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Original Research

## The Role of Reflective Writing Components in the Development of EFL Student-teacher's Critical Thinking: A Quasi-Experimental Study

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### Abstract

*The aim of this study was to examine the role of reflective writing in improving the critical thinking skills of EFL student teachers. The participants were first-year second-semester EFL diploma trainees at Asella College of Teacher Education (ACTE), comprising two intact groups: an experimental group (D1) and a control group (D2). The study used the quasi-experimental non-randomized control group approach. The study employed a multiple regression data analysis model to examine the contribution of reflective journal writing and group debriefing in the first and second rounds on the student teachers' critical thinking skills. The finding from regression analysis reveals that writing in a reflective journal had a significant beneficial impact, with the coefficients of 4.931 ( $p < 0.001$ ). Similarly, group debriefing has a positive correlation with critical thinking coefficient ( $B$ ) of 0.203 ( $p < 0.01$ ). The results also show that reflective writing components support critical discussion. In this context, incorporating reflective writing (RW) into English language education is both timely and significant, aligning with Ethiopia's transition to a competency-based curriculum and its focus on developing competent professionals. Since critical thinking (CT) is increasingly recognized as a key educational skill, the experiences from Ethiopian classrooms provide useful lessons for other education systems encountering comparable challenges worldwide.*

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## INTRODUCTION

Critical thinking is very imperative for learning, decision-making, and problem solving in many areas of life, including school. Many scholars emphasize the importance of critical thinking, not just as an essential aspect of education but as the life skill that is needed more than ever in the world today. Facione

(1990) describes it as "habitual, intentional judgment" that combines interpretation, analysis, evaluation, and inference. Halpern (2014) suggests that given as a set of competencies as well a flexible disposition, it is something learners need in order to effectively deal with their complex academic

and real-world environments. The ability to think critically plays a vital role in academic achievement and, more specifically, in language learning. Across the curriculum, students are encouraged to strengthen their critical thinking competence. As noted by Sunra (2022), these skills involve identifying causes, assessing arguments and supporting evidence, interpreting complex texts, solving unfamiliar problems, making informed decisions, and demonstrating creativity in thought.

In EFL world, we teach that pre-condition for the development of critical thought is deep understanding and meaningful communication. This eventually translates into being more proficient in the language - something many recent findings point to be important. An influential study for example is the one written by Sajidin and Supeno (2024) which demonstrates that the better students think along, the better is their attitude towards and level of critical thinking and reflection. Previous studies have shown that teaching of critical thinking (CT) in the context of EFL has affected improvement in learners' analytical skills and language proficiency. Li's (2019) chapter on CT in the Chinese university EFL classroom, for example, demonstrates that CT instruction in the form of direct instruction can enhance students' analytical competence as well as their language proficiency in general.

According to Li (2019), explicit CT education significantly enhances learners' analytical skills and linguistic fluency. CT is very important locally in Ethiopia, as it allows for fast research and analysis of arguments. Although the relevance of CT is recognized both globally and locally, there has been little empirical study on CT development among English language learners, particularly in Ethiopia. Similarly, Hussien (2018) found that

reflective journal writing improves conceptual understanding in EFL learners and promotes the formation of a growth mindset.

This study aimed to improve EFL students' critical thinking (CT) skills, with reflective writing (RW) highlighted as an important method. Writing in general, as Byrnes (2016) underlined, improves students' analytical ability, whereas Abrami et al. (2008) shown a strong correlation with CT growth. Reflective writing, in particular, promotes CT by enabling students to revisit experiences, evaluate details, and relate their learning to larger settings (Helyer, 2015). Schon (1992) emphasized reflection as a professional practice that encourages critical thinking and learning from experience. Similarly, Williams et al., (2020) contended that reflection alters how people think and act, guiding them toward progress. According to Williams et al. (2012), the term 'critical' and reflective have the same sense and can combine together like, "reflect critically", in which the terms describe a quality in writing, and that results the writing comes from careful thinking. Similarly, Kim et al., (2022) underlined that writing itself is a crucial learning activity that helps to improve the higher- order thinking skills. Likewise, a study by Griggs, Holden, Lawless, and Rae (2018) highlighted that reflective practice has a great role in developing students' higher order thinking abilities like the ability to analysis, evaluate, assess and innovate.

The importance of reflective writing leads to implementing it in the TEFL class to improve EFL students' critical thinking skills. As indicated in the study of Yeh et al., (2022), it improved the college students' critical thinking and showed four major changes such as "self-worth", "volunteerism", "patience", and "gratefulness". Similarly, Wale and Bishaw (2020) incorporated reflective writing in their

writing instructions to improve students' critical thinking ability and the ability to create and consolidate ideas. In addition, study by Gebremariam and Asgede (2023) emphasized that self-reflection-based teaching has a positive impact on the undergraduate students' essay writing achievement.

Nevertheless, EFL teachers at all education levels do not consider the concept of critical thinking skills, and this resulted the new curriculum that introduced "Logics and Critical thinking" as a course for college at diploma level and university level (MoE, 2023). Nevertheless, EFL teachers at all education levels do not consider the concept of critical thinking skills, and this resulted the new curriculum that introduced "Logics and Critical thinking" as a course for college at diploma level and university level (MoE, 2023).

Although it was recognized to improve students of all disciplines including EFL students, there were few chances for professional growth and instruction-related critical thinking education within the framework of EFL as indicated in the study by (Marin and Pava, 2017). Similarly, the conventional way of instruction and rote memorization in Ethiopian education normally focus on factual information and rote memorization than higher order thinking and analytical writing abilities (Bekalu et al., 2022). In the context of EFL, this delays the students' thinking abilities and writing performance.

## **REVIEW RELATED LITERATURE**

Reflective practice is a fundamental aspect of professional growth for EFL student-teachers. It involves looking back at one's experiences to learn and improve. As indicated by Bright, (1996), Schön (1992) underlined that reflection is crucial for effective practice, as it allows

individuals to draw lessons from experiences and apply them in future situations. In addition, Moon underlined that reflection is a form of mental processing with a goal and intended outcome that is utilized to tackle intricate or unstructured ideas for which there is not an evident answer (Moon, 2007). Rodgers (2002) provides an explanation of Dewey's reflection criteria. One of the prerequisites is that students must be able to generate meaning via reflection, which involves integrating other ideas and relating their knowledge to their experiences in depth (Rodgers, 2002). Rodgers (2014), drawing on Dewey's ideas regarding the definition of reflection, distinguished four phases in the process: presence in experience, which involves learning to see; description of experience, which involves learning to describe and differentiate; analysis, which involves learning to think critically and formulate theory; and experimentation, which involves learning to act intelligently.

Moreover, Kolb (2014) believes that experiential learning may engage students right away, and learning is a process that involves the things we experience in life and the new information they provide. A four-stage model developed by Kolb (1984) guides strong learning, which was also used by Abdool et al. in 2017. Reflective journal writing, utilizing Kolb's four stages, can aid students in learning by encouraging them to actively observe and reflect on what they have learned in class. Findings from Rodgers' (2014) identification align with Kolb's (1984) four periods of learning. With this cyclical learning paradigm, students may start at any point and work their way through the steps of a concrete experience. For EFL student teachers, engaging in reflective writing provides a valuable opportunity to express their thoughts and feelings about their teaching experiences. By

doing this, they not only gain insights into their teaching methods but also enhance their critical thinking skills. They rethink their experiences and abstract concepts and actively explore and try to grasp the event's relevance. In order to better understand their experiences, learners try to relate the new information to their experiences in order to identify and resolve problems.

The most difficult challenges hindering Ethiopian students from improving critical thinking at the college level are the lack of foundational skills such as reasoning skills, communication skills, writing and reading skills, and poor instructional methods (Mandefro 2018). These hinder the students' ability to express ideas coherently and critically, influencing their academic performance. He also detailed that many Ethiopian students are challenged by basic writing skills, even sentence construction that are pillars for their other works. Similarly, the lack of critical thinking skills leads to unclear learning objectives and ineffective academic targets (Liu, 2018).

This study is grounded in Kolb's Experiential Learning Theory (ELT), which emphasizes the interconnected processes of reflection, active engagement, conception, and application (Dewey, 1934; Bartle, 2015; Felicia, 2011). Studies, nonetheless, have suggested that reflective writing is valuable and it excels in certain educational settings. This research puts reflective writing within the Theory of Experiential Learning emphasizing (ELT) creation of engagement and critical reflection (Dewey 1934, Bartle 2015). Highlighting the model put forth by Kolb, it stresses four core competencies: reflection, active engagement, conception and application that all contribute to deeper thinking and true learning. Structured guide for reflection is provided the research including the Reflective Model of Driscoll (1994). This model helps students cross the stages of "what?" "so what?" and "now what?" It improves self-awareness and logical thinking and also encourages adaptability through careful analysis of experience (Bassot 2015 and Plack and Sartais 2004).

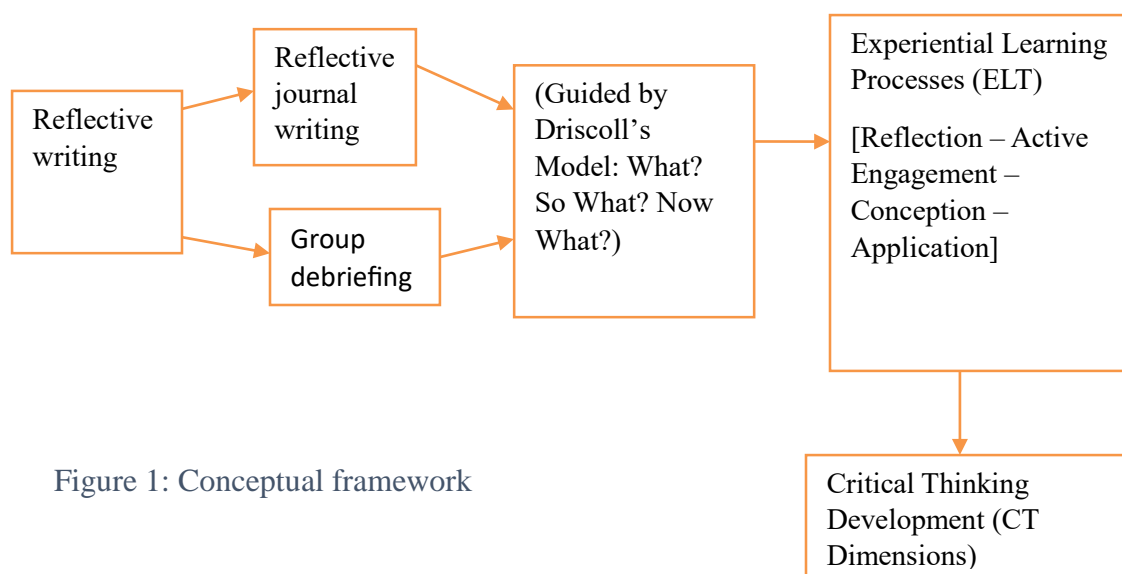


Figure 1: Conceptual framework

The dependent variables in this study are students' Critical Thinking (CT) skills measured across the five dimensions of interpretation, analysis; evaluation, explanation, and inference (see Figure 1). Using a multiple linear regression model, the framework examines how reflective journal writing (RJW) and Group debriefing (GD) as pedagogical interventions predict improvements in CT and writing achievement among EFL student-teachers.

Thus, many studies revealed the effectiveness of reflective writing on the students' critical thinking skills. For instance, Nurwanti et al., (2017) incorporated reflective writing exercises into the EFL curriculum to encourage students to think critically and develop their ability to create arguments. Similarly, a study by Yeh et al. (2022) concluded that reflections empower students to make conceptual and behavioral changes. In addition to this, the research by Gebremariam and Asgede (2023) underlined the importance of incorporating self-reflection methods in enhancing the essay writing achievements among Ethiopian undergraduate students. Also Gudeta (2022) revealed that reflective practice improved the pre-service teachers' reflective thinking abilities by overcoming their faults and mistakes. However, research on integrating reflective writing in Ethiopian postsecondary education such as college or university, is

limited, though studies revealed that it is valuable and significant in all educational settings. To fill the gaps that were mentioned above, the current study examined the contributions of reflective journal writing and group debriefing writing on EFL student teachers' critical thinking skills at ACTE. Therefore, in light of the aforementioned justification, the researcher developed the following study questions:

1. To what extent do reflective writing components (reflective journal writing (RJW) and group debriefing (GD)) contribute to the improvement of EFL student-teachers' critical thinking skills?
2. How strongly do students' reflective journal writing and group debriefing scores predict improvements in their critical thinking posttest performance?

## **METHODS**

### **Research Design**

In order to investigate the contributions of Reflective Writing Elements to the critical thinking of EFL students at Assela Collge of Teacher Education, this research adopts a pragmatic approach that emphasizes the real-world application of reflective writing interventions. Johnston (2010) notes that Dewey's pragmatic approach consists of a cyclical process of inquiry, experimentation, and adaptation.

The study employed a quasi-experimental non-randomized pretest-posttest control group design. According to Cambell

and Stanelly (1963), non-randomized pretest-posttest control group design is used as a research design when random assignment to experimental and control groups is not possible. Similarly, as Rogers and Revesz (2019) explain, this design allows researchers to assess interventions in realistic contexts when random assignment is impractical. This is particularly relevant in EFL environments, where course structures are typically predetermined, making it difficult to randomly assign students to different teaching methods (Rogers & Revesz, 2019). The design incorporates multiple evaluations, including reflective journal writing in both the first and second rounds, group debriefing in both rounds, and posttests measuring writing and critical thinking skills. This comprehensive approach aims to provide insights into the intervention's impacts over time, which is especially beneficial in language acquisition where immediate success may not be evident (Rogers & Revesz, 2019).

### **Populations, Participants, sampling and group assignment**

#### **Populations**

The population for this study comprised first-year English as Foreign Language (EFL) diploma student-teachers across Ethiopian Colleges of Teacher Education. These student-teachers represent the broader group of individuals enrolled in EFL teacher training programs under Ethiopia's new curriculum framework. Therefore, this study specifically focused on Assela College of Teacher Education (ACTE) as a representative institution. The English department at ACTE includes 52 first-year EFL diploma student-teachers, who were selected as the study sample for investigation. The decision to focus

on first-year student-teachers was based on the need to capture their initial experiences with academic writing and their engagement with reflective writing strategies. The decision to focus on first-year student-teachers was based on the need to capture their initial experiences with academic writing and their engagement with reflective writing strategies. As Creswell and Creswell (2018) emphasize, examining student-teachers at the beginning of their program provides valuable insights into their learning processes and skill development.

#### **Participants**

This quasi-experimental study examines how reflective writing affects the CT abilities of first-year English teachers at ACTE. 52 first-year English department students participated in the study. They were divided into two groups at random, one for the Experimental Group (D1,  $n = 27$ ) and the other for the Comparison Group (D2,  $n = 25$ ). Since all of the students were enrolled in the same program and had the same entry requirements, the groups are comparable. As a result, prior schooling level and fundamental proficiency are now initially congruent.

This study class was admitted under the new curriculum frameworks of 2023, in contrast to prior classes when pupils who failed preparatory entrance tests in grade 10 were admitted (MOE, 2023). All of these students advanced to grade 12 with success, passing the ACTE English department entrance exam as well as the national university tests. This modification to the admission requirements implies that current students were more driven to concentrate in EFL teaching and were also more intellectually equipped.

#### **Sampling and Group Assignment**

A convenience sample approach was employed, making advantage of pre-existing classroom divisions to meet the College's

scheduling constraints. Although individual-level random assignment was impractical, the intact groups were rigorously randomized to experimental and control conditions to minimize selection bias. Importantly, pretest scores on the CCTST were compared between groups using an independent samples t-test ( $p > .05$ ) to demonstrate that there were no statistically significant differences in baseline critical thinking ability, an important indicator of initial homogeneity.

### **Procedures**

The purpose of this experiment was to investigate how well RW interventions worked to enhance CT abilities in EFL students taking the Basic Writing Course (EnLa-1342). From June 17 to September 25, 2024, a total of 14 weeks were spent implementing RW. As a baseline assessment of CT skills, the CCTST was given during the initial week of the research to provide the groundwork. Reflective writing assignments were then included, enabling researchers to evaluate the effects of these treatments on students' CT skill development in an organized way.

Three interconnected elements made up the reflective writing intervention, which was used throughout the course. In order to encourage critical appraisal of their writing development, difficulties they faced, and connections between the course content and their own learning experiences, students first kept organized reflective diaries in which they wrote weekly responses to predetermined questions. Friday submission deadlines were set by explicit standards to guarantee uniformity.

In the meantime, students were asked about their experiences via reflective journal writing in order to make sure the intervention was successful. The purpose of this mid-

intervention check, which was scheduled for Week 8, was to gather students' opinions on the reflective writing process and how it affected their learning via casual conversations or surveys. Thirdly, a post-test CCTST was conducted at the end of the 14-week period to assess if the intervention had improved the participants' critical thinking skills. The purpose of this final assessment is to evaluate how well the group discussions and reflective writing tasks went. Comparing the CCTST scores from the pre- and post-test was part of the data analysis process to gauge how the reflective writing intervention affected the students' capacity for critical thought.

### **Data Collection Instrument**

The California Critical Thinking Skills Test (CCTST; Facione, 1990c) was selected as the assessment tool based on its strong theoretical foundation in the Delphi expert consensus study (Facione, 1990b). This test looks at five key cognitive skills: interpretation, analysis, evaluation, explanation, and inference, which is done via 34 thought-out multiple-choice questions (Facione, 1990c). The items in CCTS are put into cognitive domains: interpretation and analysis (questions 1-9), evaluation and explanation (questions 10-13, 25-34), and inference (questions 14-24) (Facione, 1990b; Facione, 1990c).

On the other hand, compared to CCTST, the Watson-Glaser test (Watson, (1980) similarly analyzes comparable critical thinking components, but it concentrates a bigger emphasis on verbal reasoning and decision-making, which could disadvantage students untrained with such formats or with insufficient English proficiency. Similar to this, Ethiopian college students who have little experience writing essays or who do not speak English well may find the Ennis-Weir Critical

Thinking Essay Test (Davidson and Dunham, 1996) and Wang Critical Thinking Essay Test (Liu et al., 2018) challenging since it uses essay responses to evaluate written reasoning and fallacies. As a result, the multiple-choice format provided by the CCTST, on the other hand, lessens the cognitive load associated with writing responses. In addition, its carefully constructed products have distractors that reflect prevalent reasoning faults, increasing critical thinking by correcting misconceptions effectively.

Thus, the CCTST is ideal for Ethiopian college students who are learning English as a Foreign Language (EFL). Given these students' language limitations and little experience with essay-based exams, the CCTST's clear framework and objective scoring system offer an accessible but rigorous approach of testing critical thinking. Cronbach's alpha for the full scale and subscale alphas, which has been proven to be psychometrically reliable, ensures consistency and accuracy in measuring five core cognitive skills: interpretation, analysis, evaluation, explanation, and inference (Giancarlo and Facione, 1994; Zettergren & Beckett, 2004).

### **Reliability and Validity of the Test**

The test was adjusted to better fit the linguistic proficiency, clarity, relevance, and alignment—all aspects of CT as well as to make minor adjustments to the question difficulty to account for their background in English as a foreign language, even though the overall design, skill categorization, and item structure were taken from the CCTST framework (Facione, 1990). The following validation techniques were used to guarantee accessibility for the target population and preserve the psychometric integrity of the critical thinking assessment. Content validity,

face validity, construct validity, prior research consultation, and reliability testing following data collection were all included.

First, ten experts were consulted in order to determine content validity. Three education experts, two psychologists, and five TEFL experts made up this panel. The purpose of this consultation was to guarantee a comprehensive assessment from linguistic, educational, and cognitive viewpoints. Interpretation, analysis, evaluation, explanation, and inference are the five components of critical thinking skills that these experts examined for clarity, relevance, and alignment. Second, to assess the face validity, a small group of pre-service teachers (3 from D1, and 2 from D2) from the target population (N = 52,) was consulted to evaluate the clarity, wording, and overall appearance of the adapted instrument. Therefore, although a full pilot test was not conducted due to time constraints, these combined procedures helped strengthen the instrument's validity and appropriateness for the study's context.

### **Measure reflective journal writing and group debriefing**

In order to assess the student teachers' written documents, the scoring criteria of reflective journal writing and group debriefing were used. Moon (2004) and Boud et al., (1985) stated that the criteria for reflective journal writing relies on assessing depth of reflection, relevance to learning objectives, personal growth, application of theory, and clarity of writing. Reflective journal writing standards are applied widely in educational research to assess students' critical thinking and self-awareness (Dyment and O'Connell, 2011). In addition, researchers such as Dorit et al. (2022) used reflective writing journal criteria on



students to identify crucial components of reflective thinking.

Group debriefing, on the other hand, focuses on five primary criteria: active participation, critical thinking, cooperation, linkages to learning objectives, and clear communication. These criteria are primarily based on the work of Brookfield (2013), Paul & Elder (2019), and Johnson & Johnson

(2017). In 2015, Husebo et al. (2015) employed debriefing criteria in their research group to look at how debriefing sessions aid with greater collaboration and mindful practice.

Therefore, to assess both reflective journal writing weekly activities and group debriefing, the following tables indicted the criterion for all rounds.

**Table 1**  
*Students' Scoring Criterion for Reflective journal writing*

Criteria	Weight %	Description	Key source
Depth of reflection	30%	The assessment assesses students' engagement in critical and meaningful reflection, involving analysis of experiences, emotional exploration, and generating insights.	Moon, J.(2004) <i>A Handbook of Reflective and Experiential Learning</i>
Relevance to objectives	20%	The assessment evaluates the alignment of the reflection with the course objectives and learning outcomes, ensuring comprehension and application of essential concepts.	Bound, D., Keogh, R., & Walker, D. (1985) <i>Reflection: Turning Experience into Learning</i>
Evidence for personal growth	20%	Evaluates the students' ability to articulate their personal and professional development, highlighting how they have grown or changed because of their experiences and reflections.	Schon, D.A. (1983) <i>The Reflective Practitioner</i>
Application of theory	15%	Focuses the students' ability to connect their experiences to relevant theoretical frameworks, demonstrating the practical application of academic concepts	Kolb, D.A.(1984) <i>Experiential Learning: Experiences as the Source of Learning and Development</i>
Clarity and coherence	15%	Examines the organization, structure, and overall readability of the reflective writing. Clear language and logical flow are essential for the effective communication of reflections	Bean, J.C.(2011) <i>Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking, and Active Learning</i>
Total	100%		

**Table 2**  
*Students' Scoring Criterion for Group debriefing*

Criteria	Weight (%)	Description	Key Source
Active Participation	25%	Assesses the extent to which group members actively engage in the discussion by contributing ideas, asking questions, and responding to others.	Brookfield, S. D. (2013) <i>The Skillful Teacher</i>
Critical Thinking and Analysis	25%	Evaluates the depth of analysis and problem-solving demonstrated during the debriefing. Includes identifying key issues and offering thoughtful insights	Paul, R., & Elder, L. (2019) <i>Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life</i>

**Table 2 Continues,**

Collaboration and Teamwork	20%	Measures the ability to work collaboratively, listen respectfully, and build on others' ideas. Includes fostering an inclusive and supportive group dynamic	Johnson, D. W., & Johnson, F. P. (2017) <i>Joining Together: Group Theory and Group Skills</i>
Connection to Learning Objectives	20%	Assesses how well participants connect the debriefing discussion to course concepts, theories, or real-world applications.	Boud, D., Keogh, R., & Walker, D. (1985) <i>Reflection: Turning Experience into Learning</i>
Clarity and Organization of Ideas	10%	Evaluates how clearly and coherently participants articulate their thoughts and organize their contributions during the discussion.	Bean, J. C. (2011) <i>Engaging Ideas</i>

### Methods of Data Analysis

Using multiple regression analysis, the relevance of group debriefing (GD) and reflective journal writing (RJW) to the development of critical thinking (CT) was investigated. Students' improvement in critical thinking was the dependent variable, and it was operationalized as the difference between their pretest and posttest scores (CT Gain = CT Post – CT Pre). RJW and GD scores were the independent variables; they were both evaluated using known rubrics that evaluated the level and scope of student participation.

Procedures for data screening were carried out before analysis. Residual plots were used to verify that the dependent variable was normal and that the predictors and outcome were linear. To ensure that RJW and GD made distinct contributions to the model, multicollinearity was investigated using tolerance and variance inflation factor (VIF) statistics. The regression equation was specified as follows:

$$CT\ Gain_i = \beta_0 + \beta_1(RJW_i) + \beta_2(GD_i) + \varepsilon_i$$

Where:

CT Gain<sub>i</sub> CT represents the change in critical thinking for student *i*, and RJW and GD represent the respective scores of reflective journal writing and group debriefing. Additionally, as robustness check, a second

regression model was estimated with CT Posttest score as the dependent variable and CT Pretest score included as a covariate, alongside RJW and GD. This approach controlled for baseline differences and tested whether RJW and GD predicted posttest CT beyond initial performance.

For both models, standardized regression coefficients ( $\beta$ ), significance levels (*p* values), and the proportion of variance explained ( $R^2$ ) were reported to determine the relative and combined contributions of RJW and GD to critical thinking improvement. All analyses were conducted using SPSS (version 26), with the significance level set at  $\alpha = .05$ .

## RESULTS AND DISCUSSION

### Results

This section presents the findings on how reflective writing components (reflective journal writing (RJW) and group debriefing (GD)) contribute to the improvement of critical thinking (CT) among EFL student-teachers. Multiple regression analyses were conducted to examine the unique and combined effects of RJW and GD on CT gains, with a supplementary model controlling for baseline CT scores. Descriptive statistics, assumption checks, and regression outcomes are presented to illustrate the contributions of these reflective

writing components to students' critical thinking development.

### Assumption of Multiple Regression Analysis

The model's assumptions were thoroughly reviewed prior to doing the multiple regression analysis. The outcomes verified that there was a linear relationship between the dependent variable (critical thinking growth) and the independent factors (reflective journal writing and group debriefing). According to the histogram and normal probability plots, the residuals were normally distributed, and their variance remained consistent across projected values, indicating homoscedasticity.

Furthermore, there was no autocorrelation detected by the Durbin-Watson statistic, which indicated that the errors were independent. Since the tolerance values and Variance Inflation Factors (VIF) both fell within the permitted range, multicollinearity was not an issue. This confirmed that the independent variables supplied unique variance to the model. Together, these findings showed that the dataset met all of the fundamental requirements of multiple regressions, guaranteeing the analysis's robustness and dependability.

### Examining the extent to which RW components contribute to the improvement of EFL student-teachers' CT skills.

Reflective writing has become a popular instructional technique to help students and teachers develop critical awareness, self-regulation, and higher-order thinking. Reflective activities, such as Reflective Journal Writing (RJW) and Group Debriefing (GD), enable students to critically analyze their experiences, make connections between theory and practice, and hone their reasoning abilities in the context of teaching English as a foreign language (EFL). The degree to which reflective writing exercises enhance critical thinking (CT), a crucial ability for both successful instruction and decision-making, should be scientifically evaluated.

This is accomplished by using a multiple regression analysis to ascertain the individual and collective contributions of GD and RJW to CT posttest performance. Descriptive statistics are used to characterize student results prior to regression analysis, giving a clear picture of central patterns and variances. After this, a number of regression output tables are presented as follows.

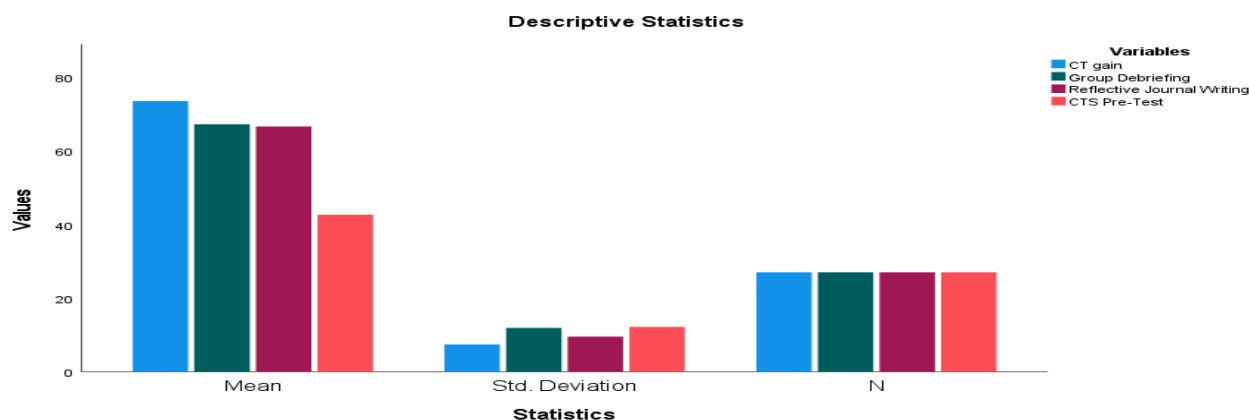


Figure 2: Descriptive statistics on the overview of the performance of EFL student-teacher on CT skills

An overview of EFL student-teacher performance on critical thinking (CT) assessments and reflective writing components is given by the descriptive statistics shown in the graph above (figure 3). The CT gain mean score (73.48, SD = 7.423) is the highest of the variables, according to the data, indicating that participants' critical thinking significantly improved following the intervention. Reflective journal writing (M = 66.59, SD = 9.553) and group debriefing (M = 67.19, SD = 11.923) both produced rather high mean scores, suggesting their potential to promote critical thinking. On the other hand, the CT S Pre-Test score (M = 42.63, SD = 12.198) is significantly lower than the post-interview results, indicating a discernible improvement in the individuals' CT abilities over time.

With the maximum variability seen in the CTS Pre-Test (SD = 12.198) and Group Debriefing (SD = 11.923), the standard deviations show moderate variability throughout the measures, suggesting larger

variations between students' initial CT levels and group discussion performance. In contrast, CT gain ratings (SD = 7.423) exhibit less differences, indicating that the majority of students consistently benefited from the reflective writing exercises. When combined, our results show that reflective writing components specifically, group debriefing and reflective journaling are significantly linked to quantifiable gains in critical thinking skills among EFL student-teachers.

Building on these descriptive results, it is important to go beyond mean comparisons and examine the extent to which RW components statistically contribute to improvements in critical thinking skills. The following tables present the regression outputs, including the model summary, ANOVA, and coefficients, which together provide evidence on the predictive power of reflective writing components in enhancing EFL student-teachers' CT performance.

**Table 3**

*Model Summary Multiple analysis of Reflective writing contribution*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.912a	.832	.810	3.233

*a Predictors: (Constant), CTS Pre-Test, Reflective Journal Writing, Group Debriefing*

Table 3 above shows that the regression analysis's results showed a multiple correlation coefficient (R) of 0.912, indicating a very significant positive relationship between the models predicted and observed CT posttest scores. This finding emphasizes that students' posttest CT performance can be accurately represented by combining predictors (pretest scores, reflective journal writing, and group debriefing). With an R<sup>2</sup> value of 0.832, the model further demonstrated significant explanatory power, meaning that the three variables together can account for about 83.2%

of the variance in CT posttest results. This significant percentage of explained variance indicates how well the model captures how reflective practices and previous CT levels contribute to students' growth.

To provide a more conservative estimate, the adjusted R-squared value was determined to be 0.810. This means the predictions still explain almost 81% of the variation in posttest scores, even after model complexity is considered. This decreases the likelihood of overestimation and increases confidence in the model's generalizability. The

standard error of the estimate is 3.233. On average, predicted CT posttest scores deviate from actual scores by slightly more than three points. This low error level demonstrates the model's accuracy and dependability in

predicting student outcomes. The predictions are based on reflective journal writing, group debriefing, and pretest scores.

**Table 4**

*ANOVA Summary for the Contribution of Pretest, RJW, and GD to CT development*

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1192.364	3	397.455	38.030	<.001 <sup>b</sup>
	Residual	240.377	23	10.451		
	Total	1432.741	26			

*a Dependent Variable: CTS posttest, b Predictors: (Constant), CTS Pre-Test, RJW, Group Debriefing*

The ANOVA results (see Table 4) provide important evidence regarding the overall significance of the regression model predicting critical thinking (CT) post-test scores. The regression sum of squares (1,19 = 2.364) represents the variability in CT posttest performance explained by the predictors (i.e., CT Pre-Test, RJW, and GD). With 3 degrees of freedom, this yields a mean square for regression of 397.455. The model produced an F-value of 38.030. The significance level was  $p < .001$ , showing that the regression model is highly significant. In other words, the probability of obtaining such strong results by chance is extremely low. This confirms that the predictors collectively provide a powerful explanation of differences in CT outcomes.

These findings clearly demonstrate the robustness of the model. They affirm that the combination of Reflective Journal Writing and

Group Debriefing significantly contributes to explaining improvements in EFL student-teachers' critical thinking performance.

### **Analyzing the predictive strength of students' reflective journal writing and group debriefing scores on their critical thinking posttest performance**

This study examines Reflective Journal Writing (RJW) and participation in Group Debriefing sessions as potential predictors of critical thinking (CT) posttest performance. The analysis evaluates the predictive strength of these variables by assessing their individual contributions and the overall explanatory power of the regression model. Table 5 presents the coefficients, detailing the specific impact of each predictor variable on students' critical thinking development.

**Table 5**

*Multiple Regression Coefficients Predicting CT Development*

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			Tolerance VIF
1	(Constant)	27.269	4.931	5.530	<.001	

**Table 5 Continues,**

Group Debriefing		.203	.077	.32	2.64	.014	.479	2.08
				6	6			6
Reflective Journal Writing		.506	.095	.65	5.31	<.00	.486	2.05
				2	8	1		9
CTS Pre-Test		-.027	.052	-	-.522	.607	.981	1.02
				.045				0

a. Dependent Variable: CTS posttest

As indicated in Table 5 above, the constant term has an unstandardized coefficient (B) of 27.269, indicating that when all predictor variables are zero, the expected CT gain is 27.269; this serves as the baseline score for the model. The regression analysis reveals that for Group Debriefing, the unstandardized coefficient (B) is 0.203, with a standard error of 0.073. The standardized coefficient (Beta) is 0.276, which suggests that for each unit increase in Group Debriefing, the CT posttest score is expected to increase by approximately 0.203 points, holding other variables constant. As a result, the t-value of 2.769 and a significance level ( $p < 0.01$ ) indicates that the effect of Group Debriefing on CT posttest scores is statistically significant.

Likewise, RJW has an unstandardized coefficient (B) of 0.506 and a standard error of 0.086. The standardized coefficient (Beta) is 0.652, indicating that this predictor has a significant favorable influence on CT posttest results. Specifically, for every unit increase in RJW, the CT posttest score rises by about 0.506 points, all else being equal. Furthermore, the t-value of 5.838 and a significance level of p-value less than .001 indicate that this predictor is highly important and adds meaningfully to the model.

In contrast, the CTS Pretest has an unstandardized coefficient (B) of -0.027, demonstrating a negative connection with the CT posttest results. The standardized coefficient (Beta) of -0.052 indicates that this predictor has a small, negative impact on

posttest performance. The t-value of -0.522 and a significance level of 0.607 show that this predictor is not statistically significant, signifying that it makes no substantial contribution to predicting CT posttest scores in this model.

Finally, the collinearity statistics, which include tolerance and the Variance Inflation Factor (VIF), indicate that multicollinearity is not an issue in this model. The tolerance values are all greater than 0.1, and the VIF values are less than 10, indicating that the predictors are not strongly linked with one another.

To this end the results indicate that both RJW and Group Debriefing are significant predictors of CT posttest performance, with RJW showing the strongest predictive strength, whereas prior CT levels (CTS Pre-Test) do not contribute meaningfully to the model. The analysis shows that Group Debriefing and Reflective Journal Writing significantly improve EFL students-teachers' CT skills, with RJW having the strongest effect. CTS Pre-Test was not a significant predictor. These findings highlight that reflective writing strategies are key to enhancing critical thinking, providing practical guidance for effective teaching.

## DISCUSSION

This study offers strong proof that elements of reflective writing enhanced the critical thinking skills of student teachers. In EFL environments where deep cognitive engagement with language is crucial for academic and intellectual advancement, RW has long been

acknowledged as a potent instructional technique for building CT (Schön, 1992; Nurwanti et al., 2017; Williams, Woolliams, & Spiro, 2020). The regression analysis results showed that reflective journal and group debriefing improved student-teachers' critical thinking skills.

The primary objective of this study was to examine the extent to which RW components such as reflective journal writing group debriefing contribute to the enhancement and predictive strength of EFL student-teachers' critical thinking skills. The analysis of regression reveals that writing in a reflective journal had a significant beneficial impact, with the coefficients of 4.931 ( $p < 0.001$ ) (see Table 5). This outcomes is consistent with the studies by Li & Wu (2022) and Chen et al. (2023), reflective writing has an impact on critical thinking skills. Reflection fosters deeper and more critical thinking in students, according to both studies. In the same vein, Moon (2004) and Boud et al. (2013) examined the role that reflection plays in facilitating deeper learning.

Similarly, group debriefing has a positive correlation with critical thinking coefficient (B) of 0.203 ( $p < 0.01$ ) (see Table 5). This is highly reinforced by Vygotsky's (1978) theory that socializing with people is beneficial to mental development. The findings of this study are comparable to those of Zhang et al. (2020), who discovered that reflective writing components increased critical engagement and helped language learners improve their analytical skills. Similarly, the current study showed significant gains in critical thinking and writing quality. Similarly, Yang et al. (2021) highlighted the benefits of collaborative reflection for language learners. The results of this also reveal that both RJW and Group Debriefing are significant predictors of CT

posttest performance, with RJW having the best predictive power, whereas prior CT levels (CTS Pre-Test) have no substantial contribution to the model (see Table 5).

To this end, incorporating reflective writing into EFL instruction promotes teachers' self-evaluation and student-centered instruction in Ethiopia, and it supports the global transition from exam-driven models to reflective approaches that improve language proficiency and higher-order thinking in EFL contexts.

## CONCLUSION

Reflective writing significantly enhances critical thinking in EFL learners by boosting foundational skills like interpretation, analysis, and explanation. Grounded in experiential learning theory, and Driscoll's reflective writing model, the framework confirms that students build knowledge through active, reflective processes. This study confirms that reflective journal writing and group debriefing significantly enhance EFL student-teachers' critical thinking, with journal writing showing the strongest predictive power. The findings are consistent with previous study, which identified reflection and collaboration as significant drivers of deeper learning. In Ethiopia, such techniques promote self-evaluation and student-centered education, while globally; they contribute to the trend toward reflective approaches that improve language competency and higher-level thinking.

## Author Contributions

Gemechu Tola carried out the core research and prepared the initial draft of the manuscript. Adinew Tadesse, Abera Admassu, and Alemmayehu Getachew offered supervision during the study and assisted in refining the

manuscript for clarity and precision. All authors reviewed and gave their approval to the final version of the manuscript prior to submission.

### **Competing Interests**

The authors declare that they have no competing interests that could influence the research, authorship, or publication of this manuscript.

### **Ethical Approval Statement**

This study received ethical clearance from the Department Graduate Council of Postgraduate Programs (CPGP), Haramaya University, on April 26, 2024 (Ref. No. PPD/ድጉዳ 18/843/16). As Haramaya University does not have a separate IRB, the CPGP served as the authorized ethics body. Written informed consent was obtained from all participants after they were informed about the study's purpose and procedures, with assurances of voluntary participation, confidentiality, and anonymity.

### **Informed Consent**

On June 24, 2024, all participants provided written informed consent after receiving clear information about the aims and procedures of the intervention, which integrated reflective journal writing and group debriefing into the Basic Writing Skills course. They were assured that participation was entirely voluntary, withdrawal would not affect their academic results, and that confidentiality and anonymity would be strictly protected.

### **Artificial Intelligence Tools**

In preparing this manuscript, the AI such as ChatGPT, Quillbot, and Grammarly were used only to assist with language enhancement and grammar checking. Therefore, all AI-assisted content was thoroughly reviewed and edited by

the authors to ensure accuracy, coherence, and alignment with the study's objectives. The authors take full responsibility for the final content of the manuscript.

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The authors declare that no funding was received for conducting this study.

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