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Input-Based Processing Instruction vs. Output-Based Traditional Instruction in Learning Plural -s

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Abstract

This paper reports the results of a quasi-experimental study investigating the relative effects of input-based processing instruction and output-based traditional instruction on Indonesian EFL learners' ability to interpret and produce sentences containing the English plural marker -s. Subjects involved in this study were 20 secondary school learners (initially 97 learners) who sat in four intact classes. The classes were assigned into two groups randomly, namely, with processing instruction and traditional instruction. The processing instructional treatment consisted of grammar explanation, explicit information on a correct processing strategy, and structured input activities aimed at altering learners' default input processing strategy and thus enhancing form-meaning mappings. On the one hand, the traditional instructional treatment included explanation of grammar rules and output-based activities directed at improving the learners' ability to produce the form. On the other hand, the pre-test and post-test comprised an interpretation task and a production task. The results show that both types of instruction are equally effective in assisting learners to correctly interpret the target feature, and traditional instruction is more effective in enabling subjects to produce plural -s, although it does not differ significantly from processing instruction. Additionally, the results indicate that the subjects' productive knowledge was still somewhat problematic despite having developed good interpretative knowledge of the form. Pedagogical implications are discussed at the end of this study.

1 Introduction

In second language (L2) grammar instruction, the importance of producing utterances in the target language received great emphasis. It is reasonable to focus on language production, since one of the main purposes of taking a language course is to be able to speak and write in the target language. Furthermore, by having learners use the target grammatical structures in utterances, the teacher will be able to assess the students' progress and at the same time give corrective feedback, if the learner's utterance is erroneous (Shintani, Li, & Ellis, 2013). Ellis (2003) surveyed six grammar practice books and discovered that all of them provided numerous controlled production-based learning tasks, and only two included input comprehension-based activities. Second language acquisition (SLA) researchers (e.g. Krashen & Terrell, 1983; VanPatten, 1993), however, have criti-

cized the over-reliance on production-based practice in helping L2 learners acquire the target language. They argued that input also plays a key role in SLA, since L2 grammar acquisition originates in input; the ability to produce output will only come, after learners comprehend input correctly.

VanPatten (2004) further argues that while output practice might help learners in the development of their interlanguage, input alone is adequate for SLA, if the way learners process input is altered and optimized. If learners process input correctly by paying attention to certain grammatical structures that carry meanings, they will improve not just their comprehension, but also production abilities (VanPatten, 2007). However, the role of output-based instruction is vital and has received support from Swain's (2005) *Output Hypothesis*, which posits that advanced SLA requires learners to produce output. Also, since one of the purposes of learning a language is to communicate, instruction should engage L2 learners in communicative production learning activities. Feedback may be provided, if errors occurred in producing the target form, and this makes feedback an additional input for learners. However, it is worth considering that the role of each type of instruction also depends on the status of the target structure. Pienemann (1985) argues that input-based instruction benefits the learners, if the target form is new and they are not developmentally ready to produce it. If the required processing mechanism is already mastered by the learners, output-based instruction can further promote acquisition of the target feature. Thus, in the last few decades, research on the facilitating roles of the two instructional types has increased. Two meta-analyses and one review study (DeKeyser & Botana, 2014; Shintani et al., 2013; Shintani, 2015) of such research have thus far revealed that input-based instruction improves only learners' receptive knowledge and comprehension abilities, and output-based instruction enhances only learners' productive knowledge and production abilities (DeKeyser, 2007). These two types of instruction are equally effective in developing L2 learners' receptive and productive knowledge.

Nevertheless, the debate on the comparative contributions of each type of instruction is still inconclusive. The above meta-analyses (Shintani et al., 2013; Shintani, 2015) and narrative review (DeKeyser & Botana, 2014) show that there are several factors, such as the selection of target structures and populations, that could moderate the effectiveness of both types of instruction. It remains unclear if one type of instruction is always superior to the other, and research investigating these moderating factors is needed to reveal further theoretical and pedagogical implications (Shintani et al., 2013). The study presented in this paper is aimed at investigating the effects of a particular type of input-based instruction, namely *Processing Instruction* (hereafter PI) developed by VanPatten (1993) and a traditional type of instruction (henceforth TI) that emphasizes output production on the acquisition of an English grammatical form that has not yet been researched, namely the plural marker -s. The following are two research questions formulated to gather the data in this study:

1. Will there be any significant difference in how two groups of learners who receive two different types of instruction interpret the plurality of nouns as indicated by plural -s in sentences?
2. Will learners who receive PI perform as well as learners who receive TI in expressing English plurality indicated by plural -s in sentences?

2 Theoretical background and motivation

SLA is conceivable as a chain of processes: (1) converting input to intake; (2) the restructuring of the developing linguistic system; and (3) the production of the language as evidence of acquired linguistic knowledge. Traditionally, L2 grammar instruction provides learners with explanation of a grammatical concept and output-based practice, which focuses on the manipulation of learner production of the target structure (VanPatten, 2000). Thus, TI focused on the last set of processes. On the other hand, PI is a type of comprehension-based instruction that is concerned with the first set, which helps learners convert input to intake. Both types of instruction assume that if acquisition is to take place, there must be changes in the learner's developing linguistic system. To effect change, TI relies on output-based tasks that range from mechanical drills to instructions of rich communicative content. Erlam (2003) defines mechanical drills as tasks that learners can do without paying attention to meaning and only have one correct answer (e.g. gap filling tasks). Communicative tasks

refers to instructions that require learners to use the target form meaningfully in a communicative context (e.g. describing one's situation in the past). PI, alternatively, assumes that to alter the developing system, it is not the learner output that needs intervention. Rather, it is the learner's internalized knowledge used to perceive and process input that should be altered first to bring about learning. One learning problem that has been identified in the research on input processing is that learners tend to gloss over the important elements of the target language, especially if the elements are not perceptually salient and/or redundant, because meaning can be interpreted from pragmatic and lexical cues (DeKeyser, 2005). The goal of PI, therefore, is to circumvent learners' ineffective input processing strategies so that they may make better connections between linguistic form and meaning. VanPatten (2004; 2007) put forward a number of processing principles that learners use to process input and that influence the way they convert input to intake. Shintani (2015, p. 1) notes that the principles may be summed up into two major principles:

Principle 1: The Primacy of Meaning Principle. Learners process input for meaning, before they process it for form.

Principle 2: The First Noun Principle. Learners tend to process the first noun or pronoun they encounter in a sentence as the subject/agent.

In a case where a default processing strategy results in no form-meaning mapping, learners need training that can enable them to deploy a new and optimal strategy in order for the interlanguage system to develop correctly (Botana, 2013). Three components are proposed to accomplish this objective: explicit information on the target form (EI), information on an effective processing strategy, and structured input activities (SI).

EI is primarily an explicit explanation of the target form being taught. Learners are told about the relationship between the form and its function. As mentioned above, EI is also provided in TI. However, since TI does not take learners' default processing strategy into consideration, it makes no mention of the correct processing strategy. In PI, an effective processing strategy is included in EI to alter learners' default processing strategies and help them comprehend the input sufficiently and correctly. This inclusion is what makes EI in PI different from EI in TI (VanPatten, 1996). Subsequently, learners are tasked with structured-input (SI) activities that require them to pay attention to the target grammatical form, not other cues in the sentences in the activities. SI activities consist of referential and affective tasks. In doing a referential task, learners are required to attend to the target form and process it so that they can complete the task. There is, therefore, a right or wrong answer for each number in this kind of task. Affective activities come afterwards. In doing this task, learners have to express their opinions to respond to the statements that contain the target form. This kind of activity does not have right or wrong answers. These two types of structured input activities help reinforce learners' knowledge of the target form and enhance the form-meaning connections.

Research on the effectiveness of PI has targeted various grammatical features of different languages such as English, Italian, and French. The participants have come from various first language backgrounds such as English, Japanese, Korean, German, Chinese, and Greek. PI has been compared to other types of instruction such as meaning output instruction and dictogloss. For the purpose of the current study, in what follows, reported studies that compared only PI and TI will be reviewed.

Research on the comparative effects of PI and TI has mostly used two sorts of measures: an interpretation task and a production task. VanPatten and Cadierno (1993) were the first researchers comparing PI and TI with one control group. They investigated the effects of the instructional treatments on the acquisition of the Spanish clitic direct object pronoun. The principle investigated in this study was the *First Noun Principle*. The results showed that the PI group was superior to the TI group in the interpretation task, and both groups made equal gains in the production task but they outperformed the control group. Several other studies have been conducted to confirm the results of this original study. Cadierno (1995) examined the impact of PI and TI on a sub-principle of *The Primacy of Meaning*, which is the *Lexical Preference Principle*, with the target form being the Spanish past tense. According to this sub-principle, a grammatical form becomes redundant and will not be initially processed, if the meaning encoded by the grammatical form is also expressed lexically in the same sentence. VanPatten and Wong (2004) measured the effect of the two instructional types

on the acquisition of the French *faire* causative, with the First Noun Principle. This study was an attempt to replicate Allen's (2000) study which found that PI was as effective as TI in helping learners interpret the target form, and TI outperformed PI in producing the French *faire* causative. VanPatten and Wong (2004) criticized the design of Allen's study and argued that her study did not meet the criteria for designing PI. Their findings confirmed previous findings that PI was better than TI in the interpretation task and the two groups' ability to produce the target form was not significantly different. Benati (2005) set out to investigate the impact of PI and TI on the acquisition of English simple past -ed. Again, his results corroborate VanPatten and Cadierno's (1993) findings that PI is superior to TI in assisting learners to process input correctly and equips learners with the ability to produce output as learners receiving PI and learners receiving TI perform equally well.

Although the results of the studies reviewed above seem to confirm VanPatten's line of argument that altering learners' way to process input will positively affect the developing interlanguage system, as mentioned previously, a number of moderating variables, such as the selection of target structure, the role of EI, the role of individual differences, and a target population, still exist and therefore prevent us from concluding that PI is always more effective. In this study, we are interested in figuring out first whether conducting a study that addresses a different target structure not investigated yet with adolescents (secondary school learners) can have similar results with the previous ones. DeKeyser and Botana (2014) note that there are still very few studies conducted with adolescents. In the studies reviewed above, most of them, with the exception of Benati (2005), dealt with college-aged learners. Moreover, as also recommended by Shintani, Li and Ellis (2013), research is warranted to investigate other grammatical features. To the best of the researchers' knowledge, one target structure that has not drawn researchers' attention is the plural -s. Thus, we ask if the positive results may be generalized to the English plural -s (a different target structure) and a group of EFL adolescent learners (a different population).

3 Methodology

3.1 Context and participants

This study took place at a secondary school in Central Jakarta. The participants, whose age ranges from 15 to 16, were initially 97 tenth grade students there and had been learning English as a compulsory school subject since primary school. There are several reasons for selecting the tenth grade. First, the English curriculum for this grade indicated that the students were dealing with texts that consisted of plural nouns. The instruction on plural -s was therefore seen to be timely for the participants. Secondly, the instructor who was our research assistant, had taught the participants in this grade for two months as part of her internship program in that school. This means the instructor had become familiar with them, thus making the learning environment more natural and conducive. Assigning her to be the instructor may avoid experimenter bias.

The participants sat in four pre-determined intact classes (three classes consisted of 24 subjects each and one class consisted of 25) and were not randomized. This made the current study quasi-experimental in nature. The researchers were only allowed to randomize the classes by casting lots. After the randomization stage, the classes were equally assigned into two groups: PI ($n = 48$) and TI ($n = 49$).

However, due to two criteria set to ensure homogeneity, a number of subjects had to be eliminated from the data analysis. One criterion was the pre-test screening. Due to the importance and ubiquity of the target structure in English, it was safe to assume they had received explicit instruction on it. Therefore, the pretest was used to screen the participants: those who scored above 70% on both interpretation and production tasks were assumed to have sufficient knowledge of the structure and therefore excluded from the analysis. This means if a subject scored below 70% on just one assessment measure, their score would not be considered. The other criterion was the subjects' attendance throughout the experiment. If a subject did not take part in the experiment completely, their score would be eliminated from analysis. This process of selection left us with only twenty subjects whose scores were analysed. Each group consisted of ten participants, with 6 females and 4 males.

3.2 *Target grammatical structure*

Plural -s was chosen as the target structure for a number of reasons. First, learners use one of VanPatten's major processing principles, the Primacy of Meaning with its sub-principle, the Lexical Preference Principle. According to VanPatten (2007): "If grammatical forms express a meaning that can also be encoded lexically (i.e. the grammatical marker is redundant), then learners will not initially process those grammatical forms until they have lexical forms to which they can match them." (p. 118) Concerning the plural -s, this strategy suggests that learners are more likely to attend to a numeral classifier than to the morphological marker when interpreting plurality. When hearing a sentence, "*He has two sons*", they may still understand the overall meaning of the utterance without perceiving the plural -s as the numeral classifier *two* has made this clear to them. Furthermore, the fact that the morpheme -s is not phonologically salient (Ellis, 2006; Shintani, 2015) makes learners rely on the numeral classifier. Second, while it has been argued that plurality seems to be easily acquired as the concept is likely to be universal (Slobin, 1996), recent research has shown that classifier languages, such as Japanese and Mandarin, that denote entities as substances and are typically preceded by numeral classifiers perceive noun countability differently from noun-class languages, such as English, that refer to entities as individuated and shaped (Jarvis & Pavlenko, 2008). This may cause an L1 effect on the acquisition of plurality (Murakami & Alexopoulou, 2016), especially plural -s.

We argue that Indonesian is a classifier language, since Indonesian speakers see entities as substances, not the boundaries that make entities discrete, and use numerals to refer to singular or plural forms. Take *apple*, for example. Indonesian speakers pay little attention to the shape especially when referring to a generic notion. As a result, they may make a common error, such as "*I like apple very much.*" Furthermore, as a classifier language, Indonesian uses a numeral classifier before a noun to indicate the number of entities described by the noun. A numeral classifier appears to be sufficient to encode plurality. Consequently, they typically miss the plural -s when using a numeral classifier and a plural noun. For these reasons, plurality, especially the plural -s, is not as easy as it seems for Indonesian EFL learners; they may miss supplying -s when using a plural noun in their utterance. It may be argued that getting learners to attend to this plural marker might also affect the way they perceive countability, which can be investigated through their production of the target form in sentences.

3.3 *Instructional packets*

The instructional packets (see Appendices A & B) were designed by the researchers and pilot tested by the second researcher with two other classes in the same school. The students in the pilot study belonged to the same age group as the participants in this study. The objective of the pilot study was to identify the problems and difficulties that could occur in the experiment. All the problematic explanations and examples were substituted with more familiar ones. The instructor had received training on how to conduct the two pedagogical treatments and had been briefed by the second researcher on how to go about with the instruction (see Table 1 for an overview of the study).

The treatment for each group was conducted in one session lasting forty-five minutes. This length of treatment was relatively short. It was in accordance with the demands of the local curriculum, which only allowed one grammatical structure to be taught in one or two sessions. Thus, the results of this study may increase the face validity of such classroom research (Mackey & Gass, 2005) and be generalizable to other similar classroom situations (Spada, 2005). The PI group received explicit information regarding the target form and the effective processing strategy for the first fifteen minutes. Two types of structured input tasks were provided afterwards. The first task was a referential task in which the participants had to listen to a set of sentences and correctly process plural -s for meaning by relying solely on the target morpheme -s since the numeral classifiers were not present in the sentences. The second task was an affective task, in which the participants had to

respond to a set of statements about some conditions by indicating whether they had similar conditions. The responses were displayed on a five-scale Likert scale: strongly agree, agree, neutral, disagree, and strongly disagree. The topic for the conditions in the sentences was social media activities. This was chosen to suit the learners' interest. They did these structured input activities in twenty-five minutes. The PI group did not produce any output.

Table 1. The summary of the treatments

Pre-test (a week before) Final pool of 20 students Interpretation and production tasks	
PI	TI
Explicit Grammar Information (EI)	
Processing Strategy	Output Practice (mechanical activities + meaning oriented activities)
Structured Input Activities (SI)	
Period of instruction: 45 minutes	
Post-test (immediately after the end of instructional treatment) Interpretation and production tasks	

The instructional material for the TI group consisted of explicit information about the target form, which lasted fifteen minutes, and two output practice tasks which lasted twenty minutes. The explicit information did not include the effective processing strategy of the form. The practice tasks consisted of a mechanical task and a communicative task. This is consistent with the definition of TI by VanPatten (2000) that TI comprises "explanation plus output practices that move learners from mechanical to communicative drills" (p. 54). It is important to note that the learners in this group were devoid of the correct processing strategy. In the mechanical task, the learners had to fill in the blank in each number with the plural form of the noun provided. In the communicative task, the learners were given phrases and required to complete them. The topic was also about social media. The learners first had to sort out the activities from the most to the least frequent activity they do on social media. Then, they had to develop the phrases into sentences and supply -s on the nouns. The learners in both groups were shown the correct answers after they finished doing each task, but were not given further explanation.

3.4 Data collection and analysis procedures

This study used a pre-test and post-test design. The tests (see Appendix C) were modeled on the tests used in Benati's (2005) study. Similar to the instructional packets, the tests had been pilot-tested in a class of the same age group two weeks prior to the real experiment. A few vocabulary items were changed, as they were not familiar to the students. The Indonesian translation of the instruction was provided right below the English instruction to avoid misunderstanding. The interpretation task consisted of twenty sentences. Ten sentences had plural countable object nouns; the other ten had singular nouns and thus served as distracters. No numeral classifiers were included in the sentences. In doing this task, the participants had to listen to the twenty sentences being read to them and determine whether the object noun in each sentence conveyed singularity or plurality by giving a tick in the box next to the sentence. The sentences were not repeated so that the participants would process the sentences in real time. In the written production task, the participants were shown ten different pictures along with a list of verbs and nouns, and had to write sentences based on the

pictures and the list. There were no distracters (i.e. no singular nouns); all the target nouns were in the plural form. Only the target nouns were checked; errors on other linguistic forms such as tenses were dismissed. This task was not a spontaneous one; so the participants had some time to monitor their sentences.

The raw scores of the interpretation task were calculated as follows: 0 point for incorrect response; 1 point for correct response. There were 20 items, and so the maximum raw score was 20. The raw scores were then converted to scaled scores, ranging from 0 to 10. The same scoring procedure was used (incorrect form: 0 point; correct form: 1 point) for the production task. However, the raw scores were not converted to scaled scores, as they already ranged from 0 to 10. The scores for the tests were then submitted to Shapiro-Wilk tests to check the normality of the data. If the data were not normally distributed, non-parametric Mann-Whitney U tests ($p = .05$) would be used to compare the performance of the two groups on the pre- and post-tests, and Wilcoxon Signed-Rank tests would be run to investigate any significant change in each group's scores from the pre- to the post-test.

4 Results

4.1 Results from the interpretation tasks

As seen in Table 2, the means for the two groups in the interpretation task of the pre-test were: PI = 5.9 and TI = 5.6, respectively. A Mann-Whitney U Test was run on the interpretation task of the pre-test. The analysis showed that the PI group's scores did not differ significantly from the TI groups' ($U = 35.00, z = -1.167, p = .243, r = -.26$). This means that the two groups' ability to interpret the target form was similar at the outset, and any gains in performance were attributable to the differences in the instructional treatment.

The first research question addressed the relative effectiveness of both PI and TI on the comprehension of the plural -s. The means for the two groups in the interpretation task of the post-test were: PI = 8.45 and TI = 7.85. On average, the PI group went from $M = 5.95$ (59.5%) to $M = 8.45$ (84.5%), while the TI group went from $M = 5.6$ (56%) to $M = 7.85$ (78.5%). Another Mann-Whitney U Test was run to find out whether the two means are statistically significantly different. The analysis revealed that there was no significant difference between the two groups ($U = 44.00, z = -.459, p = .647, r = -0.1$). Therefore, both PI and TI produced similar effects in assisting the participants to interpret the plural -s.

Table 2. Interpretation data: Means and standard deviations for the two groups

	PI		TI		U
	M	SD	M	SD	
Pre-test	5.95	1.37	5.6	1.02	35
Post-test	8.45	1.06	7.85	1.86	44

Range: 0–10

4.2 Results from the production tasks

As shown in Table 3, the means of the two groups' scores in the production task of the pre-test were: PI = 1.5 (15%) and TI = 1.3 (13%), and the means increased to: PI = 4.0 (40%) and TI = 3.9 (39%), respectively on the post-test. A Mann-Whitney U Test was once again used to compare the two groups' gains prior to treatment. The analysis revealed no significant difference between the two groups ($U = 43.50, z = -.516, p = .606, r = -.13$), which means the groups' ability to use the target form in the written form was equivalent.

The second research question asked whether there were any differences between PI and TI in the participants' production of plural -s. A Mann-Whitney U Test was run on the two groups' scores on

the post-test, and the result revealed no significant difference ($U = 44.50, z = -.424, p = .672, r = -.09$). This means that neither of the types of instruction was superior to the other in production.

Table 3. Production data: Means and standard deviations for the two groups

	PI		TI		<i>U</i>
	M	SD	M	SD	
Pre-test	1.5	1.5	1.3	1.6	43.50
Post-test	4	4	3.9	3.69	44.50

Range: 0–10

While the main objective of the current study was to examine the relative effect of the two groups, it is also pedagogically beneficial to investigate the effect of each instructional treatment. To do this, two Wilcoxon Signed-Rank Tests were conducted to compare the pre- and post-test results of the interpretation tests of each group: $z = -2.673, p = .008, r = -.84$ for the PI group and $z = -2.558, p = .011, r = -.8$ for the TI group. Another two Wilcoxon Signed-Rank Tests were run on the two groups' performance on the pre-test and post-test: $z = -1.843, p = .065, r = -.58$ for the PI group and $z = -2.120, p = .034, r = -.67$ for the TI group. These results demonstrate that both groups did improve significantly in the interpretation section after the instructional treatments. However, only the TI group performed significantly better in the production section after the treatments; the PI group's improvement was not significant.

To summarize, both PI and TI groups scored significantly better on the interpretation task in the post-test, but only the TI group improved significantly on the written production task. However, the two groups did not differ significantly in their ability to interpret the plural -s after treatments. There was no significant difference in the production of the target form either, although one of the groups (i.e. the TI group) improved significantly.

5 Discussion

Some of the results of the present study do not agree with the findings about the superiority of PI to TI discussed in the review of previous studies. The output-based TI was not less effective than the input-based PI in helping learners comprehend the target structure on the sentence level. The participants in the TI group were able to interpret the plural -s in the post-test, although they had not been equipped with the effective processing strategy (i.e. driving learners' attention to the target form by eliminating numeral classifiers). This contradicts Benati's (2005) findings that confirmed the superiority of PI to TI in helping learners interpret the past tense -ed. As discussed above, his study addressed the same processing principle as this study. In the current study, both groups made a significant improvement (from pre- to post-test) on the interpretation task, and their mean scores on the post-test were not significantly different. Apparently, in our study, the processing strategy was not necessary for the learners in the TI group to improve their comprehension of the target form.

The second question sought to investigate the relative effects of the two types of instruction in producing sentences that contained the plural -s. The findings were similar to previous findings in that both groups did not differ significantly in supplying the plural -s in the sentences in the post-test. However, these results do not fully support previous results on PI research, which suggests that PI also affects the way learners produce the target form in sentences. Unlike the TI group, the PI group did not make significant gains from the pre- to post-test.

There might be several reasons for these findings. First of all, the rule appeared to be unproblematic to understand and grasp (i.e. -s indicates the entity is more than one). Thus, the participants in both groups had little difficulty in interpreting the form in the post-test. It appears that, in our study, instruction on the target marker without information about the correct processing strategy and structured input activities was sufficient for our participants to focus on the target form in the input. Secondly, since PI trains learners to readjust their processing strategy through structured input activities, it should come as no surprise that the PI group improved significantly from pre- to post-test

on the interpretation task. Although the past studies reviewed above show that PI could also assist L2 learners to improve significantly on the production task, there was no such evidence in the present study. In the TI group, on the other hand, half of the participants improved significantly on the post-test. This might be due to the role of output. According to Swain (1993), output serves three functions: noticing, hypothesis testing, and metalinguistic functions. We assume the second function, hypothesis testing, was at play. As the learners in the TI group were tasked to produce output, they tested their hypothesis about the target form. The feedback they received afterwards either confirmed or disconfirmed their hypothesis. In the absence of input practice, feedback can serve as additional input and, in our case, may have been more beneficial than input practice alone in assisting learners to produce the target form correctly.

Thirdly, this study in general reveals that the two types of instruction had positive effects on learners' comprehension of the plural -s. However, it was only the TI group that was able to improve significantly in the production task. It is also worth noting that unlike the achievement rate on the comprehension task after treatment, which was above 70% (84.5% for the PI group and 78.5% for the TI group), the achievement rate of both groups on the production task in the post-test was still around 40% (40% for the PI group and 39% for the TI group). This indicates difficulty in producing the target feature. It appears that the plural -s remains problematic to Indonesian EFL learners when it comes to producing it in sentences. The difficulty in production could be partially structural; however, research has shown that it could be conceptual as well (Jarvis & Pavlenko, 2008). As argued above, the acquisition of plurality is contingent on the acquisition of the count-mass distinction (Murakami & Alexopoulou, 2016). Jarvis and Pavlenko (2008) cited a study by Hiki (1991) that found many of his Japanese-speaking participants were unable to judge noun countability in a plural environment (e.g. *Many people hate snake.*). From this finding, they argued that classifier language speakers are influenced by their first language, when they try to learn "to attend to number and to use number marking appropriately in a noun class language" (Jarvis & Pavlenko, 2008, p. 138). This crosslinguistic influence was arguably still at play, as the participants in this study attempted to encode plurality in the sentences they had to write. They might have thought of the entities as substances and thus failed to perceive them as discrete, individuated and shaped entities.

6 Conclusion

There are some limitations of the current study that future research should address. Firstly, due to the curriculum constraint in the school where the experiments took place, it was not possible to administer a delayed post-test. The results could have been different, if the long-term effects were available. Knowing that most PI studies are short-term, PI literature needs to be supplemented with studies investigating long-term effects (DeKeyser & Botana, 2014). Another limitation is related to the types of groups. Including a control group would have revealed if any changes occurred were due to the treatments or simply the test effect. Other types of output-based instruction, especially the ones that are on the discourse level, could also be included. Another type of groups that could be included is a PI group that receives no EI. Some PI studies suggest that the provision of EI is not necessary (Sanz & Morgan-Short, 2004; VanPatten & Oikennon, 1996) as long as the SI activities are task-essential (Loschky & Bley-Vroman, 1993).

Another limitation is related to the nature of the production test. In this study, the participants were allotted some time to write, which means they were allowed to use their conscious knowledge and monitor their production. Thus, in line with Erlam's (2003) suggestion, future studies could give time pressure when participants do the production test so that they will not be able to monitor their responses, reflecting the natural use of language. The last limitation concerns the participants. The number of participants is relatively small. Having more participants in each group would have allowed subjects identified as outliers to be eliminated and thus may have affected the results. Additionally, the participants in this study were considered as adolescents who were studying English as a compulsory school subject since at least when they were in junior high school. They might also have received instruction on the target feature, although their knowledge of it may have only been

partial. Having younger subjects who have limited exposure to English and have not received instruction on the target form should be next on the research agenda.

The present study has several pedagogical implications for ELT professionals. First, while it is highly recommended that instruction should consist of both input-based and output-based practice (Shintani et al., 2013), in a situation where the length of instruction is limited and the target form is not completely new, the teacher could provide output-based practice only. However, in giving production-based learning activities, the teacher should move from mechanical drills to more communicative ones to ensure that the learners practice using the target form in communicative and meaningful contexts. Secondly, since the acquisition of plurality is dependent on the acquisition of count-mass distinction, instruction on the English count-mass distinction should precede instruction on English plural marking, if the learners' L1 is a classifier language. However, it is not enough to present learners with a list of countable and uncountable nouns and have them memorize the list, as most English nouns can be used as either countable or uncountable (e.g. *I like drinking coffee* vs. *I'd like a coffee*). Rather, they should be taught how to construe entities as either having boundaries or not, since entities in English can be categorized as either countable if bounded or uncountable if unbounded.

Finally, since the acquisition of English plural marking, especially plural -s, is not instantly done, the teacher should provide feedback on both learners' misinterpretation and erroneous production of the target form. Research has shown that corrective feedback is effective in enhancing grammatical accuracy (e.g. Ellis, Loewen, & Erlam, 2006). To sum up, our study found that the results of PI studies, especially Benati (2005), are not generalizable to the English plural -s, although his study attempted to circumvent the same processing strategy. In our study, TI, which provided output-based practice, improved learners' both interpretation and production abilities, while in Benati's (2005) study, PI offered these benefits. Therefore, the findings of this study do not demonstrate the superiority of input-based instruction over output-based instruction, and thereby do not support VanPatten's (2007) claim. However, they lend partial support to Swain's (2005) Output Hypothesis that emphasizes the role of output in SLA.

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Appendices

Appendix A

Processing Instruction

Activity A

You will hear 10 sentences and you need to determine whether the **object noun** is singular or plural.

Kamu akan mendengarkan 10 kalimat dan tentukan apakah kata benda objek tersebut tunggal atau jamak.

Singular (only one)

Plural (more than one)

- | | | |
|----|--------------------------|--------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> |

Instructor’s script

1. She is not going to sell her precious **piano**.
2. Mini Stop always has fresh **eggs** available.
3. Does the shop across the street sell **matches**?

Activity B

Listen to the instructor making a series of statements and indicate whether you have the same conditions.

Dengarkan serangkaian pernyataan yang dibacakan oleh guru dan tentukan apabila kamu juga demikian.

- | | | |
|----|--------------------------|--------------------------|
| | Me too | No, I don’t |
| 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> |

Instructor’s script

1. I have **different dictionaries** for the English subject.
2. I love to collect **bags** made of leather.
3. I cannot remember easily **people’s names**.

Activity C

Read the following sentences about your activities on social media and indicate to what extent you agree or disagree. Then compare your views with your partner.

Baca kalimat-kalimat di bawah ini mengenai aktifitas kamu di sosial media dan tentukan seberapa jauh kamu setuju atau tidak setuju dengan pernyataan-pernyataan tersebut. Kemudian, bandingkan jawaban kamu dengan teman kamu.

	Strongly Agree	Agree	Disagree	Strongly Disagree
I always post my photos on Instagram.				
I never give bad comments on someone’s Instagram post.				
I generously give likes on Instagram.				

Appendix B

Traditional Instruction

Activity A

Put the nouns provided in the plural nouns.

Lengkapi kalimat ini dengan menggunakan bentuk jamak dari kata benda yang ada di dalam kurung.

1. Would you bring the bottle and some _____ (glass), please?
2. The glass broke into _____ (piece).
3. We bought tomato ketchup to eat with our _____ (sandwich).

Activity B

Step 1 Look at the activities below! Write 1-10 beside each activity. Number 1 is the activity you do most often and number 10 is the activity you do least often.

Step 2 Write full sentences for each activity using the plural form.

Langkah 1 Lihatlah kegiatan di bawah ini. Tulis 1-10 di samping setiap aktifitas. Nomor 1 adalah kegiatan yang paling kamu sering lakukan dan nomor 10 adalah kegiatan yang paling jarang kamu lakukan.

Langkah 2 Buatlah kalimat lengkap untuk setiap aktifitas menggunakan bentuk jamak.

- post selfie
- post photo of food
- give bad comment to bully

Appendix C

Interpretation Task

Listen to each sentence carefully and indicate whether the **object noun** is one or more than one.

Dengarkan dengan seksama setiap kalimat yang dibacakan dan tentukan apakah kata benda objek hanya satu atau lebih dari satu.

- | | One | More than one |
|----|--------------------------|--------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> |

Instructor Script

1. Kelly loves to wear **rings**.
2. Justin hopes I will succeed in my new **job**.
3. Her husband often gives her **flowers**.
4. Amy scratches her **chin** when it itches.
5. Children knock on people's **doors** on Halloween.

Written production task

Look at the pictures below and make a sentence for each picture to describe what it is, using one verb and one noun from the list provided.

Lihat gambar-gambar di bawah ini dan buat sebuah kalimat untuk setiap gambar untuk mendeskripsikan gambar tersebut. Gunakan satu kata kerja dan satu kata kata benda dari daftar yang disediakan.



1.



2.



3.

Verbs

feed

deliver

sweep

Nouns

dog

letter

leave