

The Effect of Self-Regulated Learning Toward Student's Writing Ability

Shokhikhatul Khasanah¹, Kiswati², Abd Hakim Muslim³

¹ STAI Nuruddhahlan Sumenep, Indonesia, ^{2,3} MAN 5 Jombang, Indonesia

Email: ^{1*}sofiaalhaidari@gmail.com; ²kiswatikinerja@gmail.com; ³hakim519@gmail.com

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ABSTRACT

Students need Self-Regulated Learning (SRL) to understand mistakes in scientific writing and achieve conceptual understanding. Background knowledge, age, gender, motivation, and self-regulated learning are affective factors that influence a person's success in acquiring a second language. For this reason, researchers then took self-regulated learning as a moderating variable in this study. The objective of this research is to determine whether there are differences in English writing abilities between students with different self-regulated learning. This study implemented a flipped classroom, while self-regulated learning was the moderator variable. The research method used in this study is a quasi-research with a pre-test and post-test control group design, while the teaching method for the experimental group used a flipped classroom. The participants of this study were 89 students. The study found differences in students' ability to write English based on SLR (Self-regulated learning). Future researchers are recommended to combine Self-Regulated Learning with other independent variables to obtain more diverse and useful data in educational research.

Keywords: Flipped Classroom, Self-Regulated Learning, Writing Ability.

INTRODUCTION

The Industrial Revolution 4.0 in the 21st century requires students to have various communication skills, collaboration, creativity, and critical thinking skills. Therefore, high cognitive ability is not a guarantee of a student's success in the future because, after all, developments over time require various competencies to be developed.

Kirschner & Hendrick (2020) state that someone will get the best knowledge if they experience it so that the knowledge will be well constructed. The teaching of constructivism offers a way of learning to discover knowledge individually and critically examine the knowledge or information obtained. It should no longer be used if it is no longer following current developments. Therefore, it is very urgent to apply learning using a constructivist approach to design learning activities that require students to be active in building knowledge. This is because the constructivist learning model emphasizes building knowledge based on the cognitive structure that students have mentally in the teaching and learning process.

The teaching of constructivism theory focuses more on students' success in organizing experiences, linking them with new information in reconstructing knowledge. This is by Cruikshank's (Cruikshank, Jenkin, & Metcalf, 2006) research regarding the implementation of the learning process through a constructivist approach,

which is said to have several main characteristics, including (1) active in learning; (2) students are involved in fundamental and customized learning activities schedule; (3) challenging and exciting learning activities; (4) learning is expected to be able to link new knowledge with old knowledge previously possessed; (5) students are also expected to be able to carry out reflective activities on the knowledge they have gained and what is being sought; (6) in the stage of constructing knowledge, educators have a role as facilitators, not just sources of knowledge; (7) educators are required to be able to provide the scaffolding needed by students during the learning process. The research above is also supported by research by Freedheim & Weiner (2021), who state that constructivism is a teaching method that emphasizes that successful learners can construct knowledge and understanding well.

Besides the constructivism approach, which builds students' success in their learning process from the outside, there are also factors from within students that also have an essential role in leading to their success in learning. These factors are individual regulatory factors in ideas, attention, changes in habit patterns, and all actions that can be taken to help improve and maintain learning achievement. In this case, we are familiar with self-regulated learning (SRL).

Students need self-regulated learning (SRL) to understand errors in scientific writing and achieve conceptual understanding (Winne, 2022). The conceptual framework refers to interpreting learners' cognitive, motivational, and emotional elements (Liu et al., 2020) (Rasheed et al., 2021). SRL is also believed to be a strategy students use to control their understanding of knowledge to become independent learners (learner autonomy).

Zimmerman (2023) stated that self-regulated learning (SRL) consists of three elements in the learning process: motivation, metacognition, and behavior, all of which originate from within the learner. Zimmerman, Greenberg, & Weinstein (2023) emphasized that self-regulated learning (SRL) is a process influenced by motivation, behavior, and metacognitive activities planned and adapted to support the achievement of learning goals.

Writing ability is vital to a student's academic activities (Wahid & Sudirman, 2023). Writing activities require cognitive processes to effectively combine the writer's ideas (Graham, 2020)(Lee, 2023). In the writing process, a learner must be able to organize their ideas in sentences and then arrange the sentences that have been put together into paragraphs, which become units of discourse. Students at the university level are required to have the ability to write for all academic matters (Jiang et al., 2022).

Many studies on writing strategies have been conducted by researchers (Teng et al., 2022) (Bernacki, Vosicka, Utz, & Warren, 2021) (Sun & Zhang, 2023). Writing ability is a complicated process because a learner must involve their cognitive and metacognitive activities, such as brainstorming, planning before writing, combining ideas, and even composing paragraphs. Writing is also described as compiling pieces of information, which are compiled into a narrative or description (Mostafaei & Masoudi, 2021).

Based on the explanation above, the researcher tried to determine the effect of Self-Regulated Learning on students' English writing abilities. This research aims to determine whether there are differences in English writing abilities between students with different self-regulated learning.

RESEARCH METHOD

The research design in this study used a quasi-experimental pre-test and post-test design (Lichtman, 2023). The total number of research subjects was 89 students, with details of 44 students in the experimental group and 45 students in the control group. The experimental group was taught using a modified flipped classroom with the help of student worksheets, while the control group was only assisted in the form of videos with standard flipped classroom learning.

This research occurred in the eighth semester of the 2023/2024 academic year. Before treatment, a pre-test was given to the experimental and control groups with the same question items. After the treatment was implemented in both groups, a post-test was held with the same number of question items and the same difficulty level as the pre-test questions. Self-regulated learning (SRL) is a moderator variable with two options: high and low.

The quasi-experimental design was a pre-test-post-test non-equivalent factionalized control group design (Lichtman, 2023) in a 2 x 2 factorial version. The groups were divided based on the number of treatments and types of groups studied according to the factorial design. A 2 x 2 factorial experiment was used based on the non-equivalent control group design. The main effect and interaction effect can be determined, as well as all treatment variables. Using a 2 x 2 experimental research design, the two-group pre-test-post-test design is used (Coe, Waring, Hedges, & Ashley, 2021).

The research instrument for measuring self-regulated learning is a questionnaire, and tests are used to measure students' writing abilities. Research instruments were tested for validity and reliability before being given to research subjects. Content and construct validity are used in testing instrument validity (Huntington, 2021). Reliability testing is to find out how much a measuring instrument can be trusted, meaning that reliability refers to the accuracy (consistency) of the measuring instrument. Data analysis in this research is descriptive analysis in the form of percentages and statistical analysis using the ANOVA formula.

Before carrying out ANOVA statistical analysis, several prerequisite calculations must be carried out, namely the classic assumption test, which consists of a data normality test and a homogeneity test.

RESULTS AND DISCUSSION

The results of this research are explained starting from the participants, pre-test and post-test scores, statistical analysis, and hypothesis testing. The results are reported clearly and concisely below.

Participants in this research subject were grouped based on different levels of Self-Regulated Learning (SRL), namely high and low. Determining high and low levels of self-regulated learning (SRL) is done by looking for intervals. Two theories for finding SRL value intervals are based on empirical and hypothetical values. The interval value taken based on empirical value is based on calculated data from the questionnaire results. Meanwhile, the interval value calculated based on the hypothesis value is the value taken from the maximum and minimum values of the questionnaire.

The researcher chose to determine the interval based on the following hypothesis: In the SRL questionnaire, a scale is used that refers to a scale of 1-4. The number of n questionnaires is 23. Thus, the maximum score from the SRL questionnaire is 92. Calculations using numbers will be shown as follows:

$$\begin{aligned} 92-23 &= 69 \\ 69 / 5 &= 34,5 \\ 34,5 + 23 &= 57,5 \end{aligned}$$

The number 34.5 is an interval value. Next, the interval value is added to the total number of questionnaire items, namely 23. So, the result is 57.5. Based on these calculations, high and low levels of self-regulated learning are obtained as follows.

Table 1. Criteria of Self-Regulated Learning

No	Self-Regulated Learning	Score
1	High	59-92
2	Low	23-58

The total number of participants in this research was 89 people. The experimental group consisted of 44 students, and the control group consisted of 45 students. Specifically, data on the distribution of research subjects based on treatment and SRL are presented in Table 2.

Table 2. Distribution of Research Subjects Based on Treatment and SRL

	Modified Flipped Classroom	Flipped Classroom	Amount
High SRL	29	32	61
Low SRL	15	13	28
Amount	44	45	89

Based on the table above, it can be seen that the number of students involved in the research was 89 students. Forty-four students in the experimental group received the modified flipped classroom (with 29 students having high SRL and 15 having low SRL). In the control group, 45 students received a flipped classroom in their learning process (32 students with high SRL and 13 students with low SRL).

The experiment group's instructions were done using a modified flipped classroom. The teaching model was modified by adding the student worksheet to help the students comprehend the material and write the task from the teacher more easily. At the same time, the control group classes applied flipped classrooms without adding

the worksheet with them. At the end of the instruction, the teacher gave a writing task on personal letter material. All experimental and control group students were asked to write personal letters to their pen pals at the other high school.

Next, a description of the SRL values and the number of samples in each category from the two groups of students who learn with different strategies are presented in Table 2.

Table 3. Description of Self-Regulated Learning Values

Group	Learning	Amount. N	SRL score		Average	Standard Deviation
			Highest	Lowest		
Experiment	MFC	44	86	54	77,68	4,253
Control	FC	45	78	53	69,03	5,096

Information:

MFC = Modified Flipped Classroom

FC = Flipped Classroom

Table 3 shows that the highest SRL value in the experimental group was 86 and the lowest SRL value was 54 with an average of 77.68, while the highest SRL value in the control group was 78 and the lowest SRL value was 53 with an average SRL of 69.03. Thus, the experimental and control groups have SRL values that are not much different, so this research can be carried out.

The hypothesis test results, which state differences in English writing ability between groups with different self-regulated learning using statistical tests, are summarized in Table 4.

Table 4. Hypothesis Testing

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2- tailed)	Mean Differ- ence	Std. Error Differ- ence	95% Confidence Interval of the Difference	
Writing Ability Flipped Classroom	Equal variances assumed	.607	.438	-7.248	87	.000	-8.007	1.105	-10.203	-5.811
	Equal variances not assumed.			- 7.153	67.082	.000	-8.007	1.119	-10.241	-5.773
Writing Ability Modified Flipped Classroom	Equal variances assumed	.200	.656	- 4.782	87	.000	-4.420	.924	-6.258	-2.583
	Equal variances not assumed.			- 4.745	68.302	.000	-4.420	.932	-6.279	-2.562

Based on the independent sample test table, writing ability shows the probability (sig) of classes that apply the flipped classroom model, and the modified flipped classroom model is 0.000 (<0.05), so there are differences in students' English writing

abilities based on SLR (Self-regulated learning). The significance value in the Leven test shows the homogeneity of the data. The data is homogeneous if the significance value is > 0.05 (0.438 and 0.656).

Furthermore, the results of the comparison of writing ability scores based on Self-Regulated Learning are summarized in Table 4 below.

Table 5. Comparison of Writing Ability Scores Based on SRL

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Flipped Classroom writing ability	Equal variances assumed	.607	.438	-7.248	87	.000	-8.007	1.105	-10.203	-5.811
	Equal variances not assumed			-7.153	67.082	.000	-8.007	1.119	-10.241	-5.773
Modified Flipped Classroom writing ability	Equal variances assumed	.200	.656	-4.782	87	.000	-4.420	.924	-6.258	-2.583
	Equal variances not assumed			-4.745	68.302	.000	-4.420	.932	-6.279	-2.562

Based on the data in the table above, it is known that the average value of the English writing ability of students who have high self-regulated learning is better than students who have low self-regulation in the experimental and control groups. The average score of the experimental group proves this. Students with high SRL got a score of 79.89, while students with low SRL got a score of 75.47. Likewise, in the control group, the average score of students with high SRL was 73.04, higher than students with low SRL who got a score of 65.03.

DISCUSSION

Based on the results of SPSS calculations on the writing ability test, it appears that the probability (sig) of classes that apply the flipped classroom model and the Modified flipped classroom model is 0.000 (< 0.05), in the sense that there is a difference in English writing ability based on SLR (Self-regulated learning). The significance value in the Leven test shows the homogeneity of the data. The data is homogeneous if the significance value is > 0.05 (0.438 and 0.656).

Based on the previous evidence, data was obtained that students with high SRL had higher writing ability scores than students with low SRL. This finding is supported by Yan (2020), who stated that students' metacognition is influenced by their level of self-regulated learning.

In line with the findings in this research, Pioneer (2019) also found that the level of SRL had a positive effect on English writing learning achievement. In general, Guo et al. (2021) findings stated that in junior high school students, self-regulated learning also positively influenced increasing student learning achievement. This case is characterized by the results of observations, which found that students with high levels of SRL appeared to be more active in studying, active in discussions in class, and enthusiastic about asking and answering questions. Students with high self-regulated learning are also better able to control, plan and manage their mental processes and turn them into achievements. They are also believed to be able to control their emotions, motivate themselves, and manage their time and effort using their metacognition to use them to achieve their goals (Zimmerman, Greenberg, & Weinstein, 2023).

Further, Edisherashvili et al. (2022) stated that there are several assumptions about self-regulated learning, including 1) constructive and active assumptions where students actively construct understanding, goals, and learning methods used during the teaching and learning process using information available in their mind and in the environment around them, 2) the assumption that SRL becomes capital to encourage, supervise, control, regulate certain aspects of motivation, cognitive and behavior according to the character that exists in the learner's environment if possible, 3) the assumption of criteria, objectives, and standards used to evaluate whether the learning process should continue when it is found that there are changed standards or criteria, and 4) the assumption that self-regulated learning functions as an intermediary between students as characteristics context, personal and achievement.

Pioneer (2019) added that the level of self-regulated learning can have maximum influence if appropriate learning methods accompany it. By combining learning methods and SRL optimally, these two variables will support each other to improve optimal learning outcomes.

CONCLUSIONS

Based on the previous research findings, the author tries to conclude that there were differences in students' writing abilities based on SLR (Self-regulated learning). Based on the previous evidence, data was obtained that students with high SRL had higher writing ability scores than students with low SRL. In the discussion section, it was discussed that writing skills have more prerequisites than reading. To be proficient in writing, a person must read frequently, practice, and have adequate vocabulary and grammar skills. So, it can be said that high levels of self-regulated learning will undoubtedly help students improve their writing skills.

For researchers interested in using self-regulated learning as a moderator variable, it is advisable to look further for similar references, such as self-efficacy or self-esteem, to avoid misconceptions. Future researchers are also advised to combine self-regulated learning with other independent variables to obtain more diverse and valuable data in educational research.

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