

# Digital teaching tools: An ELT methods e-module to foster critical thinking skills for English student teachers in Indonesia

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# Abstract

The study aims to investigate whether the ELT Methods e-module could improve student teachers' critical thinking (CT) skills. The research design was an experimental study conducted at a public university in Surabaya, Indonesia, that provides a specialized program in English Education. A total of 124 samples were evenly divided into two groups: the experimental and control groups, which consisted of 62 students. The instruments were pre and post-tests in essay format. Inferential statistics were employed to analyze the data. The findings indicate that the experimental group has an average score of 84.97, whereas the control group averages 76.48. This indicates that the ELT Methods e-module has the potential to enhance student teachers' critical thinking skills. Various strategies are employed to foster their CT skills, such as one-minute papers, discussions, online collaboration, case study analysis, and real project activities. Thus, integrating digital learning tools can enhance the development of CT skills among future English teachers. It implies the need for innovative instructional designs that combine technology with active learning strategies to better prepare student teachers for 21st-century classroom challenges.

Keywords: Blended learning, Critical thinking, Digital module, Online discussion, Technology.

DOI: 10.53894/ijirss.v8i3.6985

Funding: This study received no specific financial support.

History: Received: 13 March 2025 / Revised: 17 April 2025 / Accepted: 21 April 2025 / Published: 13 May 2025

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Competing Interests: The authors declare that they have no competing interests.

**Transparency:** The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Publisher: Innovative Research Publishing

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

**Institutional Review Board Statement:** This study was approved by the Institutional Review Board (IRB) of Universitas Negeri Malang, Indonesia under approval number 2.1.16/UN32.2/KP/2024, dated January 2, 2024.

**Acknowledgement:** We would say thank you to Prof. Dr. Hariyono, M.Pd, as the rector of Universitas Negeri Malang and Prof. Dr. Nur Hasan M.Si, as the rector of UNESA. We would also like thank you to Bapak Syafiul Anam, Ph.D., the dean of Faculty of Languages and Arts, and all of my friends who assisted us in competing this research.

# **1. Introduction**

Possessing critical thinking (CT) skills for English student teachers is important to develop instructional strategies that effectively meet their specific needs [1]. Scholars also argue that having CT skills can help student teachers to select the most effective strategies and develop fair and valid tests to achieve educational goals [2, 3]. They enable student teachers to think clearly and logically about specific situations to reflect on their thinking and beliefs [4]. Thus, CT skills can guide their decision-making, monitor their learning outcomes, and evaluate their instructional approaches.

However, several studies indicate Indonesian student teachers possessed inadequate levels of critical thinking skills due to the lack of adequate support for the progress of critical thinking [5, 6] and the inadequacy of the teacher preparation program [7]. Indonesian universities' teacher preparation programs exhibit a significant deficiency in the professional domain concerning the cultivation of higher-order thinking skills in student teachers, which is a contributing factor to the inadequacy of critical thinking skills [8].

The majority of university English educators have utilized several textbooks and implemented conventional teaching methods that do not enhance their CT skills. Both demonstrated an emphasis on rote memory, exemplified by inflexible question-and-answer assessments [9]. Next, all activities and exercises have often emphasized lower-order thinking skills, such as understanding and application, rather than higher-order skills such as evaluation and creation. The ELT textbooks frequently lack authentic, real-world teaching scenarios or case studies that challenge student teachers to engage with complex topics that mirror actual classroom dynamics [10]. As a result, they often prioritize memorization and retrieval of information over critical analysis or synthesis. Next, when student teachers are taught to discourage reflection, they can encounter difficulties in navigating the complexities of real classroom practice, such as open discussion, collaborative problem solving, or engagement with authentic teaching issues [11].

Numerous experts have asserted that diverse strategies have been utilised to enhance student teachers' CT skills Fahim et al. [12], Wang and Zheng [13], Miri and Azizi [14], Wale and Bishaw [15] and Liu and Yao [16] including specific training, inquiry-based learning, collaborative assessment, and cooperative learning to develop their CT skills in aspects of language skills, such as reading, or argumentative and essay writing skills. However, those methods have not been utilised in pedagogical courses since they serve as the cornerstone for effective teaching practices, equipping future educators with a robust understanding of student learning and strategies for addressing different classroom requirements. Then, only a limited number of methods are being emphasised in educational training.

Therefore, this research employs an electronic module (e-module) for English Language Teaching (ELT) Methods to enhance student teachers' CT skills in pedagogical courses since it integrates online and face-to-face learning to emphasize student-centered learning [17]. The e-modules provide online collaboration, case studies, and practical project activities to develop student teachers' CT skills, Nurhadi et al. [18] and Tomlinson [19] that offer them the opportunity to analyse, give arguments, and evaluate material to make evidence-based decisions. The e-modules also offer flexible, interactive, collaborative, and reflective learning experiences [20] that promote social interaction. It enables student teachers to participate in learning through personal experiences, conversations and cognitive level [21] since a collaborative environment acquires their knowledge [22]. Thus, the research question was: Does the utilization of the ELT Methods e-module improve student teachers' CT skills? The next section will discuss the literature review, which contains critical thinking skills and the role of the ELT Methods e-module, research methodology, results, discussion, and conclusion.

# 2. Literature Review

#### 2.1. Critical Thinking Skills

Critical thinking (CT) is a foundational skill for the twenty-first century, which is highly valued in education as a desirable quality in the modern era [23]. It is almost universally agreed that the need to develop CT skills remains ever more vital. There are numerous definitions of critical thinking skills. Critical thinking skills are the abilities to analyze arguments, claims, evidence, make inferences using inductive or deductive reasoning, judge or evaluate, make decisions, or solve problems [24]. Bloom's taxonomy framework supports that critical-thinking skills are occasionally referred to as higher-order cognitive skills that necessitate analysis, evaluation, and creation [25]. Teachers worldwide regard higher-order thinking as a significant educational objective and a proxy for critical thinking skills.

This research is consistent with the perspective of the Bloom's taxonomy framework, which incorporates analysis, evaluation, and creation within [25, 26]. The framework is highly advantageous for teachers, as it offers a precise guide for curriculum developers and educators to establish learning objectives and assessments that systematically motivate students to engage in critical thinking skills in Indonesia [27]. The assessment of Bloom's taxonomy is straightforward and highly efficient, which makes it an ideal tool for achieving the desired learning results at any level. It also encourages teachers to prioritize profound comprehension and practical application of knowledge, rather than merely rote memorization. Therefore, in Indonesia, the development of CT skills has been regarded as an essential goal of formal schooling. Teachers from various disciplines attempt to incorporate CT skills into their teachings independently, as the Indonesian curriculum lacks classes that emphasize thinking skills. ELT instruction employs project-based learning and case studies to promote student teachers' CT skills by employing an e-module [28]. The student teachers can implement concepts in practical situations, thereby fostering the development of critical thinking skills. It can also enhance their creative abilities, as student instructors are required to complete numerous tasks, including planning, conducting research, and presenting [29]. Consequently, the instructor must offer a variety of activities and encourage students to engage in extended learning sessions [30].

# 2.2. The Role of ELT Methods E-module

In the digital era, there has been a shift in the approach to teaching and learning, transitioning from a teacher-centered focus to a student-centered focus. Student teachers should actively construct their meanings and develop an understanding of an issue in their social setting by connecting new concepts and experiences to their prior knowledge and experience to form new or enhanced understanding [31]. Therefore, instructors must act as facilitators who guide students on how to be active by providing guidance on how to study the materials and proceed if they fail to attain the necessary level of mastery.

Some scholars remark that modules could promote students' autonomy Kiong et al. [32] and Rufii [33], and competencies from various perspectives. Module can also improve higher-order thinking skills for weak ESL students [34], develop mathematical literacy skills [35] increase students' critical thinking skills in science and physics subjects for senior high school [36]. It is known that modules present information in a structured and organized format, with distinct headings, subheadings, and chapters [19]. However, only a limited number of studies focus on utilizing e-modules to promote student teachers' CT skills. Thus, this study investigates whether the ELT methods e-modules could promote student teachers' CT skills.

ELT Methods e-modules support student teachers in studying from anywhere and at any time, Sari et al. [37] and Tsai [38], since they facilitate blended learning environments that integrate face-to-face and web-based learning approaches that are applicable across all educational levels [39, 40]. The implementation of the ELT Methods e-module is adaptable to entirely online and blended learning: pre-session activity (online), in-session activity (offline), and post-session activity (online). This framework could involve the adaptation of Laurillard's Conversational Framework [41] as depicted in Figure 1. The emphasis could be on how learning management systems (LMS) and other suitable media technologies can facilitate the variety of experiences required for effective learning. The ELT Methods e-module accelerates not only the introduction of ICT to student teachers and instructors but also the investigation of how they can utilize it collaboratively to enhance teaching and learning instruction in higher educational institutions [42] and encourage their engagement and active participation in their learning process to enhance pedagogy and reduce costs [43].



#### Figure 1.

ELT Methods e-module adapted from blended learning to promote CT skills.

When instructors establish clear objectives for critical thinking and integrate them into their curriculum, students' CT skills improve [44]. Prior to the online learning session, students are required to review the e-modules that have been published to VINESA Learning Management Systems. They must compose a summary in PPT either collectively or individually using OMP (one-minute paper). Student teachers acquire knowledge through acquisition in this activity (e.g., by reading, observing, or listening). The instructors employ active learning to effectively promote CT skills [45].

Subsequently, during in-session activities or in-person sessions, students present their materials, thereby participating in teacher-led discussions, group discussions, online discussions, and quizzes. Students acquire knowledge through inquiry (e.g., exploring or investigating) and discussion in this section. Therefore, it is imperative for the instructor to initially comprehend the students' pre-existing notions before designing an activity that challenges and expands upon them. Teaching endeavors to create instructional experiences that afford students the chance to acquire the necessary knowledge [46]. Instructors can improve students' academic performance and critical thinking skills by providing feedback and evaluating student work. Following each session, students are tasked with either analyzing a case study or completing a real-world assignment as collaborative online work.

This framework posits that the learning processes of individuals and society are interconnected. An effective instructional design should facilitate the exchange of knowledge representations and communication among peers, instructors, and individual students [41]. Utilizing Laurillard's framework, educators can establish an ICT-enabled teaching-learning environment that fosters multimodal conversation among participants to promote both critical engagement and knowledge exchange.

# 3. Methodology

The experimental research aimed to determine causal links between variables that categorised samples into two groups: experimental and control groups [47]. The experimental group received treatment through the study of ELT methods via an e-module, while the control group learnt ELT methods through conventional approaches. The study commenced with a pretest, followed by treatment, and concluded with a post-test. The results of the pre-test and post-test could be compared to determine whether there was an improvement.

# 3.1. Population, Samples, and Setting

The research was carried out in a public institution in Surabaya, Indonesia, offering an English Education program that impacted the choice of the English Language Teaching Methods course. It is the first educational course for English student teachers that is a prerequisite for the teaching practicum that trains English student teachers at various levels. The total population comprised 200 students; however, the research sample contained 124 students enrolled in the ELT Methods course. Purposive sampling was employed to identify the research sample, since participants were deliberately chosen based on specified criteria pertinent to the research objectives. The average age was between 18 and 21 years, with 54 male and 70 female students divided into two groups, namely, the experimental class group of 62 students and the control class group of 62 students.

# 3.2. Instruments and Variables

There were two variables in this study: independent and dependent variables. The independent variables were the learning management system (LMS VINESA) and the ELT Methods e-module, while the dependent variable was CT skills. The instruments used were the pre-test and post-test, which assessed the potential enhancement of CT skills among English student teachers. The pre-post-test instrument employed an essay test derived from the Bloom's Taxonomy theoretical framework, consisting of eight essay questions encompassing the following aspects:

- A. Four questions for analysing; two questions for giving arguments, 1 question for comparing and 1 question for explaining
- B. Three questions for evaluating; two questions for providing problem-solving, and 1 question for evaluating a situation
- C. 1 question for creating

Before the instrument was used, its content validity was evaluated by two experts to validate whether the content was confusing or if those who read it could easily understand the questions. The results demonstrated that the instrument was accurate and suitable for use. Ten students were then used to ascertain the instrument's reliability. The test's reliability was determined using Cronbach's Alpha. Based on the calculation of SPSS 25, it shows that the reliability of the test is 0.892. Cronbach's Alpha ( $\alpha$ ) > 0.60 indicates that the test was reliable.

### 3.3. Data Collection Techniques

The design involved two groups, namely the experimental and control groups. The first step taken was to provide a pretest for both groups, followed by treatment for the experimental class, and ended with a post-test for both groups. The experimental group employed the ELT Methods e-module integrated in VINESA LMS for twelve meetings, while the control group learned through conventional methods. The class details of ELT Methods e-modules activities carried out in the model were:

#### 3.3.1. Pre-Session Activities (Online Learning)

Online activities or pre-session activities can assist instructors in designing activities and identifying any points requiring clarification. This activity also ensures that students have examined the prepared material before engaging in face-to-face learning. The lecturer uploaded the course syllabi and ELT Methods e-modules to VINESA before beginning the learning process. Instructors request that students engage with the ELT Methods e-module content by reading it thoroughly and afterward producing a concise summary utilizing graphic organizers as a visual aid.

### Objectives:

- By the end of this chapter, learners will be able to:
- 1. Examine concept of teaching vocabulary
- 2. Create how to teach vocabulary scenario
- 3. Practice how to teach vocabulary
- Please look at the video



#### Reading the concept of teaching vocabulary

Students, please read the concept of teaching vocabulary. https://anyflip.com/smvhs/oraw/ You can also watch the video how to teach vocabulary



#### B Writing one-minute paper

Students, after you read the concept of teaching vocabulary, now you can write summary using graphic organizer. You can use the attachment of graphic organizer or you scan this barcode.



You can also create your own media. This activity is used to help you to understand the concept of teaching vocabulary.

#### 💪 Checking your understanding

This graded quiz is meant to check your comprehension of the reading on the previous page. Please make sure you have read and taken notes before completing this quiz.

This quiz is worth 5 points, and consists of 5 multiple choice questions. If you do not understand a question, return to your reading to review. When you are finished with this quiz you should feel confident in your understanding of Teaching Vocabulary. Don't fret if you scored less than 80 points. You may retake the test in an effort to enhance your score. If your retest score is at least 80 points, congratulations! You have satisfied the minimum requirement.

Please scan the Barcode to check your understanding.



**Figure 2.** Instructor uploaded material in VINESA.

Student teachers engaged in autonomous learning since they were guided by a series of essential questions that enabled them to investigate and compare concepts and information and investigate and use resources and data with intent and context. Student teachers developed their understanding by examining existing resources, collating and interpreting the information to answer the posted questions and any additional questions the day before class began.

# 3.3.2. In Session Activities or Face to Face Learning (F2F Learning)

In-session activities are the continuation of pre-session activities conducted in class for one hundred minutes. In-session activities, student teachers are presumed to have a foundational understanding of the topics covered in pre-session activities. Therefore, discussions with the instructor, individual assessments, and group discussions are conducted.



Figure 3. Student teachers' presentation and group discussion

#### 避 Discussion

In this discussion part, share teaching strategies to teach vocabulary. The following example is provided to offer guidance. Please use your own words and do not copy and paste from the examples.



# Figure 4.

Learning material for discussion

### 3.3.3. Post Session Activities (Online Collaboration)

Post-session activities (online learning) aimed to establish a connection between the content covered in class and practical challenges encountered in real-life scenarios. During this activity, student teachers did case studies or projects to be completed collaboratively in groups, one week following the class session.

#### B Group work for creating a project

The assignment provides you with an opportunity to create a lesson plan for speaking activities using Google Docs, Microsoft Word, PDF, or a similar software. The lesson plan can cover one or more class periods, depending on your students' learning needs. Please read the instructions carefully before you start.

Directions:

As a teacher, it is important to plan and implement effective strategies to enhance reading skills among students. The following are some instructions on how to create a successful project for teaching reading:

Designing Your Vocabulary Lesson Plan

Objective: To teach the students the vocabulary used in the report on climate change through problem-based learning. Step design:

Step 1: Introduce the problem to the students and ask them to brainstorm a list of vocabulary words they do not understand in the report.

Step 2: Divide the students into small groups and assign each group a vocabulary word to research and present to the class.

Step 3: Provide the students with resources such as dictionaries, thesauruses, and online articles to assist them in their research.

Step 4: Have each group present their findings on the vocabulary word, including its definition, synonyms, and antonyms, as well as its relevance to the report on climate change.

Step 5: After each presentation, have the class discuss the word and its importance in understanding the report. Encourage the students to ask questions and share their own insights on the vocabulary.

Step 6: Repeat the process for each vocabulary word on the list.

Step 7: As a final assessment, have the students write a short report on one aspect of climate change, incorporating the vocabulary words they have learned.

Step 8: Practice and record it: Practice your plan interactive activities to make you better performance

This is our rubric to check your project

#### Figure 5.

Project or case study.

# WRITING REFLECTIVE ACTIVITY

This activity allows you to think about Teaching Reading. Please reflect on the ways in which you understand the concept of teaching reading . Before moving on to the next part, please reflect on the following questions: Directions:

| NO | Aspect of reflection  | Answer |
|----|---|--------|
| a  | Facts<br>Tell us about your experience when you learn how to<br>teach vocabulary using LMS VINESA and e-module.<br>What things did you experience in the learning<br>process?<br>You can also tell us about the obstacles/difficulties<br>when learn how to teach vocabulary? |        |
| b  | Feeling<br>How did you feel when you learn how to teach<br>vocabulary? Are you happy, excited or difficult to<br>understand materials? Tell me things that make you<br>have these feelings.   |        |
| с  | Finding<br>What lessons did I get from the process? What new<br>things did I learn about myself after the process?  |        |
| d  | Future<br>What could I do better if I did something similar in<br>teaching vocabulary? What actions or alternative<br>solutions will I take after learning how to teach<br>reading?   |        |

# Figure 6.

Reflective Learning.

The post-session exercises featured instances derived from real-life events, designed to apply to the future teaching practice of student teachers and aligned with the content covered in lectures. They were exposed to developing their innovative and creative learning strategies since this format facilitated the process of problem definition, alternative identification, course of action selection, implementation planning, and consideration of potential implications.

#### 3.4. Data Analysis

The data analyzed the students' CT skills based on pre- and post-tests using the Statistical Package for the Social Sciences (SPSS, version 25). Before analyzing the independent t-test, two parametric statistical tests must be conducted to determine if the data were parametric or non-parametric. Next, the normality test was performed to ascertain whether the research data were normally distributed. The Shapiro-Wilk test was used because the sample size was greater than 70 (N > 70) and derived from purposive samples. The formula for the Shapiro-Wilk test:

- 1. If the value of significant (Sig.) < 0.05, then the data are not normally distributed.
- 2. Conversely, if the value of significance (Sig.) > 0.05, then the data is usually distributed.

# Table 1.

| The result | of th | e normali | ıty t | est |
|------------|-------|-----------|-------|-----|
|            |       |           |       |     |

|                  |                           | Shapiro-Wilk |    |       |  |
|------------------|---------------------------|--------------|----|-------|--|
| E-Module         |                           | Statistic    | df | Sig.  |  |
| Learning Outcome | ELT Methods E-Modules     | 0.972        | 62 | 0.163 |  |
|                  | Text Books of ELT Methods | 0.972        | 62 | 0.019 |  |

Table 1 exposed that the data were normal since the Shapiro-Wilk test revealed that the significant 2-tailed value was greater than the p-value of 0.163. This implied that the data were normal. After that, a homogeneity test was implemented using Levene's statistics in SPSS 25. If the p-value (Sig.) is greater than 0.05 (> 0.05), it means the data were homogeneous. According to Levene's statistics, the data were not homogeneous because the significant 2-tailed value was less than 0.05, as stated in Table 2.

#### Table 2.

The result of test homogeneity

|          |                                      | Levene Statistic | df1 | df2    | Sig.  |
|----------|--------------------------------------|------------------|-----|--------|-------|
| Learning | Based on Mean                        | 34.838           | 1   | 122    | 0.000 |
| Outcome  | Based on Median                      | 32.450           | 1   | 122    | 0.000 |
|          | Based on Median and with adjusted df | 32.450           | 1   | 95.626 | 0.000 |
|          | Based on trimmed mean                | 33.866           | 1   | 122    | 0.000 |

If normality and homogeneity were met, the independent sample t-test was used to determine whether there was a significant difference between classes that utilized and did not use the ELT Methods e-module. The tested hypotheses were as follows:

- The Null Hypothesis (H0) states that there is no significant difference in the mean scores between the pre-test and posta. test regarding students' CT skills.
- The alternative hypothesis (H1) states that there is a different mean score between the pre-test and post-test regarding b. students' critical thinking.

The research indicator was determined if the t-value result was less than 0.05 (<0.05), which meant that the alternative hypothesis (HA) could be accepted because there was a significant difference in the results of the CT skills between the experimental and control groups.

# 4. Results

The findings from the research pre-tests indicate no statistically significant distinction between the experimental and control classes, as presented in Tables 3 and 4. The pre-test findings indicate that the CT skills of English student teachers are equivalent in both the control group (75.91) and the experimental group (75.34). The t-test was applied to the average score data to determine its significance level; the 2-tailed result was 0.784. This indicates that the t-value obtained exceeds the critical t-value of 0.05. This finding indicates an absence of statistically significant distinction between the control and experimental groups.

# Table 3.

The result of pre-tests from both groups

| · · ·              | Group        | Ν  | Mean  | Std. Deviation | Std. Error means |
|--------------------|--------------|----|-------|----------------|------------------|
| CT skills' results | Experimental | 62 | 75.34 | 5.222          | .676             |
|                    | Control      | 62 | 75.91 | 11.31          | 1.143            |

# Table 4.

| I ubic ii                         |                              |     |                    |                    |                        |       |                            |                     |
|-----------------------------------|------------------------------|-----|--------------------|--------------------|------------------------|-------|----------------------------|---------------------|
| Fhe result of T-test of pre-test. |                              |     |                    |                    |                        |       |                            |                     |
|                                   | t-test for equality of means |     |                    |                    |                        |       | 95% Confider<br>Difference | nce Interval of the |
|                                   | t                            | df  | sig (2-<br>tailed) | Mean<br>Difference | Standard<br>difference | Error | Lower                      | Upper               |
| CT skills' results                | .274                         | 122 | 0.784              | 0.435              | 1.588                  |       | -2.71                      | 3.578               |

It can be inferred that the control and experimental groups possess equivalent proficiency levels and similar initial features, allowing for a more accurate attribution of observed changes to the treatment or intervention. A comparable pre-test performance between the two groups signifies that they possess similarity about the variables assessed by the pre-test prior to the implementation of the treatment.

The post-test results for both groups were subsequently computed and presented in Tables 5 and 6.

# Table 5.

The Result of the post-test from both groups.

|                    | Group        | Ν  | Mean Std. Deviation |        | Std. Error |
|--------------------|--------------|----|---------------------|--------|------------|
|                    |              |    |                     |        | mean       |
| CT skills' results | Experimental | 62 | 84.97               | 5.743  | 0.729      |
|                    | Control      | 62 | 76.48               | 11.789 | 1.497      |

| Table 6.   The result of T-test from both groups. |       |     |                   |                    |                              |                         |                       |
|---|-------|-----|-------------------|--------------------|------------------------------|-------------------------|-----------------------|
| t-test for equality of means                      |       |     |                   |                    |                              | 95% Confi<br>Difference | dence Interval of the |
|   | t     | df  | sig<br>(2-tailed) | Mean<br>Difference | Standard Error<br>difference | Lower                   | Upper                 |
| CT skills'  |       |     |                   |                    |                              |                         |                       |
| results   | 5.094 | 122 | .000              | 8.484              | 1.665                        | 5.187                   | 11.781                |

The results indicate that student teachers who studied using ELT Methods e-modules had higher scores than conventional textbooks. The experimental and control classes differ on average. The class that studied in the experimental cohort achieved an average CT skills score of 84.97, while the control class achieved a score of 76.48. The result is then computed utilizing the t-value, and the two-tailed significant results indicate that it is 0.000. This indicates that the experimental class is significantly different from the control class. Thus, the experimental group demonstrates proficient CT skills due to its utilization of the ELT Methods e-module.

The development of CT skills is found in Table 7. The creative skill component is the most challenging of these three elements, averaging 78.03 points for the experimental group and 67.98 points for the control group. The stage of creation represents the high point and most complicated phase of CT skills, as it demands the capacity to integrate, structure, and conceptualize novel information. Consequently, the creation phase is regarded as the most arduous for learners compared to the evaluation and analysis phases. In addition, the creation phase necessitates a more significant investment of time than the analysis and evaluation phases, which can lead to fatigue among students who also have additional obligations to fulfill. Furthermore, the creation phase necessitates utilizing resources and tools that are occasionally absent from the learning environment. As a result, the creation phase receives the lowest grade compared to the other two components and is the most challenging.

| Table 7.                         |                    |               |  |
|----------------------------------|--------------------|---------------|--|
| The results of CT skills.        |                    |               |  |
| Aspects of CT skills             | Experimental Group | Control group |  |
| Analysing skills                 |                    |               |  |
| Explaining                       | 88.97              | 80.48         |  |
| Giving arguments                 | 88.76              | 80.67         |  |
| Comparing                        | 88.75              | 80.76         |  |
| Average score                    | 88.83              | 80,64         |  |
| Evaluating skills                |                    |               |  |
| Capacity to evaluate a situation | 88.56              | 72.96         |  |
| Problem-solving skills           | 88.35              | 72.48         |  |
| Ability to compose summaries     | 87.25              | 70.99         |  |
| Average score                    | 88.05              | 72.14         |  |
| Creating                         |                    |               |  |
| Designing learning activities    | 76.39              | 69.56         |  |
| Designing learning materials     | 79.67              | 67.98         |  |
| Average score                    | 78.03              | 67.98         |  |
|                                  |                    |               |  |

It is concluded that the experimental class's CT skills can be enhanced by implementing integrated learning in ELT Methods instruction. This indicates that experimental class participants possessed superior critical thinking skills to those in the control class.

# **5.** Discussion

Table 7

The research findings indicate that the ELT Methods e-module, which combines both face-to-face and online learning at Vinesa, leads to a substantial enhancement in English student teachers' CT skills enrolled in the ELT Methods course. This aligns with the principle of blended learning, which grants students the flexibility to access educational resources through online platforms at their convenience, regardless of time or location [38]. The blended learning paradigm facilitates the flexibility of studying English for student teachers, enabling them to learn from any location and without temporal or spatial constraints [37]. This aligns with both the theoretical and applied aspects. At the conceptual level, students acquire new concepts by engaging in discussions and negotiations with teachers. At the practical level, students develop their understanding of what they have learned through active practice, processing, adapting, and reflecting on information [41].

In addition, ELT Methods e-module incorporates multimedia resources to assist student teachers in elucidating an idea, making comparisons, or composing a summary by utilizing graphic organizer media. Throughout the analysis phase, students should possess the ability to present arguments supported by reasons or facts in order to bolster their opinion. At this point, students have the ability to employ deductive and inductive reasoning to elucidate or understand a topic [48]. It posits that providing a reason necessitates supporting evidence through the explanation of different scenarios and factual information in order to arrive at a conclusion.

During the evaluation stage, students' aptitude is commendable as instructors consistently oversee their work and offer constructive feedback to enhance their critical thinking skills. Students should possess the ability to scrutinize a given scenario by clarifying inquiries that enable them to draw correct, logical, appropriate, and reasonable conclusions during the evaluation phase [49]. The utilization of case studies in ELT Methods e-module can enhance critical thinking abilities [50], prompting students to apply learned concepts in practical situations and fostering the development of critical thinking skills.

The research findings, additionally, indicate that students' creative skills remain within the moderately excellent range, as they are required to develop instructional materials and learning activities in accordance with learning objectives [50, 51]. This task necessitates a considerable degree of ingenuity. Students' creativity is the most critical element during the creation phase. Completing a student project entails a comprehensive learning experience that encompasses multiple facets, including research, planning, implementation, and evaluation [52]. Students who are exposed to this comprehensive educational experience are more likely to cultivate their capacity for critical thinking.

Creativity is crucial in developing abilities since it enables the discovery of novel and inventive solutions to issues. Consequently, students have the opportunity to utilize their creativity in developing inventive learning designs to enhance their ability to discover distinctive and efficient solutions, thereby enhancing their critical thinking abilities [53]. In order to foster the creation of inventive learning design projects, it is imperative to provide students with the chance to actively engage in the process of planning, developing, and solving problems in a more profound manner [29].

In addition, the utilization of mixed learning models also facilitates individualized learning [54]. The blended learning approach involves the teacher use a variety of instructional materials, including learning videos, online discussions, case

studies, and project assignments, instead of solely relying on lectures to deliver information [30]. Blended learning can accommodate students' diverse learning methods by offering adjustments that cater to their individual preferences. In addition, the blended learning process also offers student teachers a gratifying learning experience [41].

In addition, e-module can incorporate several forms of assessments to foster the development of critical thinking skills. Upon completing the project or case study, students can engage in reflective learning to examine their strengths and weaknesses in relation to the topic covered. This learning reflection facilitates student teachers in discerning their areas of proficiency and areas of deficiency [10]. This can foster students' ability to analyse a situation from multiple perspectives in order to find the aspects that impact the consideration of alternative solutions or actions. Students develop the habit of analysing their learning experiences and identifying the most efficient and effective learning strategies to enhance their learning outcomes.

E-module enables teachers to deliver prompt feedback to students, facilitating a deeper understanding of their strengths and flaws. Offering prompt feedback can foster introspection and enhance the development of analytical reasoning skills. The importance of offering explicit, productive, and precise feedback to students is emphasized as it enables them to recognize their areas of proficiency and areas for growth, serving as a foundation for enhancement [55]. Moreover, providing positive criticism to student teachers prevents them from feeling hopeless in the face of challenges, instead encouraging them to view it as a chance for personal growth and development. Moreover, the provision of feedback by instructors can foster engagement and dialogue between students and lecturers [18]. Despite the online nature of learning, offering comments can enhance the learning experience by creating a sense of personal connection, as students perceive recognition and attentiveness from the instructors [40]. At this level, student teachers are provided with guidance how to construct strong arguments to cultivate critical thinking about the knowledge they have acquired.

The research findings indicate that students' academic performance, particularly the pedagogical skills of English student teachers, is very commendable. The majority of student teachers possess the ability to articulate diverse instructional approaches in English, develop learning and teaching activities and resources, and implement them through peer-teaching methodologies. When instructors have well-defined objectives for critical thinking and incorporate it into their curriculum, students' CT skills show improvement [44]. To effectively encourage critical thinking, it is best to create a curriculum that utilizes an activist approach by the educator [56]. By prioritizing the subject matter and implementing active learning strategies, such as providing feedback and examining student work, instructors can enhance students' critical thinking skills and academic performance.

Next, ELT Methods e-module integrated in blended learning could promote students' collaboration and communication. There is evidence that discussion forums and virtual classrooms in blended learning facilitate student collaboration[18] as students engage in meaningful discussions, challenge one another's ideas, and work collaboratively to solve problems or complete projects [57]. Student teachers can discuss and exchange ideas, opinions, and interpretations of the subject matter when they collaborate with their peers. As they learn from each other's insights and experiences, they acquire a deeper and more comprehensive understanding of the topic through this interactive process [58]. They have learned how to analyse information critically, think creatively, and discover collective solutions [51]. Thus, it broadens their horizons and encourages them to consider multiple perspectives, enriching their educational experience. Online collaborative learning also teaches them to articulate their ideas clearly, attend actively to others, and negotiate differences constructively [18]. This support system fosters self-assurance, reduces anxiety, and improves overall academic performance. These interpersonal skills are essential for academic and professional success. Thus, implementing projects and online collaboration significantly enhances their critical thinking and instructional skills since student teachers can engage in the interchange of ideas, enabling them to make optimal decisions that align with their collective preferences [59].

The research findings also indicate that the primary deficiencies of ELT Methods e-modules in the development of critical thinking skills among English student teachers are the excessive dependence on collaborative learning environments, in which students frequently rely on their more competent peers. From the students' perspective, those who experience difficulty comprehending the content or lack confidence may tend to defer to the clever students during discussions or group duties, rather than actively participating in critical thinking. It is consistent with the findings of Han and Ellis [60] research, which suggests that the dynamic of online or collaboration can impede the development of independent critical thinking skills in less proficient students by denying them the opportunity to challenge themselves or express their perspectives [60]. The majority of the low-achieving students may be inert learners and rely on the high-achieving students. This condition results in their lack of confidence in the eyes of their peers. Furthermore, the implementation of e-modules necessitates access to dependable technology, which may pose a challenge for students who are confronted with challenges such as inadequate internet connectivity, antiquated devices, or inadequate digital literacy. A number of students have reported experiencing difficulties with their internet connections [61]. Ultimately, they are unable to continue their collaboration and maintain any form of communication. Consequently, one of their acquaintances believes that they are not engaged.

# 6. Implication

This study implies that the ELT Methods e-module can improve students' critical thinking skills since it provides the ability to analyze, form conclusions, generate new ideas, and present them. Student teachers learn how to interpret a concept by explaining, comparing, or classifying it; analyze a problem by providing arguments; evaluate and solve problems; write conclusions; and design learning activities, learning materials, and learning media. Students are also capable of engaging in self-regulation (self-evaluation and self-correction). The results also show the weaknesses of ELT Methods e-modules such as the dominance of high student teacher levels and dependence on internet connection to access e-modules. In higher education, instructors should prepare student teachers for their future by empowering and equipping them with CT skills.

Hence, educators should embrace the use of constructivist pedagogy and technology and optimize creating activities that cater to a diverse range of learning styles to promote collaboration.

# 7. Limitation

The limited study has focused on establishing an ELT Methods e-module to improve student teachers' critical thinking skills by adapting Laurillard's Conversational Framework posted in VINESA's Learning Management System. This study is only utilized for a small number of people who enrolled in the ELT Methods course. This e-module can encourage students to learn independently since there can be instructions that students must follow to build their critical thinking, presented with genuine tasks so that students can make creative decisions to complete the project. It also provides various ideas and activities to assist teachers in instilling higher-order thinking skills to promote student teachers' critical thinking skills.

These future studies should focus on two main aspects: firstly, examining the effectiveness of the ELT Methods e-module in enhancing critical thinking skills, and secondly, investigating student teachers' perceptions of the learning model developed to enhance their critical thinking abilities. Additionally, it is possible to conduct a similar study on a larger scale by involving more participants, including student teachers from various disciplines and across multiple universities in Indonesia. It would be beneficial to explore the application of the blended learning model with various activities and different forms of technology and media beyond those utilized in this study to determine if instructors' outcomes

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