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The Effect of Practice Generalization Reinforcement (PGR) Instruction Strategy Vs Direct Instruction and Prior Knowledge on Learning Outcome of English Grammar in Junior High School

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Abstract: *The objective of the study is to examine the effect and the interaction between instructional strategies through the application of practice generalization reinforcement instruction strategy vs. direct instruction and prior knowledge on learning outcome of English grammar in junior high school. The research design used quasi experimental design by using the factorial design version pretest-posttest non-equivalent control group design. The subject of the study was the ninth grade students of junior high school 1 Labang, Bangkalan East Java. The sampling method used cluster random sampling's technique. The number of students who involved in this study was 119 students. 60 students were learnt by using direct instruction as the control group and 59 students were learnt by using practice generalization reinforcement instruction strategy as the experimental group. The results of this study were analyzed by using Anova (analysis of variance) 2x2 factorial designs and the significance level was 5%. The result of this study showed that (1) The students' English grammar learning outcome did not indicate a statistically significant difference from the students who were learnt by using the direct instruction strategy and the practice generalization reinforcement's instruction, (2) The students' English grammar learning outcome indicated a statistically significant different from the students who had a high prior knowledge and a low prior knowledge, and (3) The interaction between the instruction strategy and the prior knowledge indicated the significant effect on English grammar learning outcome.*

Keywords*: Instructional strategies, practice generalization reinforcement, direct, prior knowledge, learning outcomes.*

I. INTRODUCTION

Improving the quality of education through instructional innovation is one of the interesting issues. It has three instructional variables, they are a condition of instruction, instructional method and the learning outcomes (Reigeluth,1999). From those instructional variables, an instructional method is a variable which can be manipulated by instructional designer. It is also supported by Reigeluth's theory (1983; 1999). Reigeluth & Car-Cheliman's Theory (2009) stated that learning outcomes is the impact that can be assumed as the indicators of the use of a different condition in the instructional method. Slavin (2008) added that learning outcomes which acquired by the students are affected from instructional strategy and the student's characteristic.

The instructional method defined as a different ways to achieve the learning outcomes in the different instructional condition. This method is classified into three types of strategies: the organizational strategy, the delivery strategy and the management strategy (Degeng, 2013). The learning approach which provides from rule to example adopts the deductive approach (Arends, 2007). Erlam (2003) defined the deductive approach is as the thinking process from general to the particular. Learners are served the material generally, then applied it particularly. According to Brinton (2014), this approach is a regular way to teach languages. This approach is used in the language learning by presenting an explicit formula (rule delivery) and giving some examples (Krashen, 1982).

Nunan (2003) defines inductive approach as presenting the learners with samples of language and through a process of guided discovery, get the learners to find out the principle or rule. This approach is close enough with the audio-lingual approach in teaching language (Gollin,1998). According to Hmedan & Nafi'i (2016) both of inductive and deductive approach have strength and weakness, it needs a teacher to choose the effective instructional strategy in conveying the materials. The Inductive approach adopts the principle of the rule discovery, the language learning strategy is in line with this approach and one of them is practice generalization reinforcement (PGR).

PGR instructional strategy is the instructional strategy that uses the structured investigation process in English grammar learning outcome. It begins with the practice stage, generalization and reinforcement. Adapting the opinion of Allen & Vallete (1972), Boardman & Frydenberg (2002) and Harmer (2004) about

PGR instructional strategy in the process of learning is as follows: (1) practice phase, (2) generalization phase and (3) reinforcement phase.

The difference in presenting the pattern between the from rule to example's pattern in direct instruction and the from example to rule's pattern in PGR strategy will caused the distinction pattern in accepting and processing the information for the students' cognitive in understanding the certain knowledge (Harmer,2004). In from rule to example's pattern, the grammatical knowledge is built in deductive way which is derived from rule then given the example and trained. The mastery process in grammar is about tenses,it started by identifying some attributes that contain in the grammar's rule, then comparing with some examples. While from example to rule's pattern was applying, the mastery process in grammar was based on some examples. They were presented at the beginning of the learning activity. It was through the identification process toward the common characteristic which contains in some examples, learners received the teacher's guidance in trying to find the rule (Merril & Tennyson,1983). Thus in the practice generalization reinforcement's strategy, learners will be formed through the inductive process. While in the direct instruction, the mastery process in grammar is formed by the deductive process. Further, Widiati and Cahyono (2006) said: When practicing a deductive approach, teachers would present the generalization and ask students to apply it to the language sample. When practicing an inductive approach, teachers would be able to assess what the students already know about a particular structure and to make any necessary modification in their lesson plan. The difference in presenting the pattern could cause the different mastery of language on English grammar learning outcome. The mastery of the language pattern requires the language learning's theory, as stated by Halliday (1975) the learning of structure is really the heart of the language learning process. The similar thing also expressed by Finocchiaro & Bonomo (1973) many teachers will consider the heart of foreign language teaching in grammar teaching. It is essential that you grade the structures carefully in presenting them.

The result of the study is referred to the learning English grammar about tenses: (a) simple present tense, (b) present continuous tense, (c) simple past tense, (d) past continuous tense and (e) future tense. The English Grammar learning outcome is obtained from the results of English grammar posttest after receiving a particular treatment with the practice generalization reinforcement's instructional strategy for the experiment group and direct instruction strategy for the control group.

The purpose of this study is to (a) know the difference between the English grammar learning outcome from the students who are learnt by using PGR instruction strategy and direct instruction, (b) know the difference between English grammar learning outcome from the students who have a high prior knowledge and a low prior knowledge, and (c) know the effect of the interaction between the instructional strategy and a prior knowledge for English grammar learning outcome.

II. METHOD

This research was quasi experimental research. The research design was using factorial version of the nonequivalent control group design (Tuckman, 1999). This design was one of the quasi experimental research or specious experiment as often used because the variable control affected the research subject condition, and it could not be done fully (Tuckman, 1999; Salkind, 2006).

The research subject was the students at IX B, IX C, IX F and IX G in Junior High School 1 Labang Bangkalan's Regency. The students at IX B class (29 students) and at IX F class (31 students) received the direct instruction strategy. While, the students at IX C class (30 students) and at IX G class (29 students) received the PGR's instruction strategy.

Validity in each of the question was found by comparing the *index product moment Pearson's* correlation with the significance level about 5 %. If the probability of the correlation's outcome was $< 0,05$ (5%), then each of the question was stated as "valid" and if it was not, it was declared as "invalid". The technique of the Reliability test was using The *Alpha Cronbach's* technique. When alpha was $< 0,6$, it declared as "failed" or "unreliable" and conversely (Ghozali,2008). While Ardhana (1987) suggested that the correlation coefficient provides a measure of the test reliability. The correlation coefficient was usually 0,90 or higher than that was charged as the basic to state that the tests was "reliable". But, in some difficult aspect was hard to measure just like the personality of the reliability coefficient between 0,60 - 0,80, it had been considered as sufficiency.

The procedures of the data analysis with the variant analysis technique (anova), two lines were conducted through two stages; the assumption test and the hypothesis test. The assumption test consists of the normality test with the variant homogeneity test. The regular test was taken by *Lillifors Signifiqance Correction* from Kolmogorov-Smirnov used SPSS version 20. While for homogeneity testing, the variant between the same groups using the Levene's test (Hair, 2006). The Levene test was one of the components of the anova program set. The decision was to declare the regular distribution and the data variant homogeneity on the significance level about 5 % or 0,05 alpha. If the testing result was obtained more than 0.05 then the sample variant was stated as homogeneous. The hypothesis testing was devoted to know the effect of free variable (instructional strategy) and the moderator variable (the prior knowledge) toward the bound variables (learning outcomes). It

was also to know the effect of the interaction of free variable with the moderator variables toward the bound variables. The hypothesis testing was used by two lines analysis factorial technique (anova) 2x2 types with the computer programs : SPSS version 20. The decision to accept nor reject the hypothesis was based on the 5% significance level or 0,05 alpha. If the result of the hypothesis test was obtained lower than 0.05, it was expressed as significance and if it was greater than 0.05 it is expressed as insignificance.

III. RESULT

The results of the study about prior knowledge showed that IX C class and IX G class (the experimental group) the group of students who are learnt with PGR instruction strategy have a high prior knowledge about grammar. They were 37 students. The students who have a low prior knowledge were 22 students. While, from the IX B class and IX F class (the control group) the group of student who are learnt with direct instruction strategy have a high prior knowledge. They were 32 students. The students who have a low prior knowledge were 28 students. The data which has been collected from the research is the score of the prior knowledge; a score of pretest and a score of posttest. The subject who received the same scores or greater than the minimum learning completeness (≥65) is categorized to achieve a high prior knowledge and the subject who received the scores lower than minimum learning completeness (<65) is categorized to get a low prior knowledge. From these groups, it is found that the research subject which includes to be a high prior knowledge category were 59 students or 49,58 % and a low prior knowledge category were 60 students or 50,42 %. Based on the results of the prior knowledge analysis shows that the students who received a score higher than 65 were 30 students from the experimental group and 29 students from the control group. While the students who received the score less than 65 were 29 students from the experimental group and 31 students from the control group.

Further, the research indicates that the amount of students from IX C class and IX G class were 59 students. They were learnt with PGR instruction strategy as the experimental class. It was consisted of 30 students whom have a high prior knowledge (50,85%) and 29 students who have a low prior knowledge (49,15%). Next, the amount of students from IX B class and IX F class were 60 students who were learnt with direct instruction strategy as the control class. They were consisted of 29 students who have a high prior knowledge (48,33%) and 31 students who have a low prior knowledge (51,67 %). The pretest result of the English grammar learning outcome indicates that the average of the pretest score in the group. They were learnt with the *practice generalization reinforcement* instruction strategy which is 60,22. The standards deviation was 12,789. While another group, the group which was learnt with the direct instruction strategy, the average of their pretest score was 57,58. The standards deviation was 12,090. In terms of two instructional strategies group, it could be stated that the average of both pretest score was close enough. It showed that the two strategies were implemented in mastering grammar from both treatments did not show any significant differences or there was no deviates data or data outliner.

The Pretest Score of English grammar learning outcome from the Groups treatment

Descriptive Statistics

Dependent Variable: Learning Outcomes

Instructional Strategy	Prior Knowledge	Mean	Std. Deviation	N
PGR	High	65,49	10,574	37
	Low	51,36	11,358	22
	Total	60,22	12,789	59
Direct	High	62,81	8,514	32
	Low	51,61	12,914	28
	Total	57,58	12,090	60
Total	High	64,25	9,697	69
	Low	51,50	12,132	50
	Total	58,89	12,459	119

Based on these results, It could be seen from the pretest score which was obtained respectively were 64,25 and 51,50 with the standards deviations are 9,697 and 12,132. The average result of the posttest score in a group of students who was learnt with the PGR instruction strategy is 68,36 with the standard deviations was 11,700. Next, a group of students who was learnt with the direct instruction strategy, the posttest average score was 55,83 with the standard deviations is 13,377. Based on the analysis result, all treatment was distributed normally.

The Posttest Score of English grammar learning outcome from the Groups treatment

Descriptive Statistics

Dependent Variable: Learning Outcomes

Instructional Strategy	Prior Knowledge	Mean	Std. Deviation	N
PGR	High	75,35	7,197	37
	Low	56,59	7,620	22
	Total	68,36	11,700	59
Direct	High	65,78	9,079	32
	Low	44,46	6,714	28
	Total	55,83	13,377	60
Total	High	70,91	9,387	69
	Low	49,80	9,311	50
	Total	62,04	14,011	119

Based on these results, it showed that the English grammar learning outcome for all the treatment groups was distributed normally so, it could be preceded for the next test. The research hypothesis was to describe any difference on English grammar learning outcome. The hypothesis testing was used by two lines analysis factorial technique (anova) 2x2 types

The Result of Factorial Anova tested by using the Statistics Formula

SPSS version 20 for Windows

Tests of Between-Subjects Effects

Dependent Variable: Learning Outcomes

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	7308,686[a]	3	2436,229	18,529	,000	,326
Intercept	375024,186	1	375024,186	2852,230	,000	,961
Strategi	165,105	1	165,105	1,256	,265	,011
PA	5254,442	1	5254,442	39,962	,000	,258
Strategi * PA	1886,987	1	1886,987	14,351	,000	,111
Error	15120,726	115	131,485			
Total	405875,000	119				
Corrected Total	22429,412	118				

a. R Squared = ,326 (Adjusted R Squared = ,308)

The hypothesis testing can be concluded that: (a) the first hypothesis testing is the effect of instructional strategy to the English grammar learning outcome. Based on the data analysis, it shows that the

significant value is 0,265 greater than 0.05, so, the zero-hypothesis is received. And it can be interpreted that there is no significance between a group of students who is learnt with PGR instruction strategy and a group of students who is learnt the direct instruction strategy. (b) The second hypothesis testing is the effect of the prior knowledge to the English grammar learning outcome. Based on the analysis of the data, it shows that the significant value is 0,0000 lower than 0,05. So, the zero-hypothesis is rejected an it can be interpretated that there is a significant difference between the students who have a high prior knowledge and the students who have a low prior knowledge, and (c) the third hypothesis is the interaction between the instructional strategy and the prior knowledge toward the English grammar learning outcome.

The effect of The Direct Instruction Strategy Vs the *Practice Generalization Reinforcement* (PGR)

The first hypothesis result is concluded that there is no significant difference from the English grammar learning outcome between the students who is learnt with PGR instruction strategy and the direct instruction strategy. The data of the learning outcomes indicates the average score of a group of the students who is learnt with the PGR instruction strategy (57,486) nearly the same with a group of the students who is learnt with the direct instruction strategy (55,123). These finding show that the implementation of PGR instruction strategy or direct instruction strategy is not significantly affect on English grammar learning outcome for the student at the Ninth Grade in Junior High School Labang 1. Theoretically, these finding are in line with Thournbury's view (1999) stated that the learning strategy is referred to deductive approach or *from rule to example* on the direct instruction strategy and inductive approach or *from examples to rule* on the PGR instruction strategy, each of them have the strength and weakness.

The effect of The Prior Knowledge on Students' English grammar Learning outcome

The second hypothesis result is concluded that there is a significant difference from English grammar learning outcome between a group of the students who has a high prior knowledge and a group of the students who has a low prior knowledge. The research data shows that the average score from a group of the students who has a high prior knowledge is 62,969, it is greater than a group of the students who has a low prior knowledge is 49,640. The differentiate indicates that the students who have a high prior knowledge have a better implementation to the results of the result of English grammar learning outcome and it is better than the students who have a low prior knowledge. This research finding is in line with the theoretic study and the previous results about the effect of the prior knowledge to the student's learning. Gardner (1991) stated that the prior knowledge is a modal for the students in the learning activity, because the learning activity is the negotiation process between the teachers and the students. Piaget (1970) expressed that inside the person's mind, there is a prior knowledge structure, through the contact with a new experience. The structure of the person's knowledge can be developed and converted through the assimilating process and the accommodation process.

The Interaction between the Learning Strategy and the Prior Knowledge on Students' English grammar Learning outcome

The third hypothesis result is concluded that there is a significant effect in the interaction between the instructional strategy and the prior knowledge on the students' English grammar learning outcome. The existence of the interaction effect was occurring between the instructional strategy and the prior knowledge. It means in affecting the study results, the PGR instruction strategy and the direct instruction strategy depend on how high or low the level of a student prior knowledge. So the conversely, the effect of a prior knowledge on a learning outcomes does not determined by any types of instructional strategy; each of them gives an impact on the student's learning outcomes.

IV. CONCLUSION

Based on the data analysis of these three hypothesis research and discussion, it can be concluded that: (a) the students' English grammar learning outcome about tenses does not indicate a statistically significant different from the students who are learnt with practice generalization reinforcement (PGR) instruction strategy and the students who are learnt with the direct instruction. A group of students who is learnt with the practice generalization reinforcement (PGR) instruction strategy does not receive the significant learning outcome than a group of students who is learnt with the direct instruction, (b) the result of English grammar learning outcome about tenses indicates a statistically significant different from the students who have a high prior knowledge and the students who have a low prior knowledge. A group of students who has a high prior knowledge is proved to receive a greater score than a group of students who has a low prior knowledge, (c) The interaction between the instructional strategy and the prior knowledge has been proven to offer a significant impact for the English grammar learning outcome.

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