

MODIFYING METACOGNITIVE STRATEGY INSTRUCTION BASED CALLA FOR WRITING CLASS IN RELATION TO STUDENTS' LEVEL OF CRITICAL THINKING

Melina Sari, Ag. Bambang Setiyadi, Hery Yufrizal
melinasari30@gmail.com
University of Lampung

Abstract

Penelitian ini bertujuan untuk menginvestigasi pengaruh modifikasi CALLA pada prestasi menulis siswa dan strategi metakognisi, pengaruh level berfikir kritis siswa pada prestasi menulis mereka, dan proses implementasi modifikasi CALLA di dalam kelas bahasa. Penelitian ini menggunakan *one-group pretest-posttest design*. MSUW dan tes menulis dihitung menggunakan *Repeated Measures T-test*. *One Way Anova* digunakan untuk melihat pengaruh level berfikir kritis siswa. Temuan dari penelitian ini menunjukkan secara statistik kenaikan signifikan baik di prestasi menulis siswa dan penggunaan strategi metakognisi mereka. Sedangkan berkaitan dengan pengaruh level berfikir kritis siswa terhadap prestasi menulis mereka, temuan dari penelitian ini mengindikasikan secara statistik tidak ada dampak signifikan dari level berfikir kritis siswa pada prestasi menulis siswa. Selanjutnya, dari lembar observasi, proses belajar dan mengajar melalui modifikasi CALLA berjalan dengan baik seperti yang diharapkan oleh peneliti.

Kata Kunci: *Berpikir kritis, CALLA modifikasi, prestasi menulis, strategi metakognisi.*

This study aims at investigating the effect of modified CALLA on students' writing achievement and metacognitive strategies, the effect of students' critical thinking level on their writing achievement, and the process of implementing modified CALLA in the language classroom. This research used *one-group pretest-posttest design*. MSUW and writing test were calculated using *Repeated Measures T-test*. *One Way Anova* was used to see the effect of students' critical thinking level. The finding showed the increase both in writing achievement and metacognitive strategies uses. Meanwhile related to the effect of students' critical thinking level, the finding indicated statistically no significant impact of the students' critical thinking level on their writing achievement. Furthermore, from the observation sheet, the teaching and learning process through modified CALLA run well as expected by the researcher.

Keywords: *Critical thinking, metacognitive strategies, modified CALLA, writing achievement.*

INTRODUCTION

Huy (2015) states that writing is a complex metacognitive activity that draws on an individual's knowledge, basic skill, strategies, and ability to coordinate multiple processes. Moreover, Golpour (2014) emphasizes that writing is an important skill that needs higher critical thinking and its role in language learning cannot be ignored. Guo (2013) mentions critical thinking is broadly seen as the kind of logical thinking that helps us to analyze and make sense of, or interpret, all forms of situations or information so that the conclusions we draw from our interpretations are sound. The links between critical thinking and writing go beyond the process of getting the content of the critical mind onto paper or screen (Fahim and Ghamari, 2011). Related to this, it can be inferred that there is a link between critical thinking and writing. Thus, based on the theory, the researcher is interested to highlight whether or not critical thinking has effect on the students' writing achievement.

Although writing is an essential skill, many students at high school are not interested in it (Huy, 2015). Study done by Carroll (1990) in United States revealed that many students were never required to learn proper spelling or grammar. These poor students come to think that "English" and "writing" are nothing but spelling and grammar. According to them, writing means inevitable failure. Good writing is sometimes believed as something that they will never be able to achieve because they not only identify good writing with proper spelling and grammar, but also they are governed by the self-serving and false notion that they cannot learn how to spell correctly or how to construct grammatically correct sentences. Due to the problem in the previous study, the current research proposes an approach to teach writing through strategy training, especially in term of writing strategy. By employing certain strategies in writing, the students are expected to develop their writing achievement.

Setiyadi, Sukirlan, and Mahpul (2016) describes an important issue

in to what extent language learning strategies contribute to the success of EFL learning. It is assumed that the students who have employed certain strategies would report better language achievement. Since 1980s, learning strategies have been divided into different categories. According to the theoretical framework put forward by O'Malley and Chamot, learning strategies consist of metacognitive strategies, cognitive strategies and social strategies, among which metacognitive strategies concern the knowledge about cognitive process (O'Malley and Chamot, 1990) cited in Chen and Xiao (2016). To be specific, metacognitive strategies include the following subcategories, such as beforehand planning, selective attention, self-monitoring, and self-evaluation and etc. Metacognitive strategies are essential for successful planning, monitoring and evaluation of learning activities, which play a significant role in improving learning quality. Related to the previous studies, hence, metacognitive strategies will be employed in this research.

Anderson (2005) emphasizes within the context of methodologies, strategies play a central role in two approaches: Styles and Strategies-Based Instruction (SSBI) and the Cognitive Academic Language Learning Approach (CALLA). In this study, the researcher applies the Cognitive Academic Language Learning Approach (CALLA) as a model of instruction to train learners' metacognitive strategies. The Cognitive Academic Language Learning Approach (CALLA) was originally developed in 1986 and has continued to be expanded as it has been implemented in bilingual and ESL classrooms (Chamot and O'Malley, 1986; 1987; 1989; 1994) cited in Chamot (1995). The CALLA model seeks to assist students learning English become more successful academically by providing them with opportunities to learn grade-appropriate content, develop the listening, reading, speaking, and writing proficiencies needed for grade-level classrooms, and—most importantly—by focusing on explicit instruction in learning strategies.

Nevertheless, numerous studies have revealed that learners from different cultures may learn a foreign language in different ways. The students learning a foreign language in Asian contexts have been proved to use different learning strategies compared to students who learn the same language in Western countries (Setiyadi, Sukirlan, and Mahpul, 2016). Since English is taught as foreign language or EFL context in Indonesia, the implementation of CALLA will be different from the original one. It means that the researcher attempts to modify the procedures or steps in CALLA in order it can be applicable in the language classroom. Not only will the modification be on the use of specific strategy that is metacognitive strategies but also the learning activities and the learning materials which are selected and applied by the teacher.

Related to the background of the problem mentioned above, the formulation of the problems cited as follows:

- 1) In what aspect of writing does modified CALLA improve students' writing achievement?
- 2) Is there any significant improvement on the use of metacognitive strategies after being taught through modified CALLA?
- 3) Is there any significant effect of students' critical thinking level on their writing achievement?
- 4) What are the steps taken in implementing modified CALLA?

METHODS

This research was experimental research based on one-group pretest-posttest design. Science classes (XI IPA 1 and XI IPA 2) were taken as the subject of the research. Both of two classes were the experimental class. There were four instruments administered in this study, namely: Academic Potency Test (APT), Metacognitive Strategy Use in Writing (MSUW), Writing Test, and observation. Expert judgment was employed to determine whether or not Academic Potency Test (APT) was appropriate. The researcher used inter-rater to examine whether or not MSUW questionnaire was in line to the theory. Moreover, she put some

points in the instrument based on the five aspects of writing according to classification from Jacob. The reliability of the critical thinking test items and the questionnaire were analyzed using Coefficient Alpha Formula. In measuring the reliability of writing test, inter-rater reliability was the most appropriate way.

The researcher collected the data by conducting three stages of activities. They were distributing Academic Potency Test (APT), Metacognitive Strategy Use in Writing (MSUW) and Writing Test, conducting treatment and employing observation sheet, administering Metacognitive Strategy Use in Writing (MSUW), and Writing Test. In analyzing the data, the researcher used Statistical Package for Social Science (SPSS) version 21 program. The data obtained from Metacognitive Strategy Use in Writing (MSUW) and writing test were calculated before and after treatment. Repeated Measures T-test was used to compare the means score from the result of pretest and posttest. Since this study dealt with the effect of students' critical thinking level on their writing

achievement, Univariate Analysis of Variance (One Way Anova) was used to see whether there was correlation between students' critical thinking level toward their writing achievement. The significance level was in 0.05 even the hypothesis was approved if $\text{sign} < p$. Therefore the probability of error in the hypothesis was only about 5%.

RESULTS AND DISCUSSION

RESULTS

A) Students' Writing Achievement

This subsection answered the first research question that is *"In what aspect of writing does modified CALLA improve students' writing achievement?"*.

Students' Pre Test and Post Test scores from writing test were calculated through descriptive statistics by using SPSS version 21. Paired Sample T- Test was administered to see if there was any statistically significant improvement between their Pre Test and Post Test score of their writing aspects.

Table 1. Descriptive Statistical Values Concerning Pre Test and Post Test Scores of Students' Writing Aspect

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	Content2 - Content1	4.85577	3.09702	.42948	11.306	51	.000
Pair 2	Organization2 - Organization1	3.55769	2.15036	.29820	11.930	51	.000
Pair 3	Vocabulary2 - Vocabulary1	3.44231	2.31503	.32104	10.722	51	.000
Pair 4	Grammar2 - Grammar1	3.95192	3.30813	.45876	8.614	51	.000
Pair 5	Mechanic2 - Mechanic1	.77885	.57235	.07937	9.813	51	.000

As seen in Table 1, the students' Pre Test and Post Test score had significant difference in their writing aspects. The result of Paired Sample T- Test indicated the influence of the treatment on the students' scores was significant, since the value of variable sig. (2-tailed) was .000. Aspect of writing that mostly improved after the treatment was "content" (mean: 4.85).

B) Students' Metacognitive Strategy Uses

This subsection answered the second research question that is *"Is there any significant improvement on the*

use of metacognitive strategies after being taught through modified CALLA?".

Students' Pre Test and Post Test scores from Metacognitive Strategy Use in Writing (MSUW) questionnaire were calculated through descriptive statistics by using SPSS version 21. Paired Sample T- Test was administered to see if there was any statistically significant improvement between their Pre Test and Post Test score of their metacognitive strategies use.

Table 2. Descriptive Statistical Values Concerning Pre Test and Post Test Scores of Students' Metacognitive Strategies Use

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	PostTest - PreTest	.87019	.33196	.04603	18.903	51	.000

As seen in Table 2, the students' Pre Test and Post Test score had significant improvement in their use of metacognitive strategies. The result of Paired Sample T- Test showed the influence of the treatment on the students' scores was significant, since the value of variable sig. (2-tailed) was .000.

C) Students' Critical Thinking Level and Their Writing Achievement

This subsection answered the third research question that is *"Is there*

any significant effect of students critical thinking level on their writing achievement?".

After classifying the students into three level of critical thinking (low, middle, and high), then this study dealt with the correlation of students' critical thinking level on their writing achievement. The following table

was the estimated marginal means of writing achievement regarding to students' level of critical thinking:

Table 3. The Means Score of Writing Achievement regarding to Students' Level of Critical Thinking

		Descriptives					
		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
PostTest	17	80.088	5.4665	1.3258	72.0	89.0	
	31	81.145	5.0797	.9123	69.5	91.0	
	4	75.500	9.4692	4.7346	67.0	86.0	
	52	80.365	5.6639	.7854	67.0	91.0	

Related to the Table 3, it can be inferred that the means score of low

critical thinker students was 80.88, middle critical thinker students was

81.14, and high critical thinker students was 75.50.

Furthermore, this study also dealt with the correlation of students' critical thinking level on their writing

achievement. Then, Univariate Analysis of Variance (One Way Anova) was used to investigate whether or not there is significant effect of students' critical thinking level on their writing achievement.

Table 4. Descriptive Statistic Values Concerning Writing Achievement regarding to Students' Level of Critical Thinking

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
PostTest	114.843	2	57.422	1.850	.168
	1521.214	49	31.045		
	1636.058	51			

As seen in Table 4, the means score of students' writing achievement had significant difference regarding to their level of critical thinking. However, the result of Univariate Analysis of Variance (One Way Anova) revealed the influence of the students' critical thinking level in their writing scores was not significant, since the value of variable sig. (2-tailed) was .168. The analysis of the collected data showed statistically no significant impact of the students' critical thinking level toward their writing achievement.

D) The Teaching and Learning Process through Modified CALLA

This subsection answered the fourth research question that is "*What are the steps taken in implementing modified CALLA?*".

This research was conducted in six meetings. The first meeting was used to distribute Academic Potency Test (APT) to classify the students' level of critical thinking in term of: Low, Middle, and High. Pre Test was administered on the second meeting. The treatment was employed in three meetings during the third meeting to the fifth meeting: 1) The first meeting was Preparation Step and Presentation Step, 2) The second meeting was Practice Step, and 3) The third meeting was Evaluation

Step and Expansion Step. Moreover, Post Test was done on the sixth meeting. The limitation of time allocation in teaching English subject at the school became the consideration of researcher to divide five steps of CALLA into three meetings.

DISCUSSION

A) Students' Writing Achievement

This study analyzed the increase of each aspect of writing; they were content (4.85), organization (3.55), vocabulary (3.44), grammar (3.95), and mechanic (0.77). It was found that content aspect increased more significantly than the other aspects. This finding was in line with some previous studies that dealt with teaching writing skill in EFL context (Kiasi and Alavi, 2016 and Mahmoudi, 2017).

B) Students' Metacognitive Strategy Uses

Related to the implementation of modified CALLA in language classroom, the finding of this present study showed that statistically significant positive relationship between metacognitive strategy

instruction through modified CALLA and improving students' metacognitive strategies use. This finding supported some previous studies that dealt with the application of CALLA in different language skills (Coskun, 2010; Takallou, 2011; Diaz, 2015; Nejad and Shahrebabaki, 2015).

C) Students' Critical Thinking Level and Their Writing Achievement

Related to the effect of students' critical thinking level toward their writing achievement, the finding of this present study indicated that statistically no significant impact of the students' critical thinking level in their writing achievement since the result showed the middle critical thinker students and the low critical thinker students got higher score rather than the high critical thinker students. This finding contrasted some previous studies that dealt with the relationship between critical thinking and different language skills (Kamali and Fahim, 2011; Hassani, Rahmany, and Babaei, 2013; Golpour, 2014; Khodashenas and Farahani, 2014).

D) The Teaching and Learning Process through Modified CALLA

From the field notes which were included in the observation sheet, clearly, the teaching and learning process through modified CALLA run well as expected by the researcher. The students in both classes (XI A1 and XI A2) actively participated in those five steps of CALLA: preparation step, presentation step, practice step, evaluation step and expansion step. Based on the finding of qualitative data, it confirmed some previous studies that dealt with the implementation of Cognitive Academic Language Learning Approach (CALLA) in different language skills (Takallou, 2011; Diaz, 2015; Nejad and Shahrebabaki 2015).

CONCLUSION

In line with the analysis of the data gained during the research, the findings and the result of the present study in the previous section, the researcher draws to these following conclusions:

- 1) In relation to the students' writing achievement, the analysis of the collected data showed statistically significant positive relationship between metacognitive strategy instruction through modified CALLA and improving students' writing achievement. Particularly, it was found that content aspect increased more significantly than the other aspects of writing.
- 2) In terms of the usage of metacognitive strategies, the analysis of the collected data revealed statistically significant positive relationship between metacognitive strategy instruction through modified CALLA and improving students' metacognitive strategies use. Specifically, this current study found that monitoring strategies was the highest one employed by the students after the treatment.
- 3) Concerning the relationship between critical thinking and writing achievement, the analysis of the collected data showed statistically no significant impact of the students' critical thinking

level toward their writing achievement since the result showed the middle critical thinker students and the low critical thinker students got higher score rather than the high critical thinker students. The researcher assumed that there were some factors that might affect the students' critical thinking and other factors also had impact in their writing achievement. The possible reasons deal with language proficiency, component of learning, and students' motivation.

- 4) Regarding to the teaching and learning process through modified CALLA, from the field notes which were included in the observation sheet, clearly, the teaching and learning process through modified CALLA run well as expected by the researcher. The students in both classes (XI A1 and XI A2) actively participated in those five steps of CALLA: preparation step, presentation step, practice step, evaluation step and expansion step.

REFERENCES

- Anderson, N. J. (2005). L2 Strategy Research. In E. Hinkel (Ed.), *Handbook of Research in Second Language Teaching and Learning* (pp. 757–772). Mahwah, NJ: Lawrence Erlbaum Associates.
- Caroll, R. T. (1990). *Students Success Guide – Writing Skills* [Accessed 8th October 2016]. Available at: <http://www.skepdic.com/refuge/writingskills>.
- Chamot, A. U. (1995). Implementing the Cognitive Academic Language Learning Approach: CALLA in Arlington, Virginia. *The Bilingual Research Journal*, Vol. 19, No. 3 & 4, pp. 379–394.
- Chen, X. and Xiao, G. (2016). A Survey Study of Chinese College Engineering Students' Use of Metacognitive Strategies in English Writing. *Theory and Practice in Language Studies*, Vol. 6, No.7, pp. 1390–1395. ISSN: 1799-2591. DOI: <http://dx.doi.org/10.17507/tpls.0607.09>.
- Coskun, A. (2010). The Effect of Metacognitive Strategy Training on the Listening Performance of Beginner Students. *Novitas-ROYAL (Research on Youth and Language)*, Vol. 4, No. 1, pp. 35–50.
- Diaz, I. (2015). Training in Metacognitive Strategies for Students' Vocabulary Improvement by Using Learning Journals. *PROFILE Issues in Teachers'*

- Professional Development*, Vol. 17, No. 1, pp. 87–102. <http://dx.doi.org/10.15446/pr ofile.v17n1.41632>.
- Fahim, M. and Ghamari, M. R. (2011). Critical Thinking in Education: Globally Developed and Locally Applied. *Theory and Practice in Language Studies*, Vol. 1, No. 11, pp. 1632-1638. ISSN: 1799-2591. DOI: 10.4304/tpls.1.11.1632-1638.
- Golpour, F. (2014). Critical Thinking and EFL Learners' Performance on Different Writing Modes. *Journal of Pan-Pacific Association of Applied Linguistics*, Vol. 18, No. 1, pp. 103–119.
- Guo, M. (2013). Developing Critical Thinking in English Class: Culture-based Knowledge and Skills. *Theory and Practice in Language Studies*, Vol. 3, No. 3, pp. 503–507. ISSN: 1799-2591. DOI: 10.4304/tpls.3.3.503-507.
- Hassani, M. T., Rahmany, R., and Babaei, M. (2013). The Relationship between Iranian EFL Learners' Critical Thinking and Reading Comprehension Performance in Journalistic Texts. *Theory and Practice in Language Studies*, Vol. 3, No. 10, pp. 1873-1878. ISSN: 1799-2591. DOI:10.4304/tpls.3.10.1873-1878.
- Huy, N. T. (2015). Problems Affecting Learning Writing Skill of Grade 11 at Thong Linh High School. *Asian Journal of Educational Research*, Vol. 3, No. 2, pp. 53–69. ISSN: 2311-6080.
- Available at: www.multidisciplinaryjournals.com.
- Kamali, Z. and Fahim, M. (2011). The Relationship between Critical Thinking Ability of Iranian EFL Learners and Their Resilience Level Facing Unfamiliar Vocabulary Items in Reading. *Journal of Language Teaching and Research*, Vol. 2, No. 1, pp. 104–111. ISSN: 1798-4769. DOI:10.4304/jltr.2.1.104-111.
- Khodashenas, M. R. and Farahani, S. K. (2014). The Effect of Critical Thinking on Iranian EFL Learners' Speaking Ability. *Modern Journal of Language Teaching Methods (MJLTM)*, Vol. 4, No. 4, pp. 196–202. ISSN: 2251-6204.
- Kiasi, M. A. and Alavi, S. L. (2016). Procedural Rhetoric: An Alternative to Traditional Academic Writing Programs. *Theory and Practice in Language Studies*, Vol. 6, No. 12, pp. 2309–2319. DOI: <http://dx.doi.org/10.17507/tpls.0612.11>.
- Mahmoudi, A. (2017). Effect of Planning on Iranian Intermediate EFL Learners' Mastery of Writing Skill. *Theory and Practice in Language Studies*, Vol. 7, No. 3, pp. 219-226. DOI: <http://dx.doi.org/10.17507/tpls.0703.08>.
- Nejad, B. S. and Shahreabaki, M. M. (2015). Effects of Metacognitive Strategy Instruction on the Reading Comprehension of English Language Learners through

Cognitive Academic
Language Learning Approach
(CALLA). *International
Journal of Languages'
Education and Teaching*,
Vol. 3, No. 2, pp. 133–164.
ISSN: 2198 – 4999.

Setiyadi, A. B., Sukirlan, M., and
Mahpul. (2016). How
Successful Learners Employ
Learning Strategies in an EFL
Setting in the Indonesian
Context. *English Language
Teaching*, Vol. 9, No. 8, pp.
28–38. ISSN: 1916-4742.
URL:
[http://dx.doi.org/10.5539/elt.v
9n8p28](http://dx.doi.org/10.5539/elt.v9n8p28). Available at:
elt.ccsenet.org.

Takallou, F. (2011). The Effect of
Metacognitive Strategy
Instruction on EFL Learners'
Reading Comprehension
Performance and
Metacognitive Awareness.
Asian EFL Journal, Vol. 13,
No. 1, pp. 272–300.
[http://dx.doi.org/10.4304/tpls.
3.11.2004-2009](http://dx.doi.org/10.4304/tpls.3.11.2004-2009).