and in combination benefitted more than learners receiving structured output only. They were also able to retain instructional gains three weeks later in all assessment measures.

In contrast, the study conducted by Kirk (2013) was not in favor of such a combination. Examining the effects of PI alone versus PI and OI on the acquisition of three conjunctional and infinitival phrases in Spanish, Kirk concluded that PI led to positive effects in both interpretation and production abilities, and that the provision of output neither enhanced nor hindered the effects of PI.

Given that most studies, particularly those conducted in Iran, have targeted PI and OI separately and in comparison with each other, and research on their combined use is rather new and rare, with inconsistent results, further empirical

evidence is then needed to support the validity of findings on the combined instruction. In this study, for the first time, the two orders of POI and OPI were compared, which makes the study preliminary in terms of the two sequences of presenting processing and production activities. The main motivation behind the study and of special interest to the researcher was then to explore whether the suggested order of POI and OPI would yield any advantages over the two individual approaches in sentence-level interpretation and production of English passives.

Accordingly, the following research questions were posed:

1. Are there any significant differences in the effects of PI, OI, POI, OPI, and C on the interpretation of English passives?
2. Are there any significant differences in the effects of PI, OI, POI, OPI, and C on the production of English passives?

3. Method

The present study utilized a quasi-experimental design (pretest-treatment-posttest) with both immediate and delayed effects. Although the general design was similar to some of the previous PI studies, it was not an exact replication mainly because of the addition of the combined approaches of POI and OPI.

2.1. Participants

The participants were originally 206 male and female students from five intact EGP (English for General Purposes) classes in Islamic Azad University of Naragh, Markazi Province. The final number, however, was 185 who were randomly assigned to four treatment groups and one control group [PI (n=35), OI (n=40), POI (n=34), OPI (n=40), and C (n=36)]. They were students who (a) participated in all phases of the experiment, (b) their scores on the language proficiency test of PET (Preliminary English Test) fell between one standard deviation above or below the mean, and (c) those who scored lower than 60 % [following VanPatten's (2002) guidelines] in the interpretation and production pretests of the target form. Twenty one students who did not meet these criteria were not included in the final data analyses. The participants were freshmen and ranged in age from 18 to 21.

2.2. Target structure

The targeted form was English passives delimited to simple present, past, and future tenses. Theoretically, the passive seems a good target for the first-noun principle of IP theory (VanPatten, 2002) in that learners tend to assign the role of subject to the first noun or phrase they see or hear in the input. Thus, in a passive sentence, L2 learners process the first pro (noun) as the agent. Passive voice was also chosen for pedagogical reasons since it is a problematic and difficult structure for most Iranian EFL learners.

2.3. Instructional packages

Four instructional packages of PI only, OI only, POI, and OPI were developed based on the guidelines defined by VanPatten. They consisted of two sections: instruction and practice. The instruction portions of the PI, POI, OPI packets consisted of some brief explicit information, in Persian, about the passive forms along with some examples of word order as well as some explanation about the first-noun strategy, as the typical default strategy learners use while interpreting or producing passive sentences. The instruction section of the OI packet included the same explicit information about the target form and relevant examples with no information about the default strategy.

At the beginning, a much larger number of processing and production activities were developed than what was really needed. The packets were then reviewed by two PhD holders with more than 10 years of experiences of teaching grammar both to university and high school students. They were also trialed on a 38-student sample similar to that of the main study. Their fruitful views resulted in decreasing the number of activities, and changing or omitting some of the drawings, words, or ambiguous sentences.

The practice section of PI packet was made up of 60 structured-input items with a total of 40 passive tokens (the other 20 being active sentences). The activities (25 pictorial and non-pictorial referential sentences and 15 non-pictorial

affective sentences) were presented in written and oral modes. The OI packet included 60 production items (40 passive tokens and 20 active sentences) requiring the participants to use passive or active sentences to complete a task. Meaning-based output activities were used to respond to criticisms made against those studies in which mechanical activities were employed (Toth, 2006).

The practice sections of POI and OPI packets consisted of 20 structured-input sentences and 20 output-oriented items as well as 20 active sentences, randomly selected from among the tasks of PI and OI packets. However, in POI package processing tasks preceded the output tasks, but in OPI the output tasks preceded processing tasks. As for the control group, the package contained only the explicit information about the forms without any follow-up activities.

All the tasks and drawings were originally produced for the purposes of this study. An attempt was made to balance the packets in terms of explicit information about the structure, examples, vocabulary, and the number of activities so the four packets differed only as to the type of the follow-up activities. In addition, to minimize the lexical load of the activities, the words were chosen from the participants' high school books to ensure their familiarity with the words used in the activities.

2.4. Assessment measures

First, a grammar test with 46 written sentences (23 interpretation and 23 production sentences) was developed. To validate the content of the test, it was reviewed by the same two Iranian EFL teachers who reviewed the instruction packets. As a result, several sentences and pictures were either eliminated or modified. To examine the item characteristics and reliability of the test, the remaining 32 items were trialed with the same 38 students who participated in piloting the treatment packets. This resulted in the elimination of several problematic items. Cronbach alpha indexes for the remaining interpretation and production items of the test were 0.87 and 0.85, respectively. The final distribution of the test items was as follows: The interpretation section had 22 sentences, 10 of which were distracters, while the

production part comprised 16 written controlled sentence-level production items, 8 of which were distracters.

Regarding the assessment task types, the interpretation section was made up of two parts. The first part was pictorial and contained 11 sentences (five of which were distracters) and 11 corresponding pairs of pictures. The students were required to read each sentence and select the picture that best went with the meaning of the sentence. The second section, consisting of 11 multiple-choice target items (five of which were distracters), required the participants to read each sentence and then choose the option which accurately expressed the message conveyed by the sentence.

The production section of the grammar test also consisted of two parts; the first part included eight controlled picture-cued items with four calling for the target form and four distracters. Under each picture, there was an incomplete sentence accompanied with a cue word. The pictures were designed in a way that required the subjects to use the English passive to complete the sentences and express the meaning implied in the picture. The second section consisted of 8 paraphrasing items, with four target items and four distracters. Each item consisted of one complete sentence accompanied with an incomplete sentence. The participants had to complete the incomplete sentence in a way to express the same meaning conveyed by the first sentence. That is, they had to paraphrase the complete sentence using the target form.

To sum up, the grammar test consisted of 20 items, excluding the distracters, twelve of which aimed at measuring the subjects' interpretation ability and eight targeted their production knowledge. All the tasks were separately timed to discourage answers overly influenced by knowledge of explicit rules. A similar version of the test was then created to use a split-block design in test administration and to control for possible test variation (VanPatten & Cadierno, 1993).

2.5. Procedure

According to the National Curriculum of universities in Iran, undergraduate university students are required to pass a three-unit EGP course to get their bachelor degrees. The course usually consists of two 90-minute classes every week (180 minutes per week). The primary objectives of the general English courses are to develop their reading comprehension skills and to extend their knowledge of general and academic vocabulary. However, reinforcing their grammar knowledge might also be considered as another objective, though of secondary importance. To accommodate both the course requirements and the purposes of the study, one session each week was devoted to textbook activities involving reading and vocabulary, while the other session centered on implementing grammar instruction. The study lasted 11 weeks and took place in the students' regular class hours. During the two sessions of the first week, the proficiency test of PET as well as the pretest was administered to examine the participants' general proficiency level of language and their interpretation and production knowledge of the target structure before the treatment commencement.

The treatment groups then underwent two training sessions, during which they were taught two structures (irrelevant to the study purposes) in accordance with each treatment. To be consistent with the guideline (VanPatten, 2002) that one thing should be presented and practiced at a time, the three passive tenses were taught and practiced in three separate weeks. After receiving similar explicit information about the key form, each group was engaged in the activities specifically developed for it. The control group, however, was given only some explicit information about the passives without being involved in any follow-up practice to ensure that the effects of the four instructional options were due to the particular nature of the activities, but not to the information provided before the practice.

It is noteworthy that the researcher carried out the experiment and served as the instructor too. Due to the low language proficiency of the participants, the instruction was given in Persian. The worksheets were collected after each treatment session and no homework was assigned to the participants. Balancing the

groups in terms of these factors could ensure that any possible gains made by the learners were related only to the differences in follow-up activities.

The first posttest was administered the following week after the completion of instruction. The three passive tenses were reviewed prior to the posttest to prevent the difference in the time interval between teaching each tense from contaminating the results of the study. Using the split-block design, the delayed posttest was administered after four weeks to see whether the advantage/s of each instructional approach, if any, would maintain consistent within a one-month interval or not. During the interval, the classes continued working on reading and vocabulary activities and some other grammar features irrelevant to the study.

3. Results

For the statistical analyses, only the 20 target items were scored. For each participant, separate total scores were calculated for the interpretation and production tasks on three administrations. As for the twelve interpretation items, one point was assigned for each correct answer, and a zero point for each incorrect response (range 0-12). For the eight production items, a zero point was assigned to a fully incorrect response, and 1 point was awarded to a fully correct answer which met the following criteria: the omission of the agent, the correct position of the patient, the correct form of the passive verb (range 0-8). In order to achieve the inter-rater reliability of the production tasks, a second rater scored a portion of tests on each administration time. Coefficient alphas were 0.96, 0.96, and 0.97 for the pretest, the immediate posttest, and delayed posttests, respectively.

Before conducting the main statistical analyses, the normality of score distribution was examined via running Kolmogorov-Smirnov test to decide on the use of the appropriate statistical procedures. The ρ values for all the three tests were greater than 0.05, legitimizing running parametric tests. Due to space limitation, only the ρ values of the tests are reported here. As for the students' scores on the interpretation items, the calculated asymp. sig (2-tailed) were 0.07, 0.14, 0.14 for the pretest, posttest 1, and posttest 2, respectively, and for the subjects' scores on the production test, the ρ values were 0.06, 0.13, and 0.08 for the pretest, posttest 1, and posttest 2, respectively.

The raw scores on the pretest were then submitted to a one-way analysis of variance (ANOVA) with the significance level of $\rho<.05$. The results revealed no significant differences among the five groups on either of the interpretation or production measures, implying that any observed effect would be due to instruction and not to initial differences among the groups: Interpretation: F (4, 180)= 1.24, ρ = .294; Production: F (4, 180)=1.18, ρ =.320. Interpretation and production scores were then submitted to two separate two-way repeated measures ANOVAs with instruction as the independent variable and time as the repeated measure.

3.1. Interpretation data

The analysis yielded statistically reliable main effects for instruction [F (4,180) =24.24, $\rho<.05$, $\eta^2\rho$ = .350], for time [F (2,360) =183.28, $\rho<.05$, $\eta^2\rho$ = .505], and for the interaction of instruction with time [F (8,360) = 13.54, $\rho<.05$, $\eta^2\rho$ =.24]. The $\eta^2\rho$ figures suggested considerable effect sizes for all the three results. All the groups except the control one improved from the pretest to the two follow-up posttests measuring their ability to interpret sentences containing English passives. There was a slight decline on the delayed posttest for all the treatment groups, but none of them returned to the same level of performance before the instruction (Table 1 & Figure 1).That is, there were significant differences in the effects of five instructional options on the interpretation of passives.

Table 1.

Descriptive Statistics for Groups' Interpretation Scores

Group	N	Pretest		Posttest 1		Posttest 2	
		M	SD	M	SD	M	SD
PI	35	.97	1.59	6.17	2.09	5.60	1.76
OI	40	3.42	1.53	6.35	1.99	5.92	2.10
POI	34	2.76	1.47	7.20	2.56	7.11	1.96
OPI	40	2.82	1.31	6.42	1.73	5.35	2.19
C	36	2.86	1.49	2.94	1.43	2.79	1.51

**Total score for interpretation test was 12.00*

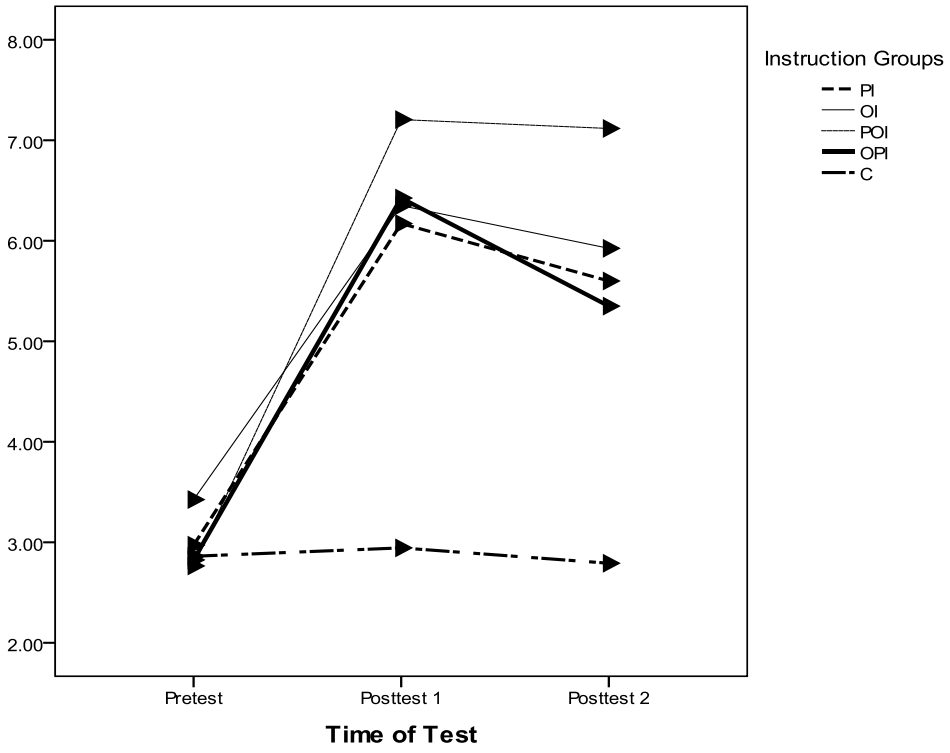

Fig1. Interpretation Task Group Means

Two separate *post hoc* Tukey tests were conducted on the raw scores of the first and the second interpretation posttests to show the contrast among the groups on each administration. The results were as follows: The instruction groups performed significantly higher than the control group on posttest 1, but no significant differences were found among them, i.e., PI=OI=POI=OPI>C (with > meaning higher than, and = indicating no significant differences). On posttest 2; however, the following contrasts were yielded: PI, OI, POI, OPI>C; PI=OI=OPI; POI>OPI=PI; POI=OI. That is, the three instruction groups of PI, OI, and OPI performed equally well; the integrated approach of POI resulted in higher learning outcome as compared to PI and OPI, but its performance was not significantly different from that of OI.

The group means in the three administrations were also compared using paired-samples *t*-tests to examine the durability of the outcomes of each instruction type from the immediate to the delayed posttest. To save the space, only the *p* values are provided in Table 2.

Table 2**.**
The Results of Paired Sample t-Tests for Interpretation Scores

	PI	OI	POI	OPI	C
Pretest vs. Posttest 1	.000	.000	.000	.000	.681
Pretest vs. Posttest 2	.000	.000	.000	.000	.782
Posttest 1 vs. Posttest 2	.147	.269	.802	.005	.446

The non-significant ρ values (ρ<.05) obtained for PI, OI, and POI between posttests 1 and 2 indicated that the improvement in interpretation tasks held over one-month by these groups, whereas the significant ρ value between posttests 1 and 2 for OPI (ρ = .005) revealed that its gains did not hold over the time frame of the study.

3.2. Production data

The results indicated a main effect for instruction [F (4,180) =17.77, ρ<.05, $\eta^2\rho$ =.283], for time [F (2,360) =149.96, ρ<.05, $\eta^2\rho$ =.454], and for the interaction of instruction with time [F (8,360) =15.63, ρ<.05, $\eta^2\rho$ =.258]. The $\eta^2\rho$ figures again suggested non-negligible effect sizes for all the results. All the groups except the control one improved from the pretest to the two follow-up posttests measuring their production ability. There was a decline on the delayed posttest for all the treatment groups, but none of them returned to the same level of production performance it was before the instruction (Table 3 & Figure 2). That is, there were significant differences in the effects of five instructional options on the production of passives.

Table 3.
Descriptive Statistics for Groups' Production Scores

Group	N	Pretest		Posttest 1		Posttest 2	
		M	SD	M	SD	M	SD
PI	٣٥	.24	.44	1.82	1.62	1.47	1.52
OI	٤٠	.26	.59	3.70	2.89	1.52	2.21
POI	٣٤	.47	.75	4.03	3.53	3.39	2.66
OPI	٤٠	.22	.68	3.68	1.96	2.76	1.84
C	٣٦	.19	.40	.13	.25	.12	.27

**Total score for production test was 8.*

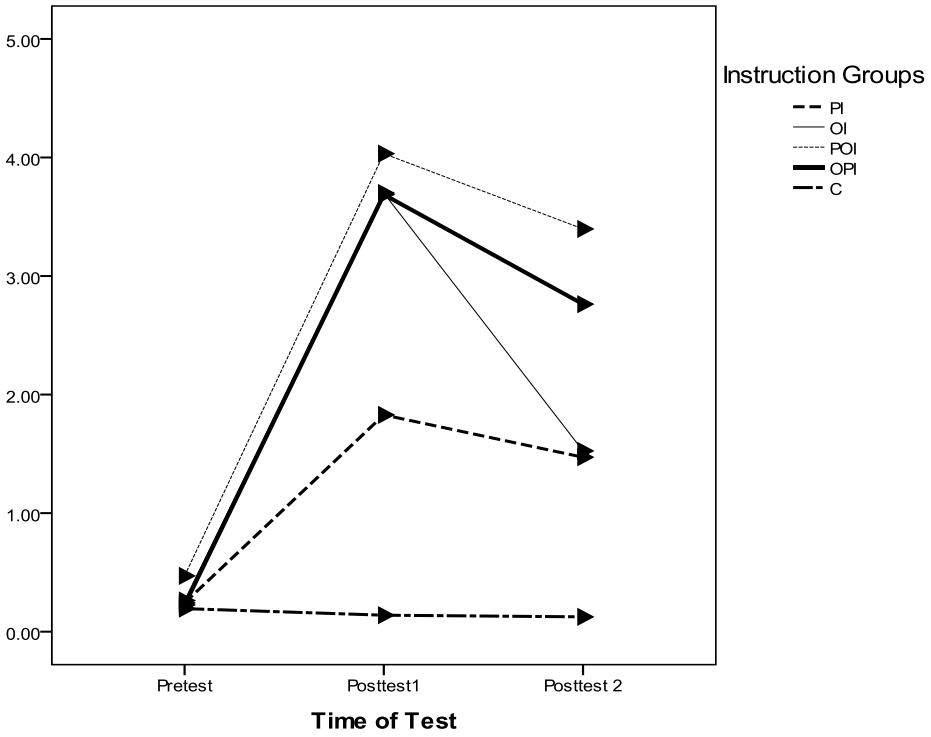

Fig 2. Production Task Group Means

The results of *post hoc* Tukey tests conducted on the raw scores of the production posttests were as follows: on posttest 1, the performances of the POI, OPI, and OI groups were equal and higher than PI, i.e., OI=POI=OPI>PI>C. However, on posttest 2, POI and OPI performed equally well. OI and PI also showed significantly equal performances. POI and OPI performed better than both PI and OI: POI=OPI>PI=OI>C. The results of paired-samples *t*-tests yielded significant ρ values (Table 4) for PI, OI, and OPI (ρ<.000) and non-significant ρ value for POI (ρ=.123) between posttests 1 and 2, implying that only the gains for POI did hold over one month.

Table 4.
The Results of Paired Sample t-Tests for Production Scores

	PI	OI	POI	OPI	C
Pretest vs. Posttest 1	.000	.000	.000	.000	.524
Pretest vs. Posttest 2	.000	.001	.000	.000	.443
Posttest 1 vs. Posttest 2	.000	.000	.123	.000	.800

4. Discussion

Although this study was similar to some of the previous ones in the overall design, there were some differences which might make it difficult to compare its findings with those reported in the literature. What distinguished this research from the previous studies most was that here the relative effects of both isolated approaches of PI and OI and the two suggested combined alternatives, i.e., POI and OPI, along with an explicit-information-only type of instruction were all compared with each other at the same time. Thus, the study results are discussed under the three following categories:

4.1. Results related to the control group

The finding that the control group, who received just a brief explanation on the target forms without any follow-up activities, did not show any significant improvement from the pretests of interpretation and production to the posttests might imply that providing just some explicit information about a grammar form does not suffice and giving learners an opportunity to practice the newly taught forms is a necessity, if achieving high performance is expected.

The result was consistent with VanPatten and Oikennon's (1996) study in that the group receiving explicit information with no follow-up practice performed no differently on the interpretation and production tasks from the control group receiving no instruction at all. They then concluded that explicit grammatical explanation alone played no role in subsequent processing and production of the target structures. White (1987) also asserted that certain grammatical forms require negative feedback, for example, in the form of corrective feedback, without which understanding input that leads to learning may be a failure. For Stern (1992), mere presentation of facts about the language is not enough, and teaching strategies must offer opportunities for practice and repetition.

4.*2. Results related to the isolated approaches*

Generally, the obtained gains for the PI only group in this study concurred with the arguments for PI benefits (VanPatten, 2002) in that this group improved significantly not only in interpretation, but also in production of the English passives. While the PI improvement in interpretation was expected because of the role that processing activities might have played in helping the learners to readjust their default strategies, their improvement on production tasks was surprising, given that they were never allowed to produce the forms during the instruction phase. To VanPatten, the mechanisms underlying PI learners' production development can readily be explained by the argument that in PI, L2 learners are pushed away from the ineffective strategies they normally use to process the input so that they can just rely on linguistic forms to derive meaning. This maximizes

their intake, which results in improving the accuracy of both interpretation and production of grammar features.

PI benefits over OI in this research, however, cannot be generalized with total certainty. First, unlike the findings of some studies (e.g., Benati, 2005, Buck, 2006, Mountaki, 2016; Oumelaz, 2015) which indicated an advantage for output-free PI over the output-based interventions in the accuracy of interpretation, in this study no advantage was found for PI over OI in interpretation tasks. The equal benefit of OI in interpretation ability was extremely important, given that the OI learners were never involved in activities targeted at developing their interpretation of the target features. This contradicted with the assertion (VanPatten, 2002) that PI affects the developing system, while output-based instruction only teaches production performance. It does not appear that producing newly presented L2 structures necessarily undermines their acquisition by putting the cart before the horse (Toth, 2006).

Second, similar to the findings of some other studies (Allen, 2000; Birjandi, Maftoon, & Rahemi, 2011; Erlam, 2003; Morgan-Short & Bowden, 2006; Wijaya & Djasmeini, 2017), the OI only group in this study outperformed PI on the immediate production posttest, contradicting with the results of the seminal work (VanPatten & Cadierno, 1993) in which PI and OI had equal gains on the production test. This might be explained by the notion of 'skill specificity' in relation to the effect of input and output practice (DeKeyser, 2007). DeKeyser remained skeptical about the claims that PI is effective in improving both interpretation and production, and stated that specific types of practice could lead to the development of specific skills. Lightbown (2000) also noted that since in PI, the emphasis is on understanding forms than on producing them, it may not help the production ability. Working on improving production is better done in the context of more interactive activities via focus on form and feedback.

It is assumed that the superiority of OI to PI in this study might also be due to the output functions outlined by Swain (2000), particularly its role in helping learners notice the gap in their developing system. To Morgan-Short & Bowden (2006), PI might help learners notice a form via processing activities, but noticing

effect does not seem to be effective since PI does not require any production. In contrast, the effect of noticing is stronger for OI learners who not only notice the form through teachers' explanation, but also they are forced to produce it, which helps them notice the gap between their own production and the correct form more effectively.

In other words, in the PI group, the processing activities might have led to form-meaning connections evidenced in their interpretation and production gains, while in the OI group, the learners might have been able to strengthen form-meaning connections through both the output they produced and the input they received in instruction and feedback. This account might explain why the OI group performed either on par or higher than the PI on all the tests. And finally, as VanPatten and Uludag (2011) stated, differing results in PI studies, including this one, might be related to differences in PI conceptualization and in the research designs, so they should not be considered as evidences for problems with PI approach.

It is worth mentioning that PI and OI's gains were maintained just in interpretation tasks but not in production, a result which is contradictory to the studies (e.g., VanPatten & Cadierno, 1993) showing the consistency of PI and OI gains over a month. Despite the OI outperformance over PI in the first production posttest, their performance was equal after a one-month interval. However, the mean differences between the two posttests in each group (Table 4) showed that the OI group had more loss, though not statistically significant, in production. Given that the duration and the amount of input and output practice were the same in both groups, possible reasons for lack of durability of the OI results require further consideration.

4.3. Results related to the combined approaches

The study provided supporting evidence in favor of both types of combined approaches over PI in the immediate and delayed production tests (POI=OPI>PI). In the first interpretation posttest, however, they had no advantages over PI

(PI=POI=OPI). On the delayed interpretation posttest, POI outperformed both PI and the combined approach of OPI (POI>PI=OPI).

Unlike PI, the OI approach yielded similar instructional benefits compared with both combined approaches in all the tests but the delayed production test (POI=OPI>OI). In other words, engaging the learners in output-oriented tasks alone could equally affect their interpretation (immediate and delayed effect) and production (just immediate effect) ability.

The research findings did not support Tanaka (1998, 2001) in that in his studies, an equal and persistent effect was found for both the production-only option and the mixed instruction (comprehension-production) on production test, on one hand, and equal gains for comprehension-only group and the mixed option group on comprehension tasks, on the other hand. This was explained by Tanaka (2001) via skill specificity view held by DeKeyser (2007), suggesting that the ability gained from practice may be skill-specific. However, this view was not supported by all the findings of the present study in that the POI group had only equal gains as the PI on the immediate interpretation test, while in both production tests and the delayed interpretation posttest, POI outperformed PI. Furthermore, the POI had equal gains with the OI in all the measures, but that of the delayed production test. In their meta-analysis of comprehension-based and production-based studies, Shintani and Ellis (2013) also did not find any support for the skill specificity of language learning.

The relative effectiveness of POI option over the two isolated approaches was also different from the findings of Mystkowska-Wiertelak (2011) in that the combined input-output approach in her research was shown to be superior only to output-only and control groups, while no significant differences were found between the combined option and input-only instruction. The same finding was observed in Benati and Batziou (2017) who found a superior and equal effect for the input only and the combined instructions over the output only group, both at the sentence and discourse level.

The findings related to the two combined approaches indicated that POI was superior to OPI only in delayed interpretation test, while in the other tests, the two approaches yielded similar effects. However, POI was the only treatment approach that could hold its initial gains between the two posttests of interpretation and production. This was in line with Benati (2017), suggesting that "grammar instruction should move from input to output practice" (p. 391). That is, grammar tasks should be initially designed to facilitate learners' noticing and processing forms in the input. Following this, output tasks should be used to promote language production and development of grammatical structures.

Given the argument that one way to find out how learners acquire a second language is to study how they use it in production, enabling the learners to accurately interpret a form as not sufficient. Equally important is the ability to use it to express the meaning one has in mind (Barkhuizen & Ellis, 2005). Nassaji and Fotos (2007) asserted, "if the goal of L2 classroom activities is to develop both accuracy and fluency, it is clear that meaningful activities must be integrated with form-focused activities, particularly those requiring output" (p. 15). VanPatten (2002) also emphasized the necessity of integrating input and output activities into grammar instruction so that PI could take care of learners' processing strategies, and meaning-based OI could provide learners with the opportunity to access the developing system, to notice structures that fill gaps in this system, and finally to gain fluency and accuracy in accessing the developing system.

5. Conclusion

This study provided further evidence for the values of using follow-up practice after explicit instruction, in general, and implementing both types of interpretation and production tasks, in particular. The study indicated that PI benefits could transfer to other EFL contexts, in this case Iran, and to other structures, here the passives. This is an encouraging result for the designers of any language program that requires learners, especially those in large classes, to work autonomously and affords less opportunity for learners' production. However, the output-based instruction group in this paper performed either on par or higher than the PI on all

the tests. Besides, its gains were similar, in most tests, with those of the combined approaches.

It was also concluded that although processing practice or output practice alone could bring about significant changes, combining them, particularly in the 'processing-output' order could lead to more persistent interpretation and production knowledge of the grammar form. Thus, given the considerable amount of time and effort any teachers might put into teaching, choosing an approach that can produce more persistent results seems essential. As Tanaka (2001) concluded, if approximately the same amount of time is required to implement the individual input/output-based instruction and a combined type of instruction with more durable and consistent results, it is definitely more economical, advantageous, and legitimate to use the combined approaches than to employ each instruction separately.

Theoretically, the study contributed to a growing body of research suggesting that attention to form, whether through input or output, is necessary in EFL classes, and using input activities in parallel with the output practice might produce more durable outcomes. Pedagogically, the findings might provide a useful guideline for teachers, educators, and even the designers of language programs to consider the potentials of both isolated and combined options in the development or selection of follow-up grammar activities.

The next step for the researcher of this study will then be to examine the interaction of the two integrated approaches with other variables, including other structures and individual characteristics (working Papers).

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