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Research Article

Increasing Students' Critical Thinking Skill and Motivation through Flipped Classroom in English Learning

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A B S T R A C T

Motivation is very necessary for students in learning English. Student success in language mastery can increase along with increasing students' critical thinking skills. However, most high school students and above have a poor level of thinking in learning. Therefore, teachers must use appropriate learning models to improve students' critical thinking. The purpose of this research is to examine the impact of implementing the Flipped Classroom model on students' critical thinking skills. The samples are 38 high school students in experimental class and 37 students in control class. The experimental class was taught using Flipped Classroom learning and the control class using conventional techniques. This research data is collected using a multiple-choice test from the Cornell Critical Thinking Test and a motivation questionnaire. Data analysis was carried out by testing hypotheses using t-test. The results showed that there were significant differences between critical thinking in the experimental class and the control class. So, the flipped class model in learning English is very suitable to use in learning.

INTRODUCTION

Critical thinking (CT) is important to assess a problem and arrive at a solution. Critical thinking is important for overcoming various unpredictable daily problems and global difficulties (Seibert, 2021). Continuous use of critical thinking techniques is required during the learning process. The goal is to create students who are able to handle learning challenges in real-world situations (Wenno et al., 2022). Various elements including assessment tools, learning resources, education systems, teacher recognition, pedagogical knowledge and skills are integrating CT exercises (Agustina et al., 2022; Chou et al., 2019). It is imperative to connect the teaching of the English language with the development of CT abilities, notwithstanding the

lack of a clear consensus on how to do so (Lintangsari et al., 2022). Thus, the subject of (CT) is not new because academics have never stopped talking about it (Pasaribu & Iswandari, 2019). CT is a valuable skill that educational institutions can provide to their students (Muvid et al., 2022). CT may really be a fairly common trend in education that is the subject of numerous studies around the world, considering the dynamic interaction that exists between students' learning and teachers' methods of instruction (Dixon et al., 2005; Fahim et. al, 2012; Farralelli, 2009; Marashi et. al., 2019; Şendağ et. al, 2009)

Several components must work together to support students to solve challenges creatively and critically, such as communication, collaboration, and digital literacy cannot be overstated (Dowell et al., 2020; Mutohhari et al.,

2021; Nonthamand & Songkhla, 2018). Critical thinking and ingenuity of students in solving problems will be seen. It's a common belief that critical thinking is the most crucial aspect of schooling. (Abidin et al., 2019; Mundilarto & Ismoyo, 2017). When the characteristics of students can meet the indicators, such as solving problems with direct solutions, compiling basic steps for solving problems, arriving at conclusions, elaborating solutions, and planning and developing strategies to determine the best results, they have good CT (Sutama, 2022). According to Ennis (1989), concept of CT involves assessing statements and making informed judgments based on reasoning and reflection. It underscores the significance of engaging in a logical and reflective thought process to arrive at well-founded conclusions.. Critical thinking skills support higher-order thinking and problem-solving, according to Bloom's taxonomy, which describes the highest degree of thinking as the act of assessing that focuses on the capacity to make decisions based on critical analysis, sections addressing induction, credibility, observation, deduction, and assumption identification (Ennis, 1993). Moreover, processing, dissecting, and manufacturing hypotheses are all goals of critical reasoning. It typically makes use of a wider variety of data through conceptualizing, applying, analyzing, synthesizing, and evaluating material actively and skillfully in order to arrive at a solution or conclusion (Sari & Prasetyo, 2021).

To effectively introduce the concept of the flipped classroom, it is important to first link it to the development of critical thinking skills. The flipped classroom model, which has gained popularity in recent years (Nugraheni et al., 2022), is particularly effective in fostering critical thinking among students. By dividing learning activities between school and home, this method allows teachers to create video-based lessons using internet and modern technologies, which students can engage with at home (Aburayash, 2021). This approach encourages students to critically analyze the material independently, paving the way for deeper understanding and more meaningful in-class discussions.. Learning activities in class include doing assignments, discussing material or problems that students do not yet have. understood (Smith et al., 2018). Students who struggle to comprehend lectures can benefit from the flipped classroom model to play back, rewind, or re-read information shared by lecturers through the media, whenever and wherever they choose in their spare time (Sudarmaji et al., 2021). Transforming learning by disseminating knowledge that can be accessed remotely (Blignaut & Moser, 2019). Using a variety of teaching tools can help students arrive at multiple understandings (Mohammed et al., 2022). The flipped classroom, in its broadest sense, is a teaching technique if learning occurs outside of the traditional classroom, where homework and

class time are switched (Bergmann, Jonathan, 2012; Turan & Akdag-cimen, 2019). By using flipped classroom students can study anywhere and anytime. The flipped classroom approach to education is successful and productive (firdausa fadhilah, 2021). Regarding to the utilization of flipped learning approaches, teachers can use the approach as students-centered learning for increasing students' higher-order thinking skills (Baharum et al., 2020). Flipped classroom also modifies technology that is put to good use for learning (Lestari, 2021). The issue of students' lack of self-discipline when participating in learning can be resolved by using flipped classroom instruction (Silalahi et al., 2022). By utilizing the flipped classroom learning approach, students are taught how to take responsibility for their own education both inside and outside of the classroom (Kortemeyer et al., 2020). For now, teaching memorization and instructions imposed by teachers are no longer effective learning (Ujir et al., 2020). Additionally, in the modern digital era, the method of learning English through a conventional or teacher-centered strategy is no longer applicable (Dia, 2024).

In learning English, Flipped Classroom can make students improve CT and motivation. It is possible to increase pupils' CT utilizing a variety of effective techniques, for example, carefully crafted study assignments in a writing class (Afshar et al., 2017; Lu et al., 2019). The teacher may use student essay responses to critical thinking assignment to assist students in honing their critical thinking (Larsson, 2021). Teaching reading comprehension and reading with an emphasis can increase understanding of high-level thinking skills (Mohseni et al., 2020). Listening and speaking also can be an effective strategy for developing critical thinking (wulan, 2022). These methods can be used by the teacher to help English language learners enhance their critical thinking skills while educating them.

Students' low learning motivation and poor English language proficiency can be influenced by the traditional lecture method used by teachers, which may not effectively engage students (Softa, 2022). Research indicates that intrinsic motivation, stemming from a genuine desire for the language, is a significant factor in language acquisition (Hung, 2023). Intrinsic motivation enables learners to use the language naturally and take an active role in their learning process (Azzawi & Taha, 2023). Conversely, students driven by achievement motivation perceive learning English as an accomplishment, fostering a pursuit of excellence (Jiao, 2024).

Moreover, a lack of motivation can result in disengagement during lessons, impacting students' English listening, speaking, reading, and writing skills (L. Arcipe & Balones, 2023). Motivation plays a crucial role in students' language learning achievements (Chen, 2023). Teachers have a substantial influence on students' motivation, followed by

students' attitudes towards learning and parental influence (Wekerle et al., 2020). The motivational strategies implemented by teachers can affect students' motivation and learning outcomes (Batubara et al., 2020).

There are several findings that show the effectiveness of implementing the flipped class. First research conducted by Fadli (2022) which examines how the flipped classroom format has helped students' critical thinking skills in their study of history. The study's findings show how teaching history in a flipped classroom dramatically improves students' ability to think critically. As a result, it is extremely appropriate to use and execute the flipped classroom paradigm in the teaching of history. The second from Kurnianto & Haryani (2020) which investigated how students' levels of motivation, critical-thinking, and science learning outcomes are impacted by the flipped classroom paradigm. The study's results demonstrate that the flipped classroom paradigm can enhance students' motivation, science learning outcomes, and critical thinking abilities. Andriani (2019) said that the purpose of the study is to determine how project-based learning and flipped classrooms affect students' capacity for critical reasoning. Yulian (2021) said that the goal of this research to suggest ways that EFL students in higher education could improve their reading comprehension and critical thinking skills by using a flipped classroom teaching model. Mohammed (2022) said that the purpose of this research was to look into how Success with vocabulary and study motivation among Omani pupils in grade ten were affected by the flipped classroom strategy. Kortemeyer (2020) also stated that the group investigation strategy used in flipped classroom learning demonstrates how the teacher's approach to creating mathematical learning activities for the class can help pupils become more interested in the subject.

From several researchers above, researchers found lack of previous research researchers who focus on learning history, mathematics and science. Therefore, in this research the researchers focused on improving students' learning of English in critical thinking, and student perceptions in increasing learning motivation. In English learning, all language skills are studied, like listening, speaking, reading and writing in argumentative text material at senior high schools in Tangerang. The flipped classroom approach has been successful in increasing and developing a variety of abilities in a variety of learning resources. However, it has been the focus of countless studies. In order to ascertain how the classroom is flipped affects students' motivation to learn English and their capacity for critical thought, research was conducted.

METHOD

A quasi-experimental research design is used in the current study. The use of statistics or numbers in quantitative research enables researcher to gauge the state of the world (Stockemer, 2019). The research examines the variations and outcomes of employing the flipped classroom to teach English. The samples consisted of 75 students of senior high school in Tangerang who are 35 males and 40 females, and were divided into two groups. . 38 students were in the experimental class that is taught using flipped classroom learning method and 37 students in the control class that taught using traditional method. To compare the differences between the two groups, a pre-test was administered to the group prior to treatment, and a post-test was then administered.

Data collection techniques used tests and questionnaires. The Cornell Critical Thinking Test, which is intended to evaluate the development of critical thinking, was utilized in the test. The questionnaire is used to see students' motivation in using the Flipped Classroom learning model. Based on pre- and post-test results, the data analysis in this study performed statistical analysis of the sample t-test to determine whether learning English through flipping classes had an impact on improving critical thinking. Prerequisite tests using normality and homogeneity tests have normal distribution results and groups have homogeneous data. So, that research can be continued for analysis tests. Data analyzed in this research was using the SPSS 26 version.

As part of the data gathering process, students completed a pretest prior to treatment and a posttest following treatment. Students' critical thinking skills were evaluated before and after tests in order to collect data. In order to ascertain whether there was a substantial change between the two assessments following therapy, critical thinking tests were given both before and after treatment. The test was finished in 50 minutes by the students. After the test was completed, the researcher analyzed the students' critical thinking results to get a score for each student. The critical thinking test used four aspects such as induction, deduction, credibility, assumption. This aspect was taken because it is a student's critical thinking skill. Induction to identify conclusion about special matters to be general matters. Deduction to identify conclusions from general matters to specific matters. Credibility is to identify information with observation and credibility. Assumption is to identify assumption and reason, and examine the argument. After carrying out the test, students were given a questionnaire test regarding being persistent in learning, bored with flipped classes, persistent in doing assignments, and defending their opinions.

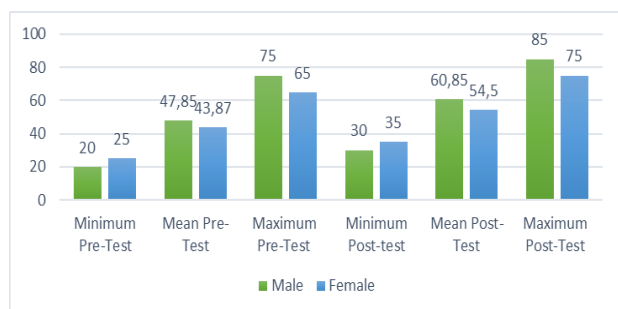
RESULTS AND DISCUSSION

The results found an increase in the treatment effect using the flipped classroom. It was enhancing students' critical thinking abilities with materials in English. There is evidence that flipped classrooms help pupils develop their critical thinking skills (Fadli et al., 2022).

Table 1. Data Description

	Pre-Test	Post-Test	Difference
Experimental Class	50.13	61.45	11.32
Control Class	41.22	53.51	12.29
Male	47.85	60.85	13.00
Female	43.87	54.50	10.63

Table 1 shows that the experimental class scored 50.13 on the pre-test, 61.45 on the post-test, and 11.32 points less on the difference between the two tests. In contrast, the control class's pre-test score is 41.22, post-test score is 53.51, and the difference is 12.29. The male results are then 47.85, post-test 60.81, and the difference is 13.00 from the pre-test, while the female results are 47.85, from the post-test 54.50, and the difference is 10.63. It can be said that teaching English in a flipped classroom can improve the students' critical thinking skills in the experimental class but not better than control class.



Picture 1 Percentage of Gender

Based on Picture 1 the comparison between the male mean value in the pre-test is 47.85, and the female mean value in the pre-test is 43.87, the difference in this comparison is 3.98. Meanwhile, the average post-test score for men is 60.85, the average for women in the post-test is 54.5, so the difference is 6.35, meaning that the value of critical thinking in men is higher than critical thinking female.

Table 2. Hypothesis Test

Independent Sample T-test						
Levene's Test for Equality of Variances						
		F	Sig.	t	df	Sig. (2-tailed)
Critical Thinking	Equal variances assumed	1.493	.226	3.253	73	.002
	Equal variances not assumed					
Motivation	Equal variances assumed	1.822	.181	5.495	73	.000
	Equal variances not assumed					

The experimental and control classes' sig (2-tailed) values were 0.002 which lower than 0.05, respectively, according to the aforementioned table, which was based on the preceding data. It is obvious that having a flipped classroom has a significant effect on the students. Since the findings of the above table indicate that the sig (2-tailed) value is known to be $0.000 < 0.05$, it can be concluded that the flipped classroom, when used to teach English, can boost student motivation and that the flipped classroom can be an alternate model in learning other study materials. This finding is consistent with the previously mentioned framework for decision-making. This research to ascertain the effects of the flipped classroom technique on students to think critically and motivation to learn English. The Cornell Critical Thinking Test indications were used to guide the selection of pre- and post-test questions. The results of the post-test indicate that the experimental class and the control class's students' critical thinking abilities differ from one another. The researcher computed the data after obtaining the pre- and post-test score data. The average pre-test score for students in the experimental class was 50.13, and after utilizing the flipped classroom learning model, their post-test average was 61.45. The research found that there was a substantial difference between the pre-test experimental and post-test experimental, supporting the research hypothesis that flipped classrooms increase students' motivation and critical thinking. The results clearly show that H_a is accepted and H_o is rejected, proving that the flipped classroom affects students' English-learning processes and boosts their motivation and critical thinking.

Fadli (2022) states that using the flipped classroom learning model can help students who have difficulty understanding history teaching. Further, based on the study of Andriani (2019), it was found that project-based learning's flipped classroom learning style has an impact on students' critical thinking. The model contributes to an

attractive, effective, student-centered learning process. In addition, it also improve students' abilities and enthusiasm to solve everyday life problems. Kortemeyer (2020) also stated that the group investigation strategy used in flipped classroom learning demonstrates how the teacher's approach to creating mathematical learning activities for the class can help pupils become more interested in the subject. The flipped learning paradigm, which used technology to integrate learning principles outside and within the classroom, made learning more adaptable, dynamic, cooperative, and pleasurable for the students. Another researcher Kurnianto & Haryani (2020), explained that the flipped classroom approach to education is successfully in improving students' science learning objectives, critical thinking skills, and motivation. They found a connection between learning motivation, critical thinking skills, and scientific academic success.

The success with the model of the flipped classroom in teaching pupils to think critically is enhanced. The widening discrepancy between pre- and post-test student test results serves as evidence of this. Students are more involved in class because they are enthusiastic about what they are learning thanks to their earlier homework. Additionally, this study found that male students performed better on tests of critical thinking than female students, indicating that compared to male pupils, female students exhibit lower levels of critical thinking.

CONCLUSION

The flipped classroom is an effective way to teach English. According to the exam findings, the experimental class outperformed the control group, which did not employ the flipped classroom learning technique. On the findings and discussion, this conclusion is drawn. The hypothesis (H_a) is accepted and the hypothesis (H₀) is rejected based on the findings of the hypothesis test, which demonstrate probability (significant). Thus, the t-test results demonstrate that flipped learning can aid students in developing their critical thinking. This shows a clear difference between the two states before and after treatment. Using a flipped classroom can increase students' critical thinking skills and produce significant learning improvements. The flipped class model in teaching English is quite effective and can increase student motivation in learning English. Implementing flipped classrooms can be an alternative choice for teachers in teaching other subjects. It is expected that this research can be developed by incorporating several teaching strategies into English lessons as learning resources to boost students' critical thinking and learning motivation.

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