Volume 01, Number 02, December 2022 e-ISSN: 2830-7933 DOI: 10.55299/ijere.y1i2.253

# The Effect of Learning Strategy and Critical Thinking Ability on English Essay Writing Skills

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Article history: received December 12, 2022; revised December 23, 2022; accepted December 25, 2022

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Abstract. The Informatics Engineering Study Program at Mitra Karya University Bekasi has two English courses given in semesters 1 and 3. In semester I, students study English which is directed at understanding grammatical and vocabulary in the field of Informatics Engineering. Students must be able to write a minimum of three paragraphs about their field. Learning to write essays is also aimed at mastering thesis abstract writing. Writing is one aspect of productive language skills. For this reason, the principle of teaching writing is how to make students have sufficient competence in an effort to produce good writing skills in students. However, the process of learning to write English essays is not as easy as expected so far. Students still experience many difficulties in writing essays, this causes the quality of the content of their English essays to be not optimal. Even though it is known that students should be able to react critically when reading an essay text that is presented either on a website, newspaper, magazine, or book. This study uses an experimental method and a quantitative approach, while the data collection technique is carried out by means of observation, tests and documentation, so the results of this study explain that from the results of the description of descriptive statistical data it is known that the average value of students who learn to write English essays using metacognitive strategies had an average score of 81.5 higher than students who studied with cognitive strategies. The difference is quite large that is equal to 7.5. From the results of the analysis of student learning outcomes, it is also known that the quality of essay writing by Informatics Engineering students has also increased from various aspects of the criteria for good writing. So, both cognitive and metacognitive strategies improve the quality of students' writing performance, appropriate writing strategies help writers to become more autonomous and help them to perceive, assess, and improve their learning and writing better.

Keywords: Learning Strategies, Thinking Skills, English Essay Writing Skills

# I. INTRODUCTION

The Informatics Engineering Study Program at Mitra Karya University Bekasi has two English courses given in semesters 1 and 3. In semester I, students study English which is directed at understanding grammatical and vocabulary in the field of Informatics Engineering. While in the third semester, students are directed to mastery in writing English essays in the field of Informatics Engineering. Essay writing that must be mastered by students is simpler and not as complex as in academic writing. Students must be able to write a minimum of three paragraphs about their field. Learning to write essays is also aimed at mastering thesis abstract writing. Writing is one aspect of productive language skills. It is said to be productive because by writing, the writer temporarily produces ideas and ideas in written form. For this reason, the principle of teaching writing is how to make students have sufficient competence in an effort to produce good writing skills in students (Abdollahzadeh, 2010).

However, the process of learning to write English essays is not as easy as expected so far. Students still experience many difficulties in writing essays. From the results of observations and evaluations of teaching and learning in the semester of the 2019/2020 academic year, it was concluded that the percentage level of passing English II courses (writing essays) was at the level of 40%. The ideal condition for learning English II is that students have the competence to write proficient English essays and these skills can be applied to the field of Informatics Engineering. The application that can be done by students is to understand the contents of English paragraphs in Informatics Engineering books that have been used as learning resources so far. Moreover, learning resources come from books that use English.

Problems related to written content that have been found from the evaluation of student writing include; 1) the grammar is not well structured because there are still errors in the use of sentence types, 2) the writing that is made lacks unity so that the sentences do not show the relationship between cohesion and coherence, 3) the use of punctuation marks and hyphens is still a lot that has not appropriate so that the relationship between sentences and paragraphs lacks meaning and has an impact on



understanding the context of the story being written, 4) difficulties in understanding the main and supporting ideas that cause a series of irregular sentences, 4) choosing vocabulary that is not appropriate to the context (informatics engineering field of study) and 5) difficulty making conclusions as the final paragraph (Akyol et al., 2010).

Of the five problems, they are in accordance with the concept of Richards and Renandya (2002) that writing skills are the most difficult thing, especially for second language students. The difficulty lies not only in generating and organizing ideas, but also in translating ideas into readable text. Writing skills are very complex. Second language writers should pay attention to higher-level skills of planning and organizing as well as basic-level skills of spelling, punctuation, word choice, and so on.

Some of the problems faced by foreign students when writing academically. The first problem is the students' lack of knowledge about academic writing conventions. Their compositions are usually formatted incorrectly, contain grammatical and spelling errors, lack punctuation, sentences do not vary and overall, their writing is not well organized and lacks clarity (Caldwell, 2012). However, Lai (2010) points out that lack of organization and clarity in academic writing is also a problem among native English students. This is because difficulties in academic writing are not due to lack of language skills, but lack of proper training in logical thinking skills. Many fail to provide a clear focus in their writing because when reasoning in academic writing, it must be more careful and comprehensive. Students need to know what the logical steps are before reaching a conclusion; That's why logical thinking is important because they need to connect ideas properly and form coherent arguments.

In writing activities there are two different abilities that contradict each other between creating and criticizing. In other words, writing is not only an ability to express or create words and ideas that exist in a person, but also an ability to criticize these words and ideas in order to determine the use of the right words. This activity is a conflicting mental process because it can be done simultaneously. When this activity is carried out, you will find words in your own writing that are diverse, intelligent, and well organized. However, such things are rarely done. Most of the time is used to separate the processes of creation and criticism so that the two activities do not conflict with each other. Writing freely and without criticism allows a person to come up with a variety of words and ideas without worrying about being right or not. Then carry out the next process, which is to adopt a critical frame of mind and revise what has been written, take the right words and discard the inappropriate words and arrange these words into a unified whole (Al-Jarrah et al., 2019).

Learning to write for students at the University should not be difficult anymore because they have basic English skills obtained from high school or semester 1. This skill is very important for students because learning to write at the University level already has different goals. For university students, learning to write leads to intellectual development and analytical power in accordance with the field of scientific study. Students can use their ability to develop ideas and creativity to develop their writing ideas (Murray, 2012).

Thus, students should be able to produce writings that can develop their knowledge of informatics engineering, while other problems that come from students are related to students' thinking patterns. From the results of interviews and observations during the learning process, it was concluded that the level of student imagination was still low in developing writing. Students find it difficult to develop the given topic because of limitations in developing ideas and ideas. In addition, students tend to wait for instructions and imitate existing texts, even though writing activities require high reasoning in developing ideas and vocabulary. This reasoning is certainly related to critical thinking skills. This causes the quality of the content of their English essay writing is not optimal. Even though it is known that students should be able to react critically when reading an essay text that is presented either on a website, newspaper, magazine, or book (Browne & Keeley, 2007).

In this case, students' critical thinking skills in class vary. From the mapping results, there are two groups of students' critical thinking ability patterns, namely high and low. These two groups have diversity in using the learning strategies applied by the lecturers. Li (2016) explained that there was a positive attitude from teachers in integrating thinking skills in language classes. Lower-order and higher-order thinking skills can contribute to the improvement of writing skills and which students need when studying at university (Klimova, 2013).

Many previous studies have presented the results of studies on the relationship between critical thinking skills and learning to write. Sabu & Vernandes (2019) stated that critical thinking skills have a positive impact on the results of argumentative essay writing. The same opinion was given by Widyastuti (2018) that the results of argumentative writing are not well developed because of the weakness of low critical thinking patterns. Therefore, critical thinking skills can be effectively taught and improved in writing classes (Nejmaoui, 2018). The results of research from Sopiani, Said, & Ratnawati (2019) that Higher Order Thinking Skills are used by students in learning to write.

Thus, the concept of critical thinking skills must be really considered by the lecturers in the class so that it becomes a unity in curriculum design. In the learning process must produce students who have critical and creative knowledge. Critical thinking ability can be considered as an important substance that contributes to the success of students learning English. Some skills in English such as listening, speaking, reading and writing can be successfully achieved every time students are critical, because critical thinking is also an ability that allows students to express everything freely (Irawati, 2014).

Generating ideas is a thinking activity that requires high-level creative thinking and action. Students need to learn higher order thinking skills to overcome difficulties in generating ideas, so, critical and creative thinking skills have an important role in learning a second language today. The obstacles faced for learning to write essays in the Engineering study program at Mitra Karya University Bekasi require innovative and appropriate problem solving in accordance with the needs of global competition or scientific developments. Because basically the provision of English courses for the Informatics Engineering study program is



Volume 01, Number 02, December 2022 e-ISSN: 2830-7933 DOI: 10.55299/ijere.v1i2.253

expected to help students in developing their knowledge using English. Moreover, many languages in program design use English. Therefore, students need an understanding of every text in English. This is the reason why the English II course for the Informatics Engineering study program is directed at learning to write essays.

From the problems it was found that the process of learning to write English essays for the Informatics Engineering study program requires the right strategy that can develop students' thinking skills. Evaluation of the results of learning to write English essays from September 2019 to May 2020 shows that the themes given in learning to write English essays have not been developed properly. This can be seen in the results of their writing which is limited to pouring information obtained from reading news sources and learning experiences. In fact, students should be able to share experiences and information obtained more broadly and deeply. This means that students do not use their critical thinking patterns in writing.

The process of learning to write English essays so far tends to lead to teacher-centered learning. Students still tend to wait for instructions from the lecturer in learning. In addition, students also only complete assignments without understanding or getting the meaning of the learning carried out. Because so far the lecturers only explain the material and give assignments. This has an impact on the results of student essays that are less developed. The vocabulary used has also not developed, especially for the development of written knowledge in the field of informatics engineering (Al-Zubeiry, 2019).

From the findings of problems in learning essay writing skills related to students' critical thinking skills, it is assumed that cognitive and metacognitive strategies can be applied in the process of learning English essay writing skills for Informatics Engineering students. This is the reason that this research should be done among others; 1) the process of learning to write English essays for students of the Informatics Engineering study program requires the application of learning strategies that are able to develop students' critical thinking patterns, 2) research on writing English essays for the Informatics Engineering study program has not been specifically carried out, 3) critical thinking skills of students in the field of Different Informatics Techniques in writing, 4) metacognitive and cognitive strategy concepts that are closely related to critical thinking skills, and 5) English for Informatics Engineering students is a language learning concept that should be directed at mastering texts in the field of Informatics. From the explanation of the previous background, broadly speaking, the problems in learning to write English for IT Study Program students were identified related to the use of learning strategies. In addition, the level of students' critical thinking skills has not been well mapped and in accordance with the strategies used by lecturers so far.

# II. METHODS

This research is a quantitative research with a 2x2 factorial design experimental method. Experimental research is one type of research that tests hypotheses to determine causal relationships (L.R.Gay, E.Mills, & Airasian, 2009, p.240). The dependent variable in this study was English essay writing skills, while the independent variable consisted of one active variable (treatment) and one moderator variable, including (1) learning strategies consisting of metacognitive (A1) and cognitive (A2) learning strategies; (2) moderator variables consist of high critical thinking ability (B1) and low critical thinking ability (B2). Data collection techniques used in this study were 1) observations made in preliminary research to obtain information on research problems and during the research process. Observation activities during the research process aim to observe every learning and teaching activity related to the application of cognitive and metacognitive strategies in writing English essays. 2) The test used to obtain learning outcomes from learning and teaching activities to write English essays. The test given is in the form of an essay to determine the level of essay writing skills. Meanwhile, the test given to students is to determine students' critical thinking skills in class in the form of choices. 3) Documentation is a document of student learning outcomes and photos taken during online learning activities (Purwanto & Sulistyasturi, 2017).

#### III. RESULTS AND DISCUSSION

Differences in English Essay Writing Skills Between Students Taught With Metacognitive Strategies and Cognitive Strategies in Groups of Students Who Have High Critical Thinking Ability. Students who were treated with metacognitive strategies and had high critical thinking skills had a higher average score than students who were treated with cognitive strategies. Based on the results of the calculation of data analysis, the calculated Q price is 11.889, with Q table at a significant level of 5% the magnitude is 4.68 and at a significant level of 1% the magnitude is 6.54. It turns out that the calculated Q is greater than the Q table at a significant level of 5% and 1%. Thus Ho is rejected and H1 is accepted, so it can be stated that there are differences in English essay writing skills between students who study with metacognitive and cognitive learning strategies in groups of students who have high critical thinking skills.

Figure 1 Graph of Visualization of the Effect of Interaction between Learning Strategies and Critical Thinking Skills on English Essay Writing Skills. The graph above illustrates that the interaction between learning strategy variables and critical thinking skills on English essay writing skills. Thus the research hypothesis is stated that the value of English essay writing skills learning with metacognitive strategies is better than cognitive strategies in the group of students who have high critical thinking skills. There is a fairly good difference in the English essay writing skills of students who have been taught with metacognitive strategies compared to cognitive strategies in the group of students who have high critical thinking skills.

The average value obtained from each group that received treatment with metacognitive and cognitive strategies. The average score for the group that learns with metacognitive strategies is 81.5 and cognitive strategies is 74. These differences



provide an understanding that each learning strategy has its own uniqueness. In metacognitive strategies, students have the ability to analyze writing assignments in determining what is needed, planning and completing writing assignments. Students mostly use metacognitive strategies in monitoring writing progress and choosing the right strategy in writing (Alidmat & Ayassrah, 2017).

During the learning process of writing essays which is carried out via zoom or online, students who are given metacognitive strategy treatment apply sequential learning stages starting from monitoring, observing, evaluating and controlling learning outcomes. This means that students develop English essay writing skills in an appropriate manner using the stages of the essay writing process. Metacognitive strategies have a significant influence during the writing learning process. Thus, metacognitive strategies build students' self-awareness to study regularly even though activities are carried out online via zoom. Monitoring of writing activities carried out through zoom has been carried out like face-to-face learning activities.

While the application of cognitive strategies in writing English essays can be seen in their mental processes in processing the information and knowledge they have to develop their writing. In the group of students who received cognitive strategy treatment, they were guided in solving difficulties in developing or writing essays from the themes given by the teacher. When learning activities take place, students find it difficult to find meaning in the text or theme they want to develop. Therefore, teachers guide students to relate new information to the knowledge concepts they have (Anker, 2010).

The research findings indicate that teachers and students have the opportunity to provide support for implementing learning strategies according to the character, learning conditions or situations, and student needs in achieving learning objectives in the English essay writing class. Teachers can focus efforts on helping students understand the concept of learning at a higher hierarchy or achieving learning outcomes at the highest level. This can be designed in the curriculum. Thus it can be concluded that the metacognitive strategy directs students to manage the learning process seriously from planning to evaluation. While the cognitive strategy directs students to solve problems in accordance with the direction of the lecturer.

For student learning outcomes in the high critical thinking group who were given metacognitive treatment had shown an increase in English essay writing skills that was better than the group that received cognitive strategy treatment. The lowest score obtained was 65 and the highest score was 82. From the data it was found that the number of students who got a sufficient grade / C was 1, students who got a good grade / B were 8 and students who got the highest score or very good (grade A) as many as 2 people. From the amount of data presented, it is known that students who get treatment with metacognitive learning strategies in the group of students who have high critical thinking skills are 90%.

Meanwhile, students who received the treatment of metacognitive learning strategies in the group of students who had low critical thinking skills also experienced an increase in their English essay writing skills. This is because the controlling group of students who have high critical thinking skills is very maximal through the concept of guidance. This means that groups of students who think highly critically are directed to be student companions during zoom activities. During class, students get group discussions or pair discussions. Students who think highly critically become leaders or consultants for students who think low critically if they have difficulty completing writing or developing themes. The number of students who got a very good grade (A) was 100%. Therefore, the process of controlling from groups with high critical thinking skills to students who have low critical thinking skills in using metacognitive learning strategies has a considerable influence on improving English essay writing skills (Bailey, 2003).

The group of students who were treated with cognitive strategies who had high critical thinking skills also experienced an increase. It can be seen that there are 100% of the number of students who experience an increase in grades to grade B level. When compared with students who have low critical thinking skills, the group of students who learn to use cognitive learning strategies shows better score data than the group of students who think high critical. It can be seen that the number of students who have grades at level B (good) is 4 people or 40%. While the number of students who are at the very good level (A) is 7 people or 60%. This condition has similarities with the condition of students who received metacognitive strategy treatment for groups with low critical thinking.

From the data that has been presented, it provides a new understanding that the concept of learning by combining the concept of peer learning can have a considerable impact on improving the English essay writing skills of Informatics Engineering students at Mitra Karya University. Moreover, during the Covid-19 pandemic, the online learning system certainly has a big impact on the level of learning motivation. Teachers should make greater efforts to encourage students' desire and independence during the learning process. In addition, lecturers try to use the brainstorming method to increase students' understanding of independent learning through a self-regulated learning process, because self-regulation is a part that can be associated with the application of metacognitive strategies. As has been described in previous research, the findings are strong. In addition, the emphasis on independent learning and self-regulated learning is based on the consideration that if students have the right mindset and learning patterns, they will have a big influence on the achievement of learning success (Blank, 2000).

Findings from the influence of metacognitive and cognitive strategies are indeed closely related to critical thinking patterns and sequential learning concepts. This is of course very much needed to learn to write. Thinking is one of the strategies in the process of learning to write. Critical thinking integrates and explores a wide range of skills including reasoning, organization and planning as well as understanding grammar and punctuation rules. Thus, during the critical thinking process that takes place in learning to write essays, it also involves basic activities, the writing process and the writing results to be produced. So, these findings are in line with Cottrell's opinion that critical thinking is a deliberation process that involves



various skills and attitudes. These include: 1) identifying the other person's position, 2) evaluating evidence, 3) weighing opposing arguments, 4) being able to read between the lines, 5) recognizing techniques, 6) reflecting on the problem, 7) drawing conclusions, 8) presenting a point of view (Cottrell, 2005b). According to Dunn, Halonen and Smith that there are three categories in writing activities related to critical thinking, namely basic tasks, process issues, and outcomes. Critical thinking is an activity that involves thinking patterns related to abilities and actions. The basic task is related to the process of students' basic abilities in learning to write essays. The process will relate to the level of essay writing ability at a higher level because it involves a mindset. While the results of learning to write essays are related to complex abilities because students have succeeded in expressing their writing skills or in other words students have produced writing (Ferriman, 2013).

Moreover, essay writing learning activities that are carried out online must also be carried out sequentially. From the opinions described previously, it is clear that metacognitive and cognitive strategies are closely related to critical thinking patterns. Moreover, the lecturer has given treatment to students very precisely because the personality aspect is also considered. In addition, interactive communication really must be maintained during the online learning process. From the results of observations during the experimental process, it shows that students tend to be passive and close the video if they are bored or the level of learning motivation decreases.

The different findings during the online learning process to write English essays and these findings can be used as a guide in carrying out online learning activities through zoom, namely, the completeness of learning media that is suitable for learning to write essays. The media used are video (YouTube), powerpoint animation used when explaining the material, texts from the website that are used as essay writing practice texts, google classroom, and zoom. Lecturers also provide opportunities for students, especially for groups of students who have low critical thinking skills to present writing accompanied by colleagues who have high critical thinking skills (Gustiani et al., 2020).

This is also used by lecturers to explore students' peer assessment abilities, then students are given the freedom to build independent learning during zooming through group discussion activities. Students also get the opportunity to adjust the zoom while studying (hosting). This is of course to build students' understanding in the process of writing English essays through metacognitive and cognitive learning strategies. Self-regulated learning and different personality types show different levels of managing metacognitive and cognitive strategies for each student during the online learning process. This means that this study provides different findings from previous research. However, for students who have high critical thinking skills, it is less challenging. However, during the process of being a mentor for students who have low critical thinking skills, they tend to have higher learning levels. This can be seen from the attitude of how to lead the discussion.

Metacognitive and cognitive strategies can be learning strategies that lead to increasing student achievement. During the online process, the lecturer found that students with introverted personalities were more suited to be taught using metacognitive strategies than cognitive strategies. On the other hand, students who have extroverted personality are more suitable to be taught with cognitive strategies than metacognitive strategies. This means that lecturers can consider the type of student personality with their critical thinking skills so that they can be balanced so that they can implement learning strategies optimally.

In the midst of the Covid-19 pandemic, which has directed the implementation of online learning, it has become the dominant part to prove the effect of cognitive and metacognitive strategies on improving English essay writing skills. Moreover, online learning activities require strategies that can build interactive communication between students and students, and lecturers and students. So, the most important part that is different from this research is, the online class uses zoom in every meeting (8 meetings). While online, the experimental and control classes were treated using cognitive and metacognitive strategies. In this case, online class timing using zoom has an important position on the successful implementation of these cognitive and metacognitive strategies. Therefore, the researcher designed each stage of the strategy with a strict time division when online classes were carried out.

Testing English essay writing skills for students of the Informatics Engineering study program via zoom with a time span of 1 hour so that test activities can still be supervised then students must send the test results to Google Classroom which has been determined by the timeframe. This means that if students are late in submitting test results, they will not be able to send test results to Google Classroom (Handoko & Antaridha, 2019).

Of these two important things, this study designs online classes such as face-to-face classes, this can be seen in the role of researchers as lecturers who teach classes directly as moderators or hosts who will control zoom interactions and arrange classes so that the implementation of these strategies can be in accordance with the design. set time. So, the researcher acts as an online class moderator who shows the pedagogical, technical, social, and managerial roles, the pedagogical role of the online class in writing English essays is understood from the activities of teaching lecturers and facilitating students to carry out online learning activities. In addition, lecturers also conduct communicative interactive activities to get student responses that are directed at students' critical thinking skills in developing the experience of learning to write English essays. The social role of the researcher is created through the creation of a zoom (screen) environment that encourages students to actively learn during online classes.

The online learning environment offers information in various forms such as text, diagrams, and images to guide students to be productive when developing essay writing. In addition, the learning environment provides students with theory and successful examples of what good essay writing should look like. Online learning environments offer several advantages such as customized or personalized instruction for students with varying prior knowledge, encouraging the acquisition of specialized



knowledge, or promoting active learning, providing individualized feedback, or reducing cognitive load. The results of in-depth observations during the implementation of the experiment, this study found the weaknesses and strengths of metacognitive and cognitive strategies for learning activities to write English essays, especially for students who are not in the English language study program, namely, metacognitive strategies to build student independence in self-regulating for learning. write English essays. Students who have high critical thinking skills are able to control metacognitive strategies better than students who have low critical thinking skills (Junianti et al., 2020).

Metacognitive strategies provide opportunities for students to reflect on the learning outcomes that have been achieved. For students who have low critical thinking skills, it is easier to focus on progressing learning outcomes. Students who have difficulty understanding examples of texts are able to seek information from the knowledge they have. Moreover, students who have low critical thinking skills are assisted by students who have high critical thinking skills. Students are able to build more lively and interactive discussions during the online process. This provides progress for students who have low critical thinking skills. Meanwhile, students who have low critical thinking skills and personality tend to have difficulty implementing the stages of metacognitive strategies because they tend to wait for other people's help. Although in the end, they are assisted by students who have high critical thinking skills.

#### IV. CONCLUSIONS

The results of data analysis concluded that metacognitive strategies were better than cognitive strategies. Overall this has an impact on improving English essay writing skills. From the results of the description of descriptive statistical data, it is known that the average score of students who learn to write English essays using metacognitive strategies has an average value of 81.5 higher than students who study with cognitive strategies. The difference is quite large that is equal to 7.5. From the results of the analysis of student learning outcomes, it is also known that the quality of essay writing by Informatics Engineering students has also increased from various aspects of the criteria for good writing. So, both cognitive and metacognitive strategies improve the quality of students' writing performance, appropriate writing strategies help writers to become more autonomous and help them to perceive, assess, and improve their learning and writing better. If it is associated with the level of critical thinking skills, it also provides an increase in English essay writing skills. Everyone can develop critical thinking patterns in understanding content. Every aspect that builds critical thinking patterns is combined with aspects in learning to write essays. This has a major impact on the implementation of metacognitive and cognitive strategies. The results of data analysis also show that there is an interaction between metacognitive and cognitive learning strategies with high and low levels of critical thinking skills towards improving English essay writing skills. From in-depth data analysis, it is concluded that learning strategies can be successfully applied to achieve learning outcomes which are also determined by the mastery and success of students in applying them in class.

### **ACKNOWLEDGEMENTS**

The author would like to thank the Chancellor, Chairman of LPPM Muhammadiyah University Pringsewu for sponsorship and financial support.

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