

A study on the effects of processing instruction on learning grammar items of different complexity: a case of  
Russian learners of Japanese

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Processing instruction is a type of grammar instruction based on the theory of Input processing, proposed by Bill VanPatten (1996). It is a pedagogical intervention that could help learners to avoid the misuse of the processing strategies and make correct form-meaning connections during processing the input. Processing instruction is based on certain type of input activities where input is manipulated in a way that makes the target form salient and, thus, easier to process. During processing instruction, learners are not asked to produce the target forms, which makes this type of instruction "comprehension-based" as opposed to the traditional "production-based" instruction.

The purpose of this study is to verify the effectiveness of processing instruction on comprehension and production of three grammatical items of Japanese by Russian zero-beginner learners with a focus on target grammar's complexity factor. By comparing the effectiveness of instruction for multiple target grammar items, we clarified how the characteristics of the target items affect the effectiveness of each instruction. The three target grammar items were categorized as "simple" and "complex" according to previous research (Cheng 2004; Comer&DeBenedette 2011; Nakaue 2012).

The participants of a 17-week volunteer Japanese course conducted in Russia took part in the Study 1 during week 9 and Study 2 during week 15 - 16. The learners in two groups were instructed on the target items by either processing instruction (Study 1:  $n=10$ ; Study 2:  $n=11$ ) or production-based instruction (Study 1:  $n=8$ ; Study 2:  $n=8$ ); and their learning outcomes were measured by means of pretest, immediate posttest, and delayed posttest on comprehension and production of the target items.

Study 1 targeted five basic numeral classifiers: *ko*, *hon*, *satsu*, *dai*, *mai*. The comprehension test results showed that immediate and delayed posttest scores were higher than pretest scores for both instruction types, however, no significant difference was found between processing instruction and production-based instruction. The production test results similarly revealed significant differences in test scores before and after the instruction for both groups. However, there was no difference in the two groups' scores. Furthermore, the Japanese written translation tests showed that learners did indeed use wrong processing strategies, such as omissions of classifiers as in "numeral + noun being counted" instead of "numeral + classifier + noun", but such errors were drastically reduced in both groups immediately after the instruction. However, in the two weeks later, the production-based instruction group showed an increase in the error rate of omitting classifiers, while the processing instruction group still had less errors of this type. In addition, analysis of the correct responses to the in Study 1 revealed that some items were difficult to comprehend and produce for learners. Among them, only the processing instruction group found producing classifiers that follow irregular phonological patterns such as *hon*. These findings suggest that numeral classifiers are difficult for learners in sense of two dimensions: the semantic categorization that is different for Russian speakers, whose native language has a different system of counting; and the formal rule where some items might not follow the general pattern (such as *hon*'s invariants *bon/pon*). While categorizing subjects according to their shape, size, dimensions was indeed difficult for both groups regardless of the instruction type, the formal rule might have direct influence on the effects of the

instruction, where input-only activities did not lead to noticing invariants of the form. These results suggest that the formal side of a target item might influence the effects of processing instruction.

Therefore, in Study 2 the difference in the complexity of formal features was taken in consideration. To compare formally simple and complex form while the semantic complexity is the same, polite and plain style past tense forms were selected. The results showed that overall, processing instruction showed higher effectiveness on comprehension and production, however, when the two forms were compared, processing instruction had a significant effect on the polite forms, whereas production-based instruction was effective on the plain forms. Comprehension tests also revealed that plain forms had higher scores on pretest than polite forms, suggesting the transfer effect of the instruction. Production test results revealed that learners in the processing instruction group scored higher on the polite forms, while learners in the production-based instruction group scored higher on the plain forms. In addition, when each group was analyzed separately, the results showed that the scores of the polite form were significantly higher than those of the plain form for processing instruction, while no difference in linguistic form was found for the production instruction. Past tense in the plain style was more difficult for the processing instruction group to comprehend than the past tense in the polite style, but this difference was not observed for the production instruction group. In production, the polite forms were easier in the immediate posttest, but the plain forms were difficult in both immediate and delayed post-test for the processing instruction group.

The results of Studies 1 and 2 indicate that effect of processing instruction is influenced by the complexity of target form. Processing instruction seems to be more effective for the simple forms based formal rules, however, when the formal rule includes numerous variations, production-based instruction may be more effective.