

The Effect of Learning Strategy and Locus of Control Toward Learning Outcomes by Controlling Prior Knowledge

Parulian Sibuea

Department of Educational
Technology
Universitas Negeri Medan
Medan, Indonesia
lian.sibuea@yahoo.com

Abdul Muin Sibuea

Department of Educational
Technology
Universitas Negeri Medan
Medan, Indonesia

Sahat Siagian

Department of Educational
Technology
Universitas Negeri Medan
Medan, Indonesia

Abstract—The objectives of this research was to determine the effect of learning strategies Contextual Teaching learning (CTL) and expository learning) and locus of control on learning outcomes, after controlling prior knowledge. This research conducted at Air Putih 1 High School, North Sumatera during August to October 2016, and used a quasi-experimental method with a 2x2 factorial. The participants were 48 students were divided into two treatment classes. Data analysis was Analysis of covariate (ANCOVA) with significance level 0,05. The result indicate that : student's learning outcomes who uses contextual learning strategy is better than expository learning after controlling prior knowledge; there was an interaction effect between learning strategy and locus of control after controlling prior knowledge; student's who have a more precise of internal locus of control is taught with contextual learning strategy after controlling prior knowledge; expository learning strategy more effective for students who have external locus of control after controlling prior knowledge.

Keywords—learning strategy, contextual strategy, expository learning, locus of control.

I. INTRODUCTION

The role of school is directly related to the development of human resources. Every educational program in school needs to be oriented towards strengthening the process of developing human resources as the basic capital development is carried out by the government together with the society. School Empowerment as a vehicle for socialization must be done through empowering School management by developing effective leadership. While empowering students in learning and developing students' creativity in learning can be done by utilizing learning strategies, technology and information directed by professional teachers. Therefore, schools must be able to channel information and technology, knowledge, resources and learning methodologies.

PISA (Programme for International Student Assessment) survey held by Organization Economic Cooperation and Development (OECD) on December 2013 [1] stated that Indonesia is the lowest rank from 65 countries wick was surveyed in mapping of math, reading, and science abilities.

While Indonesian Human Development Index (HDI) in 2013 is the 121th from 181 countries in the world. Therefore, these facts showed that generally our organization of education implementation and education implementation for specific need to get more attention seriously wick can provide the best solution to solve them.

De Porter [2] stated that teachers determine student success. The teachers influence is very clear, an important factor in the learning environment and student life. The role of the teacher is not only knowledge provider but the teacher is also a study partner, model, mentor, and facilitator.

Furthermore, it is in line with the 2013 National Curriculum [3] which emphasizes that each individual has potential that must be developed. Thus, the appropriate learning process is exploring the potential of children to be always creative and developing. However the reality on the ground does not lead to meaningful learning, the learning system sits quietly, listening to information from the teacher seems to have been entrenched from the past. Then in making changes towards active learning, creative, fun is rather difficult. In learning, teachers are directly related to students. Nurhadi [4] stated that the phenomenon of the low quality of learning is caused by the speculative and intuitive attitudes of teachers in choosing learning methods and strategies. Therefore, improving the quality of education can be done by improving the learning quality and it can be achieved by increasing teacher knowledge about designing strategies and learning approaches that are more effective, efficient, and attractive.

The gap between the perception of the ease of learning Indonesian and the low student learning outcomes have led to the emergence of various polemics in language teaching, especially the Indonesian language. The fact that occurred that the teaching of Indonesian language conducted by giving more forcing students to memorize the definitions, terms, elements forming sentence, and so on without giving an understanding of what they are learning. The teacher also applied a one-way learning system rather than what is expected, which is two-ways. In addition, students in the class were less stimulated to be more communicative.

The condition caused Indonesian language learning in the schools becoming monotonous and less enjoyable for students. It was resulted in students paying less attention to the existence of language itself as a medium of communication, both oral and written. In learning Indonesian language, teachers generally talked more, gave various language and literary theories that students must know and memorize. The rules of language were taught, sorted, and then students were required to memorize all that were taught. The teacher should provide a firm understanding of the rules so that students can truly understand them, then apply them in the proper use of language, both oral and written.

It is also undeniable, many factors are involved in influencing the achievements of students in every study fields, including Indonesian subjects. Some internal and external factors that are thought to influence learning outcomes one of them is the locus of control of students. attention before starting learning so that a teacher can determine the learning strategy for each student that is most appropriate. Focus of control is inherent in students and cannot be changed quickly. It is the teacher who has to adjust what strategies are most appropriate to be used according to the personality of the student at hand. The accuracy of the learning strategy tailored to the student's locus of control is expected to create satisfying learning outcomes.

Prior knowledge is the learning outcomes obtained before obtaining a higher ability. Student's prior knowledge is a prerequisite for participating in learning so that they can carry out the learning process well. Students' prior knowledge is important for teachers to be able to determine the appropriate entry behavior line. Prior knowledge is also useful for taking the necessary learning steps.

To find out the phenomena of learning strategies types Contextual Teaching and Learning (CTL) strategy and expository learning strategy in Indonesian subjects; how they relate to locus of control (internal locus of control and external locus of control); and prior knowledge in improve student learning outcomes skills, it is needed to conduct a research.

II. RESEARCH METHODOLOGY

The research conducted the 2x2 factorial experimental method. The research variables consist of: (1) the dependent variable, namely the learning outcomes of Indonesian language; (2) independent variable namely treatment variable (A₁: Contextual learning strategies and A₂: expository learning strategies); and (3) attribute variables (B₁: internal locus of control and B₂: locus of external control). In this study also considered affix variables that were not the focus of research but could affect research results and cannot be manipulated. The variable was the student's prior knowledge as a covariate variable.

The target population of this research was the eleventh grade students at SMA Negeri 1 Air Putih as namely 310 people. The research sample was determined in class XI MIPA1 and XI MIPA4 through random sampling technique. The experimental class and control class were determined becoming 40 students. Whereas the determination of students who had internal and external locus of control for each

treatments class was conducted using non-test instrument. Determination of the number of students who had internal and external locus of control was based on the acquisition of figural non-test scores. A total of 12 students (40 x 30%) of the upper group were stated as groups that had internal locus of control and 12 people (40 x 30%) of the lower group were stated as groups who had external locus of control. Therefore, the total number of research sample was 80 students.

Hypothesis testing [4] was conducted by using two-ways variance analysis (ANCOVA) with a 2 x 2 factorial design. Further testing were conducted using the Tukey test [5]. Before testing the hypothesis first, the analysis requirements test which consists of: (1) normality test; (2) homogeneity test; (3) regression linearity test [6]; (4) the significance of the regression effect test; and (5) line alignment test [7].

III. THE RESULTS OF THE STUDY

The complete data summarizing the scores of Indonesian language students' learning outcomes for each groups is presented in Table 1.

TABLE 1. PRIOR KNOWLEDGE SCORE DATA AND INDONESIAN LANGUAGE LEARNING OUTCOMES BASED ON STATISTICAL MEASURE

Locus of Control (B)		Learning Strategy (A)					
		CTL (A ₁)		Expository (A ₂)			
		Xi	Yi	Xi	Yi		
Internal (B ₁)	N	12	12	12	12	24	24
	\bar{X}/\bar{Y}	62.08	85.62	65.41	71.25	63.75	78.43
	Mo	65	70	57.5	67.5	65	80
	Me	63.75	73.75	65	71.25	65	78.75
	SD	10.21	5.12	7.74	5.16	9.02	8.90
	Min	45	77.5	55	62.5	45	62.5
External (B ₂)	Max	80	92.5	80	80	80	92.5
	N	12	12	12	12	24	24
	\bar{X}/\bar{Y}	63.33	71.87	56.66	73.95	60	72.91
	Mo	52.5	70	47.5	75	52.5	70
	Me	61.25	71.25	56.25	75	58.75	73.75
	SD	9.61	5.34	7.71	7.34	9.17	6.37
Min	52.5	62.5	47.5	60	47.5	60	
Max	80	80	72.5	85	80	85	
	N	24	24	24	24		
	\bar{X}/\bar{Y}	62.70	78.75	61.04	72.60		
	Mo	52.5	70	57.5	75		
	Me	62.5	78.75	60	72.5		
	SD	9.72	8.69	8.78	6.36		
	Min	45	62.5	47.5	60		
Max	80	92.5	80	85			

Hypothesis testing in this study was related to the main effect of independent variable, namely the CTL strategy and the Expository learning strategy. In addition, hypothesis testing was also related to interaction effect testing, whether there was an interaction between learning strategies and Locus of Control on Indonesian language learning outcomes. The analysis technique used in testing the research hypothesis was the 2-way AnkoVA Test. The results of calculations with AnkoVA are presented in Table 2.

TABLE 2. HYPOTHESIS TESTING SUMMARY USING ANCOVA

Source	JK y res	db	RJK y res	F _o	F-table
Between A	328.13	1	328.13	28.552	4.052
Between B	141.36	1	141.36	12.301	4.052
Interaction AxB	1313.58	1	1313.58	114.301	4.052
PA (X)	995.94	1	995.94	86.661	4.052
in	494.17	43	11.49	-	-
Total	2277.24	46	-	-	-

*= significant (F_{count}<F_{table} on alpha 0.05)
ts = not significant (F_{count}<F_{table})

Based on the result of the calculation of covariate analysis (Table 2) on the source of the interaction variance A x B, there was a significant interaction between the learning strategy and the Locus of Control as evidenced by $F_{count} = 114,301 >$ from $F_{table} = 4,052$; then it is necessary to carry out further tests with the Tukey Test, and the calculation result are presented in Table 3.

TABLE 3. FURTHER TESTS SUMMER USING TUKEY TEST

Criteria	Hypotesis	Q _{count}	Q _{table}	Decision
Rejected H ₀ if Q _h > Q _t	H ₀ : $\mu_{11} \leq \mu_{21}$	16.51	3.43	H ₀ Rejected
	H ₁ : $\mu_{11} > \mu_{21}$			
Accepted H ₀ if Q _h < Q _t	H ₀ : $\mu_{12} \geq \mu_{22}$	-5.77	3.43	H ₀ Rejected
	H ₁ : $\mu_{12} < \mu_{22}$			
Rejected H ₀ if Q _h > Q _t	H ₀ : $\mu_{11} \leq \mu_{22}$	14.73	3.43	H ₀ Rejected
	H ₁ : $\mu_{11} > \mu_{22}$			
Accepted H ₀ if Q _h < Q _t	H ₀ : $\mu_{21} \geq \mu_{22}$	-7.6	3.43	H ₀ Rejected
	H ₁ : $\mu_{21} < \mu_{22}$			

TABLE 4. CALCULATION RESULTS OF RESIDUAL AVERAGE TEST

No	Group	\bar{Y}	\bar{Y} (corrected)
1	A ₁	78.8	78.30
2	A ₂	72.6	73.05
3	B ₁	78.4	77.43
4	B ₂	72.9	73.92
5	A ₁ B ₁	85.6	85.51
6	A ₁ B ₂	71.9	71.09
7	A ₂ B ₁	71.3	69.36
8	A ₂ B ₂	74.0	76.74

The difference in Indonesian language learning outcomes between students who were taught using CTL strategy and expository learning strategy, after controlling for prior knowledge. (main effect)

Based on the ANCOVA calculation results (Table 2) on the source of variance between A showed that the price of $F_{count} = 28.552 >$ from $F_{table} = 4.052$ at $\alpha = 0.05$, the null hypothesis was rejected or there was a difference in Indonesian language learning outcomes between students taught with CTL learning strategies with expository learning

strategies. Thus, learning strategies affected the learning outcomes of Indonesian students after controlling prior knowledge.

Furthermore, the average value acquisition of learning outcomes of students groups who were taught using CTL strategy $\bar{Y}_{A1} = 78.30$ and students groups who were taught using expository learning strategies $\bar{Y}_{A2} = 73.05$. It could be seen that the learning outcomes of students groups who were taught using the CTL strategy were higher than the learning outcomes of students groups who were taught using expository learning strategies. It means that the CTL strategy was proven to have a more effective influence on student learning outcomes Indonesian language so that it can be concluded that the Indonesian language learning outcomes students using CTL strategies were higher than students using expository learning strategies. Thus, the research hypothesis which stated that there was a difference between Indonesian language learning outcomes of students using CTL strategies and expository learning strategies after controlling the student's prior knowledge was verified.

The difference of Indonesian learning outcomes between students using internal locus of control and students using external locus of control, after controlling prior knowledge (main effect).

Based on the results of ANCOVA calculations (Table 2) on the source of variance between B shows that the price of $F_{count} = 12.301 >$ from $F_{table} = 4.052$ at $\alpha = 0.05$, the null hypothesis was rejected or there were differences in Indonesian learning outcomes between students having an internal locus of control and students having an external locus of control. Thus, locus of control affected the learning outcomes of Indonesian students after controlling prior knowledge.

Furthermore, the average value acquisition of learning outcomes of students group having an internal locus of control $\bar{Y}_{B1} = 77.43$ and students group having an external locus of control $\bar{Y}_{B2} = 73.92$. It could be seen that the learning outcomes of students group having internal locus of control were higher than the learning outcomes students group having external locus of control. It means that locus of control was proven to have a more effective influence on learning outcomes in Indonesian language. Thus, the research hypothesis which stated that there were differences between Indonesian language learning outcomes of students having an internal locus of control and students having an external locus of control after controlling the student's prior knowledge is verified.

Interaction between learning strategies and locus of control on Indonesian language learning outcomes, after controlling prior knowledge. (interaction effect)

Based on the ANCOVA calculation results (Table 2) on the source of the Interaction variance A X B showed that the value of $F_{count} = 114.301 >$ from $F_{table} = 4.052$ at $\alpha = 0.05$, then H₀ was rejected and H₁ was accepted. It means that learning strategies have an influence on Indonesian learning outcomes depending on the locus of control after controlling prior

knowledge, and vice versa. Thus the research hypothesis which states that there was an interaction between the learning strategy and the locus of control of Indonesian language learning outcomes which had been tested.

In the graphic form of interaction between learning strategies using locus of control on Indonesian learning outcomes can be seen in Figure 1.

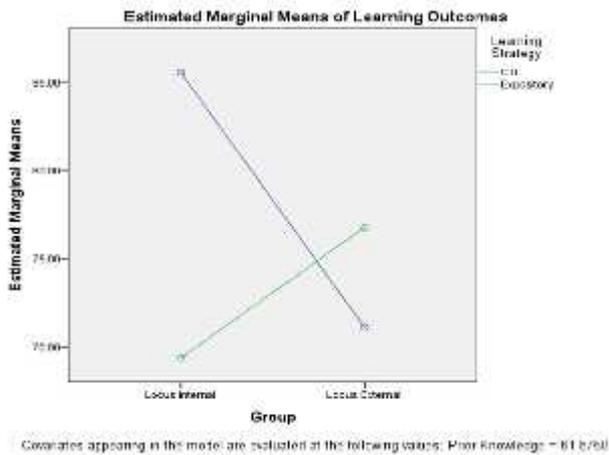


Fig 1. The graphic of learning strategies interaction and locus of control on Indonesian learning outcomes after controlling prior knowledge.

The differences of students learning outcomes using CTL learning strategies and expository, and the students having an internal locus of control after controlling prior knowledge. (simple effect).

The results of further tests with the Tukey test in Table 3 showed that the comparison of Indonesian students learning outcomes using CTL strategies and expository in students having an internal locus of control was obtained $Q_{count} = 16.51 > Q_{table} = 3.43$ at $\alpha = 0.05$, then H_0 was rejected and H_1 was accepted. Based on the average residual test results (Table 4), the value of $\bar{Y}(res) A_1B_1 = 85.51 > \bar{Y}(res) A_2B_1 = 69.36$. it showed that the learning outcomes of Indonesian students taught using CTL learning strategies were higher than the learning outcomes of students taught with expository learning strategies for students having internal locus of control. The result also showed that students having an internal locus of control was very appropriate to apply the CTL learning strategy.

The Differences of students Indonesian language learning outcomes using CTL learning strategies and expository, on students having an external locus of control after controlling prior knowledge. (simple effect).

Based on the results of further tests with the Tukey test in Table 3 it is known that the comparison of students Indonesian language learning outcomes taught using the CTL learning strategy and expository in students having an external locus of control was obtained $Q_{count} = -5.77 < Q_{table} = 3.43$ on $\alpha = 0.05$, then H_0 was rejected and H_1 was accepted, the value of $\bar{Y}(res) A_1B_2 = 71.09 < \bar{Y}(res) A_2B_2 = 76.74$. This shows that the learning outcomes of Indonesian students taught using CTL learning strategies there is no significantly difference compared to the learning outcomes of students taught with

expository learning strategies in students who have external locus of control after controlling prior knowledge.

Differences of students learning outcomes in Indonesian students using internal and external locus of control, on students who use CTL learning strategies after controlling prior knowledge. (simple effect).

The results of further tests with the Tukey test in Table 3 showed that the comparison of Indonesian students learning outcomes having internal and external locus of control on students using CTL strategies obtained $Q_{count} = 14.73 > Q_{table} = 3.43$ at $\alpha = 0.05$, then H_0 was rejected and H_1 was accepted, the value obtained $\bar{Y}(res) A_1B_1 = 85.51 > \bar{Y}(res) A_1B_2 = 71.09$. This shows that the learning outcomes of Indonesian students who have an internal locus of control tended to be higher than the learning outcomes of students who have an external locus of control in students who were taught using the CTL learning strategy.

Differences of Indonesian language students learning outcomes by using internal and external locus of control and students who use expository learning strategies after controlling prior knowledge. (simple effect).

The results of further tests using the Tukey test in Table 3 showed that the comparison of Indonesian students learning outcomes who have internal and external locus of control on students who use expository strategies obtained $Q_{count} = -7.6 < Q_{table} = 3.43$ at $\alpha = 0.05$, then H_0 was rejected and H_1 was accepted. Based on the average residual test results (Table 4), the value of $\bar{Y}(res) A_2B_1 = 69.36 < \bar{Y}(res) A_2B_2 = 76.74$. it showed that the learning outcomes of Indonesian students who have an internal locus of control were lower than the learning outcomes of students who have an external locus of control in students who were taught using expository learning strategies.

IV. CONCLUSION

Based on the results of the study, it can be concluded as follows: (1) Indonesian language learning outcomes between students group taught with CTL learning strategies were higher than the group of students taught with expository learning strategies after controlling prior knowledge, (2) the effect of interaction between learning strategies and locus of control on Indonesian learning outcomes after controlling prior knowledge (3) for students who have internal locus of control, Indonesian learning outcomes between students group taught with CTL learning strategies were higher than groups of students who are taught with expository learning strategies after controlling prior knowledge, (4) for students with expository learning strategies, Indonesian learning outcomes of students who have internal locus of control are lower than students who have locus of control externally, after controlling the intelligence of students' prior knowledge.

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