

ENHANCING STUDENTS' ARGUMENTATIVE WRITING THROUGH PROBLEM-BASED LEARNING AND CRITICAL THINKING SKILLS

Moh. Yamin

English Education Department, Universitas Lambung Mangkurat, Indonesia

Email: moh_yamin@ulm.ac.id

APA Citation: Yamin, M. (2025). Enhancing students' argumentative writing through problem-based learning and critical thinking skills. *English Review: Journal of English Education*, 13(1), 351-363-370. <https://doi.org/10.25134/erjee.v13i1.9704>

Received: 12-09-2024

Accepted: 19-12-2024

Published: 28-02-2025

Abstract: This study aims to investigate whether the students who are treated using problem-based learning (PBL) with critical thinking have better writing ability than the students who are treated not using problem-based learning (PBL) with critical thinking. The research design was quasi experimental. Solomon Three-Group Design was used because there were three groups conducted in this study to minimize the intervening variables that might affect the result of the study. MANCOVA was used for data analysis. The study result says that problem-based learning (PBL) with critical thinking taught to the students was effective to increase students' writing ability. Their argumentative essay writings perform better in introduction (sig=0.00), main points (sig=0.01), critical thinking (sig=0.01), organization of (sig=0.03), style (sig=0.004), and mechanics (sig=0.03). This research is useful and meaningful for the teachers to use problem-based learning with critical thinking in teaching argumentative essay. For the next researchers who will research the relevant topic, this study result can be used for enriching their knowledge for researching argumentative essay, comparison and contrast essay, expository essay.

Keywords: *argumentative essay; critical thinking; problem-based learning.*

INTRODUCTION

Teaching writing based on critical thinking is needed to strengthen higher education students' analysis competence. Teaching means the process of interaction between the teacher and students in transferring knowledge in which the teacher facilitates the learning space for the students (Gupta, 2019). Teaching writing means the teacher should facilitate and guide the students on how to be able to write (Rivas et al., 2022). It starts with how to write the introductory paragraph containing general statements and thesis statements, followed by a body of the essay and a concluding paragraph (Hussain, 2019). In writing such text, students need critical thinking skills so that they can write critically. However, not many students have higher-order thinking skills. This is supported by Tyas et al., (2020) and Ichsan et al., (2019) who said that the low level of higher-order thinking skills the students have hinders their learning achievement.

Critical thinking should be paid attention to; it has the position of guiding to be able to solve any problems, build the framework to make any decisions and obtain the goal. Because of that, it is viewed through two lenses to get the goal and to make a decision. When such a higher-order thinking skill is related to writing, it is important to state that it is interesting to study (Malik, 2022). It should be remembered that critical thinking skills

contribute to students' ability to search for a topic, generate ideas to support the topic and discuss it from a wide perspective. Indonesian students' condition should be strengthened through critical thinking-based teaching writing (Qablan et al., 2019).

Several studies have been conducted dealing with critical thinking in English Foreign Language (EFL). Özelçi & Çalışkan (2019) view critical thinking as the ability of individuals to understand and make sense of the world and events and situations around them. EFL teachers have their role to create a class situation in which the students can participate critically by questioning any issues around them. (Godsell, 2022) views critical thinking taught to students through argumentative writing did not have a short-term effect on strengthening their way of thinking but being able to for longer periods may bring forth encouraging outcomes. Critical thinking taught to students through writing has meaningful improvement in empowering metadiscourse, organizing the essay, and utilizing certain lexical items. It means that those who were enhanced with critical thinking in their writing had writing quality and critical thinking skills despite a low degree of relationship (Altun & Yildirim, 2023). An interesting study found by (Awada & Diab, 2023) is that the EFL students' weakness in writing argumentative essays coherently can be categorized as being weak

in critical thinking skills. It is expected that getting critical thinking skills in argumentative writing assignments, it will drive the learners to be able to write coherently. The other features of critical thinking in writing are the ability to introduce the points related to the main idea to be written, the ability to explain why the ideas are important to write, and the ability to construct examples and analogies, clarifying and strengthening the ideas (Yeh et al., 2023).

Yulia & Budiharti (2019) in their study dealing with Higher Order Thinking Skills (HOTS) mention that it is very difficult to conduct HOTS in the teaching-learning process because the teachers themselves do not have a communicative way how to conduct the class. Commonly, the teachers' questions are in remembering level as Lower Order Thinking Skills (LOTS). It affects the way teachers teach English to their students. Teaching students HOTS is a challenge. There is a different finding stating optimization of peer editing in increasing critical thinking skills with minimal error (Muthmainnah, 2019). It is also supported by other studies stating that students gain critical thinking skills when using constructive controversy in writing an argumentative essay (Ma & Li, 2022). In building critical thinking, Susilawati (2019) used Explicit Direct Instruction (EDI) to increase students' critical thinking skills starting by explaining, modeling, demonstrating; presenting content; and using guided practice. The result is that assisting their argumentative essay writing improved (Moghadam et al., 2023). It also occurs to Etik et al., (2021) who recommend students the critical thinking skills in writing argumentative essays through a genre-based approach to writing instruction. This genre was also conducted by Thongchalermsak & Jarunthawatchai (2020) stating that the genre-based approach is effective in the development of EFL writing competence students. There is an achievement in the linguistic, genre, and writing performance and it gives contribution to learners' communicative ability in writing. However, there is no critical thinking emphasized so pre-service English teachers have the capacity for critical thinking.

It seems that most of the studies dealing with critical thinking and writing are researched separately. Many approaches used in writing are only for writing competence as usual. The common weakness happening to those studies tends to offer the teaching approach fixed and this research is conducted as an effort to fill in the gap among the previous research. Although Aunurrahman et al., (2020) have done research dealing with the use of

academic writing activities under a systemic functional linguistics genre-based approach to help improve tertiary English as Foreign Language students' critical thinking capacities, their results tend to students' capacity in information-organizing skills and dispositions of CT. In the use of a genre-based approach to teaching CT toward academic writing, they do not prefer students' capacity in interpretation, application, analysis, evaluation, and synthesis competence.

Based on this consideration and to fill the research gap of the earlier studies, it is necessary to conduct a study (Kök & Duman, 2023) on teaching critical thinking through writing with the utilization of problem-based learning. Problem-based learning (PBL) is the way of teaching strategy in teaching writing to create students' motivation to search for the topic and its implementation. Enhancing problems for students is the initial step in teaching writing. Students should be enhanced with the issues and relevant issues so that they are triggered to respond to the selected issue to discuss and to write. By having problems to solve, they will think and try to formulate what to do to deal with the problems faced. They will collect information as much as possible, and discuss and analyze it. Therefore, a teacher should make learning goals to make the learners have a plan for learning achievement. Consequently, students can share with their class to find the solution (Moallem, 2019). (Lonergan et al. (2022 and Magaji (2021) in their study said PBL pedagogy improves the students' critical thinking in writing. They become more adept at critically analyzing their rhetorical context. Again it should be remembered that students' critical thinking can be dug through through problem-based learning. It is a teaching strategy having a framework of teaching learners active, and progressive, and they are aware of efforts of finding out a solution to a problem. Dealing with teaching writing, it facilitates students to grow up with the capacity to question anything considered a problem(s) to solve (Aspat Colle et al., 2023; Rahmalia & Utari, 2021). The novelty of this research is to combine the position of problem-based learning with critical thinking skills in teaching argumentative essays.

The entry point is that this research aimed to measure the student's achievement in their writing performance by obtaining the data quantitatively. As an effort to help and drive the students to think, formulate, and write the issue critically, this study was based on Padmadewi et al. (2023) which was successful in treating the students with critical thinking skills in their writing essays. Besides that,

problem-based learning proposed by Abdullah et al. (2022) was used in this study to implement the learning process of searching for issues to study and discuss in the students' writing essays. This study aimed to investigate whether the students who are treated using problem-based learning (PBL) with critical thinking have better writing ability than the students who are treated not using problem-based learning (PBL) with critical thinking.

METHOD

The design used was quasi experimental aiming to get the quantitative data from class experimental and control group treatment. The design depicted was Solomon Three-Group Design in which the researcher did the study based on the design of Solomon Three-Group Design adapted (Edmonds & Kennedy, 2017; Ary et al., 2019). The researcher used a random selection from the five classes as the population. The next step was that the researcher used non-random assignment to determine the experimental group, the control, and the non-control groups. Three groups from five classes were conducted in this study to minimize the intervening variables that might affect the result of the study. It is expected that the extraneous variables that might affect the internal validity of the study could be controlled. By doing this, this study was not the result of chance but has been designed in such a way.

The result was that Advanced Writing A1 was the experimental group while Advanced Writing A2 was the control group and Advanced Writing A5 was the non-control group. Advanced Writing A1 and A2 were with the same lecturer, and Advanced Writing A5 was a different lecturer from A1 and A2. The research subject of Advanced Writing A1 was the experimental group while Advanced Writing A2 and Advanced Writing A5 were the control and non-control groups. The difference between control 1 and control 2 was located in how the lecturers taught during the class such his/her interaction with the students, delivered the material, and gave feedback to the students' questions. As additional information, this research was conducted after the midterm test. Because the two control classes did not get treatment, they were taught with the lecturing method.

The instrument used in this study was writing test functioning to assess the students' writing ability after treatment. There were two writing tests given to the students. The first one was used to see the students' homogeneity in the control and experimental group and it was conducted as a

pretest. The result was homogeneous. The other one was to see the students' writing ability after treatment as a posttest. The posttest itself functioned to test the hypotheses. The next was the test reliability in which the results of the consistency test of the writing ability assessment from the pretest and posttest writing prompt consisted of 6 aspects, namely introduction, main points, critical thinking skills, organization, style, and mechanics resulting in a reliability value of more than 0.600 (Reliability > 0.600) so that the assessment between 2 raters was stated: "consistent". It means that there was no inter-rater reliability problem. The writing prompt is that the students are required to write an essay consisting of one introductory paragraph, three body paragraphs, and one concluding paragraph with at least 300 words. Principally, either the pretest or posttest instrument was reliable to use for data collection.

To analyze the data, MANCOVA using SPSS 26.0 program was conducted. This test was chosen since it was used for three groups to compare the means of these groups and investigate one tested data which was the posttest (Creswell, 2014).

RESULTS AND DISCUSSION

The MANCOVA test was carried out to compare the students of the experimental group ($n = 25$), control group 1 ($n = 16$), and control group 2 ($n = 14$) to the writing test score consisting of 6 indicators, namely (1) introduction, (2) main points, (3) critical thinking, (4) organization, (5) style, and (6) mechanics. Before the MANCOVA test was conducted, the assumption test was carried out on the research data through normality test, homogeneity of variance test, outliers test, linearity test, and multicollinearity test. The normality test using the Kolmogorov-Smirnov test showed data not normally distributed at a significance level of 5 percent. The univariate homogeneity test using Levene's test showed the variance between treatment groups for each indicator homogeneous at a significance level of 5 percent. The multivariate homogeneity test with Box's M test showed the variance between the treatment groups on all indicators homogeneous at a significance level of 5 percent. The outliers test using Mahalanobis Distance showed no outliers in the data. The linearity test using the correlation plot graph showed the form of the correlation between variables linear. The multicollinearity test using a correlation between dependent variables showed a correlation coefficient of less than 0.9 meaning there was no multicollinearity problem.

The comparison result showed a significant difference between groups with $F(12.94) = 2.97$ and $p < 0.05$. The partial eta squared value of 0.27 indicated a small effect between groups on the writing test score. The effect of the pretest result as a covariant showed an insignificant effect of the students' pretest score on the posttest score with $F(6.46) = 1.99$ and $p > 0.05$. The partial eta squared value of 0.21 indicated the small effect of the pretest value on the writing test score. It means that there was a significant difference among the groups of students getting treatment and non-treatment through problem-based learning with critical thinking skills focusing on introduction, main points, and critical thinking skills. The students in the experimental group did a better performance in writing argumentative essays dealing with composing a well-developed introduction with an attention grabber grabbing the reader's interest and continuing to engage the reader up until the thesis statement. The thesis statement in identifying the problem clearly states the experience or event that is described as well as the effect on the writer. A conclusion effectively wraps up and restresses the importance of the thesis. In writing the main point or body paragraph, the students were successful in well-developed main points/topic sentences related directly to the thesis. Supporting examples are concrete and detailed. They were able to distinguish the main idea from subordinate ideas appearing in the text. The ability to use the other references is strongly expressed. The analysis is developed with an effective point of view. Besides that, the students succeeded in writing the thesis statement by identifying strong research problems; differentiating the main and supporting ideas; proposing arguments with analysis and synthesis in the body of the text; paraphrasing references and sources to strengthen the arguments; evaluating the evidence; making reflections and generating new insights dealing with the issue in conclusion.

The study starts with the first research question "Do the students who are treated using problem-based learning (PBL) with critical thinking have better writing ability than the students who are treated not using problem-based learning (PBL) with critical thinking". The statistical analysis was conducted through MANCOVA using SPSS 20.0 program. This test was chosen since it was used for three groups to compare the means of these groups and investigate one tested data which is the posttest.

The result is interesting that the students are successful in writing their argumentative essays

seen from the introduction, main points, critical thinking, organization, style, and mechanics aspects. The students performed better in writing their argumentative essays. The underlying point is that the attendance of problem-based learning with critical thinking has the effect of changing the students' performance in their argumentative essays. This condition is different from the student's performance before they followed the writing class treated through problem-based learning with critical thinking in which their critical thinking framework is not critical. Compared with the group either control group 1 or 2, they were able to write the argumentative essay sharply, composing their ideas in an argumentative.

It means that their ability after getting treatment, the students were able to compose and arrange their logic in writing better and sharper. Their ways of writing the ideas in the introduction show the achievement in understanding and implementing the steps in writing the introductory paragraph. Their ways of writing starting from the general to the thesis statement were conducted orderly. Enhancing the student's critical thinking through problem-based learning during the treatment has a good effect on forming their capacity for thinking, formulating, and writing ideas. It is in line with what has been researched by Kardoyo et al., (2020) that problem-based learning based on critical thinking skills can improve students' critical thinking skills. Students are able to solve a given case by doing the right analysis and being able to provide alternative solutions. Sholihah & Lastariwati (2020) strengthen the finding dealing with problem-based learning that can improve one of the 21st-century competencies, namely critical thinking and problem-solving in the course subjects.

The thing to remember is that critical thinking taught through problem-based learning is effective to condition the students' ability in writing ability. Karanja (2021) and (Karanja, 2021b) say that there is a need for teaching critical thinking skills alongside basic writing skills in an argumentative writing course. Whatever it is, critical thinking skills guide the learner to be able to write orderly based on the issue to discuss and write. Through critical thinking skills, the students can write their ideas in deep analysis and discussion. Therefore, it is necessary to use critical thinking in teaching writing to students as the main part of strengthening their writing skills.

The condition is different from the control groups either control group 1 or 2 that do not get

treatment. They learn argumentative essays without critical thinking through problem-based learning. Although there is a change or achievement, the effect happens because of practice, not the teaching model offered during the class meetings. Therefore, their results of writing in the introductory paragraph are not as keen as the treatment group. Their understanding and practice in writing the introductory paragraph are in the standard norms (Janusheva et al., 2021; Mohd Khairi Razali et al., 2023). Principally, they have fulfilled the standards of the introductory paragraph. In feedback given to the student's assignments in control groups (Vengadasalam, 2020), the teacher is limited to aligning the way of writing general and thesis statements what to do, and what to revise, not more than that.

It also happens while writing the essay body embodied in main points in which they can write critically. They are able to formulate the standing position in the specific points and write them in a good essay body (Alkhalek et al., 2019; Sanu & Samarinda, 2019; Fleckenstein et al., 2020). What should be noted here is that the ability to change after getting treatment shows the achievement that can affect the students' thinking way in formulating the points and writing them in the essay body. Because the treatment group should be able to use the skills of analysis, synthesis, and paraphrasing, the three ones were taught and practiced during the meetings. The great achievement took place and the students have been able to use their skills in writing the essay body. Three paragraphs should be written in the essay body, and the students conducted their writing activities.

Trang & Anh (2020) say that the students who used critical thinking skills in their writing activities class have a positive side and feel satisfied. It affirms that critical thinking has a positive effect on the student's formation of their writing skills and achievement. What they write with critical thinking creates a positive atmosphere and it is the result of teaching problem-based learning with critical thinking skill. It is in line with what is researched by Tahira & Haider (2019) that the students are willing, and even enthusiastic to engage in critical thinking as part of their participation in writing class. It means that while writing the essay body, they have used critical thinking skills to compose well-established text. Their writing ability through critical thinking skills changes their mindset of writing that is responsive to fact and data.

It is a struggle for them to be able to produce the essay body critically (Woodhouse & Wood, 2022). They need to relate one sentence to another sentence cohesively and coherently in a paragraph and each paragraph (Nindya & Widiati, 2020). Therefore, writing the essay body in many sentences in each paragraph was practiced during the treatment. The situation is not the same as the control groups either control group 1 or 2 that were taught conventionally in which the teacher taught them and enhanced the student's essay body consisting of arguments and counter-arguments. Their ability to write the essay body was only taught and practiced to write the supporting sentences that strengthen the previous ideas and there is no skill of analysis, synthesis, and paraphrasing. Although either the treatment group or control groups got the same feedback after submitting their assignments, the teacher gave feedback based on the group category because the experimental group was different in treatment from the control groups.

Dealing with the feedback on the student's assignments in the control groups, the teacher focused on how to write the argument and counter-argument (Alshomary et al., 2021). The different thing in the control groups is that the teacher gave comments when their writing assignment of body essays do not support each other among the paragraphs in the essay body (Ishchenko & Verkhovtsova, 2019; Latifi et al., 2021). It means that the teacher was on track so the students worked on their writing activities well. Their writing activities are instant and stay passive to be able to find other sources to strengthen their argumentation. As a result, their argumentation tends to copy-paste from what they have written before, making paraphrasing seem different.

Critical thinking as the main focus of this study also shows that the students in treatment groups have been able to do the best in interpreting the criteria of critical thinking in their writing activities of argumentative essays. Although the three groups either experimental or control groups indicate the increase, the highest value is on the experimental group because it got treatment during the meetings. Their critical thinking skills are empowered because of problem-based learning with critical thinking intervening in teaching activities (Fitriani et al., 2022). Therefore, the critical thinking achievement obtained during the treatment helps develop their capacity to process all information to use in their writing. Empowering students to have their critical thinking skills as an effort to make them share their ideas in their writing activities is

needed. It is in line with what is researched by Pauzi & Windiaryani (2021) stating that empowering students in the classroom entails them practicing ownership of texts and conducting conferences in the language classes in general, and in writing classes in particular, should be on both hierarchical and collaborative methods. As a result, critical thinking appears and helps the students in composing their ideas in the text. The other research was done by Wahyuningsih (2019) stating empowering academic writing covers developing the cognitive skills of students by giving them academic literacy, activities of problem-solving, and innovation. It will attract them to use writing as a system of representation and communication. Through these, their critical thinking skill comes out as the effort in writing.

The problem-solving model can empower students' critical thinking skills (Hassan et al., 2023; Utami et al., 2019). What can be said here is that when the students are taught through problem-based learning, it forms their thinking in responding to the issue and interpreting the issue. The students' ability in critical thinking affects their analysis in writing the argumentative essay. It means that empowering the students with problem-based learning aiming to produce the students' writing ability in their argumentative essays is the need to accelerate the students' capacity in writing. To write with critical thinking skills are required to be able to create an argumentative essay responding to the issue (Neokleous et al., 2020; Puyt et al., 2023). Therefore, when critical thinking skills are embedded in the student's ability, it helps them in increasing their responsiveness to the issues.

CONCLUSION

The implementation of problem-based learning with critical thinking in the teaching-learning process has proven effective in increasing the student's ability to write argumentative essays. Those who write argumentative essays as the result of problem-based learning with critical thinking processes in the class affect their way of writing, starting from formulating the research topic, topic sentence, and supporting sentences to a well-established introductory paragraph, followed by essay body and concluding paragraph. It means that the student's ability to write critical writing in argumentative essays shows their result. This condition is different from the two classes as the control classes that do not intervene with problem-based learning with critical thinking. Generally, they do not show critical thinking in their

argumentative essay. In other words, the students who do not get intervention in research treatment tend to be stagnant and do not have a significant result in their achievement. However, this study needs to be researched in the next research because this study is only limited to the critical thinking aspect and other aspects such as main points containing the original ideas and state of the art dealing with the idea written do not get finding and discussion in this study by considering limited time and chances. This issue is interesting to study and can be related to relevant argumentative essays, comparison and contrast essays, and expository essays for the sake of future research to respond to contextual issues in EFL writing.

REFERENCES

- Abdullah, H., Harun, H., Ab Wahab, N., Suo, Y. J., & Mohd Ali, M. A. (2022). Teaching english for academic purposes through project-based learning method and process writing approach. *Al-Azkiyaa - Jurnal Antarabangsa Bahasa dan Pendidikan*, 1(1), 8-16. <https://doi.org/10.33102/alazkiyaa.v1i1.8>
- Alkhalek, A., Rubiaee, M., Darus, S., & Bakar, N. A. (2019). The effect of writing knowledge on EFL students' ability in composing argumentative essays. *Arab World English Journal (AWEJ)*, 10(4), 263-287.
- Alshomary, M., Syed, S., Dhar, A., Potthast, M., & Wachsmuth, H. (2021). Argument undermining: counter-argument generation by attacking weak premises. *Findings of the Association for Computational Linguistics: ACL-IJCNLP 2021*.
- Altun, E., & Yildirim, N. (2023). What does critical thinking mean? Examination of pre-service teachers' cognitive structures and definitions for critical thinking. *Thinking Skills and Creativity*, 49, e101367. <https://doi.org/10.1016/j.tsc.2023.101367>
- Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walter, D. A. (2019). *Introduction to research in education* (10th Ed).
- Aspat Colle, A. T. L., Nurnia, N., & Rabiah, R. (2023). Improving the students' writing skills by integrating problem-based learning (PBL) with Teaching at the Right Level (TaRL) approach in Class 7. C of SMP-TQ Mu'adz bin Jabal. *Journal of English Language Learning*, 7(1). <https://doi.org/10.31949/jell.v7i1.5624>
- Aunurrahman, Hamied, F. A., & Emilia, E. (2020). Teaching critical thinking through academic writing to tertiary EFL students in Pontianak Indonesia: An utilization of a genre-based approach. *The Asian EFL Journal Quarterly*, 24(4), 6-25.
- Awada, G. M., & Diab, N. M. (2023). Effect of online peer review versus face-to-Face peer review on argumentative writing achievement of EFL

- learners. *Computer Assisted Language Learning*, 36(1–2).
<https://doi.org/10.1080/09588221.2021.1912104>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed method approaches* (2nd ed.).
- Edmonds, W. A., & Kennedy, T. D. (2017). *An applied guide to research designs: Quantitative, qualitative, and mixed methods* (2nd ed.). SAGE Publications Ltd.
- Etik, Lustyantje, N., & Emzir. (2021). Critical thinking in exposition writing: numbered head together or more effective cooperative script? *Turkish Journal of Computer and Mathematics Education*, 12(13), 2792–2798.
- Fitriani, H., Samsuri, T., Rachmadiarti, F., Raharjo, R., & Mantlana, C. D. (2022). Development of evaluative-process learning tools integrated with conceptual-problem-based learning models: study of its validity and effectiveness to train critical thinking. *International Journal of Essential Competencies in Education*, 1(1).
<https://doi.org/10.36312/ijece.v1i1.736>
- Fleckenstein, J., Meyer, J., Jansen, T., Keller, S., & Köller, O. (2020). Is a long essay always a good essay? the effect of text length on writing assessment. *Frontiers in Psychology*, 11.
<https://doi.org/10.3389/fpsyg.2020.562462>
- Godsell, S. (2022). Teaching critical thinking and voice in history essays: A spiderweb tool. *South African Journal of Childhood Education*, 12(1).
<https://doi.org/10.4102/sajce.v12i1.1255>
- Gupta, A. (2019). Principles and practices of teaching english language learners. *International Education Studies*, 12(7), 49.
<https://doi.org/10.5539/ies.v12n7p49>
- Hassan, A., Alawawda, M., Alzahrani, F., & Naz, N. (2023). Developing an ESP-based language learning environment to help students improve critical thinking skills in written output. *Information Sciences Letters*, 12(4).
<https://doi.org/10.18576/isl/120431>
- Hussain, S. S. (2019). Strategies for teaching academic writing to Saudi L2 learners. *English Language Teaching*, 12(12), 1.
<https://doi.org/10.5539/elt.v12n12p1>
- Ichsan, I. Z., Sigit, D. V., Miasyah, M., Ali, A., Arif, W. P., & Prayitno, T. A. (2019). HOTS-AEP: Higher order thinking skills from elementary to master students in environmental learning. *European Journal of Educational Research*, 8(4), 935–942.
<https://doi.org/10.12973/eu-jer.8.4.935>
- Ishchenko, O., & Verkhovtsova, O. (2019). Peer feedback versus traditional teaching. *Journal of English Teaching (JET)*, 5(2), 115–124.
- Janusheva, V., Pejchinovska, M., & Talevski, J. D. (2021). Towards the criteria and indicators for essay assessment. *Journal Plus Education*, 28(1).
- Karanja, L. (2021a). Teaching critical thinking in a college-level writing course: A critical reflection. *International Online Journal of Education and Teaching*, 8(1), 229–249.
- Karanja, L. (2021b). Teaching critical thinking in a college-level writing course: A critical reflection. *International Online Journal of Education and Teaching*, 8(1), 229–249.
- Kardoyo, Nurkhin, A., Muhsin, & Pramusinto, H. (2020). Problem-based learning strategy: Its impact on students' critical and creative thinking skills. *European Journal of Educational Research*, 9(3), 1141–1150.
<https://doi.org/10.12973/EU-JER.9.3.1141>
- Kök, F. Z., & Duman, B. (2023). The effect of problem-based learning on problem solving skills in English language teaching. *Journal of Pedagogical Research*, 7(1).
<https://doi.org/10.33902/JPR.202318642>
- Latifi, S., Noroozi, O., & Talaei, E. (2021). Peer feedback or peer feedforward? Enhancing students' argumentative peer learning processes and outcomes. *British Journal of Educational Technology*, 52(2), 768–784.
<https://doi.org/10.1111/bjet.13054>
- Lonergan, R., Cumming, T. M., & O'Neill, S. C. (2022). Exploring the efficacy of problem-based learning in diverse secondary school classrooms: Characteristics and goals of problem-based learning. *International Journal of Educational Research*, 112.
<https://doi.org/10.1016/j.ijer.2022.101945>
- Ma, F., & Li, Y. (2022). Critical thinking ability and performance in argumentative essays of the education major students. *Theory and Practice in Language Studies*, 12(1).
<https://doi.org/10.17507/tpsl.1201.17>
- Magaji, A. (2021). Promoting problem-solving skills among secondary science students through problem based learning. *International Journal of Instruction*, 14(4), 549–566.
<https://doi.org/10.29333/iji.2021.14432a>
- Malik, M. M. (2022). *What is critical thinking?* (Issue January).
<https://doi.org/10.13140/RG.2.2.35191.96165>
- Moallem, M. (2019). Effects of PBL on learning outcomes, knowledge acquisition, and higher-order thinking skills. In M. Moallem, W. Hung, & N. Dabbagh (Eds.), *The Wiley Handbook of Problem-Based Learning* (pp. 107–134). John Wiley & Sons, Inc.
<https://doi.org/10.1002/9781119173243.ch18>
- Moghadam, Z. B., Narafshan, M. H., & Tajadini, M. (2023). The effect of implementing a critical thinking intervention program on English language learners' critical thinking, reading comprehension, and classroom climate. *Asian-Pacific Journal of Second and Foreign Language Education*, 8(1), e1883.
<https://doi.org/10.1186/s40862-023-00188-3>
- Mohd Khairi Razali, Abdul Rahim, A. A., & Khamis, N. Y. (2023). Mind-mapping strategy in process

- writing approach: Idea extension evidence for introductory paragraph. *International Journal of Language Education and Applied Linguistics*, 13(2), e9433. <https://doi.org/10.15282/ijleal.v13i2.9433>
- Muthmainnah, N. (2019). Optimizing critical thinking skill through peer. *ELTIN Journal*, 7(1), 1–7.
- Neokleous, G., Krulatz, A., & Farelly, R. (2020). Handbook of research on cultivating literacy in diverse and multilingual classrooms. In *Advances in Educational Technologies and Instructional Design (AETID) Book Series*.
- Nindya, M. A., & Widiati, U. (2020). Cohesive devices in argumentative essays by Indonesian EFL learners. *Journal on English as a Foreign Language*, 10(2), 337–358. <https://doi.org/10.23971/jefl.v10i2.1949>
- Özelçi, S. Y., & Çalışkan, G. (2019). What is critical thinking? A longitudinal study with teacher candidates. *International Journal of Evaluation and Research in Education*, 8(3), 495–509. <https://doi.org/10.11591/ijere.v8i3.20254>
- Padmadewi, N. N., Artini, L. P., Ratminingsih, N. M., Suhardiana, I. P. A., Zamzam, A., & Juniarta, P. A. K. (2023). Designing project-based learning in research proposal writing: its effect, problems, and scaffolding utilized. *Studies in English Language and Education*, 10(2), e27408. <https://doi.org/10.24815/siele.v10i2.27408>
- Pauzi, R. Y., & Windiaryani, S. (2021). The critical thinking skills on global warming issue: Effect of the socio-scientific problems approach on problem-solving toward student's. *Biosfer*, 14(2), e19963. <https://doi.org/10.21009/biosferjpb.19963>
- Puyt, R. W., Lie, F. B., & Wilderom, C. P. M. (2023). The origins of SWOT analysis. *Long Range Planning*, 56(3), e102304. <https://doi.org/10.1016/j.lrp.2023.102304>
- Qablan, F., Şahin, M., & Hashim, H. (2019). Critical thinking in education: the case in Palestine. *Turquoise International Journal of Educational Research and Social Studies*, 1(1), 20–27.
- Rahmalia, I., & Utari, S. (2021). The effect of Project Based Learning (PBL) in writing skill. *EDULIA: English Education, Linguistic and Art Journal*, 1(2), e2347. <https://doi.org/10.31539/edulia.v1i2.2347>
- Rivas, S. F., Saiz, C., & Ossa, C. (2022). Metacognitive strategies and development of critical thinking in higher education. *Frontiers in Psychology*, 13, e9132189. <https://doi.org/10.3389/fpsyg.2022.913219>
- Sanu, L. O., & Samarinda, I. (2019). The current issues of Indonesian EFL students' writing skills: ability, problem, and reason in writing comparison and contrast essay. *Dinamina Ilmu*, 19(1), 57–73.
- Sholihah, T. M., & Lastariwati, B. (2020). Problem based learning to increase competence of critical thinking and problem solving. *Journal of Education and Learning (EduLearn)*, 14(1), 148–154. <https://doi.org/10.11591/edulearn.v14i1.13772>
- Susilawati, A. Y. & C. (2019). Promoting students' critical thinking in writing persuasive text through Explicit Direct Instruction (EDI). *Journal of English Language Studies*, 4(2), 140–158.
- Tahira, M., & Haider, G. (2019). The role of critical thinking in academic writing: An investigation of EFL students' perceptions and writing experiences. *International Online Journal of Primary Education*, 8(1), 1–30.
- Thongchalerms, S., & Jarunthawatchai, W. (2020). The impact of genre based instruction on EFL learners' writing development. *International Journal of Instruction*, 13(1), 1–16. <https://doi.org/10.29333/iji.2020.1311a>
- Trang, N. H., & Anh, K. H. (2020). Impact of teaching critical thinking tasks for enhancing paragraph writing performance of efl learners. *International Journal of Education and Practice*, 8(4), 784–803. <https://doi.org/10.18488/journal.61.2020.84.784.803>
- Tyas, M. A., Nurkamto, J., & Marmanto, S. (2020). Cultivating students' higher order thinking skills in EFL classes: The role of the teacher and the textbook. *International Online Journal of Education and Teaching (IOJET)*, 7(1), 267–276.
- Utami, B., Probosari, R. M., Saputro, S., Ashadi, & Masykuri, M. (2019). Empowering critical thinking skills with problem solving in higher education. *Journal of Physics: Conference Series*, 1280(3), 1–5. <https://doi.org/10.1088/1742-6596/1280/3/032047>
- Vengadasalam, S. Sen. (2020). Transformative pedagogy and student voice. *Journal of Effective Teaching in Higher Education*, 3(2), 95–104. <https://doi.org/10.36021/jethe.v3i2.95>
- Wahyuningsih, S. (2019). Empowering academic writing skills in millennial era: the role of english program for Bidikmisi students. *The 2nd National TELCECON*, 108–114. <https://doi.org/10.31227/osf.io/2nj8w>
- Woodhouse, J., & Wood, P. (2022). Creating dialogic spaces: developing doctoral students' critical writing skills through peer assessment and review. *Studies in Higher Education*, 47(3), 643–655. <https://doi.org/10.1080/03075079.2020.1779686>
- Yeh, H. C., Yang, S. hsien, Fu, J. S., & Shih, Y. C. (2023). Developing college students' critical thinking through reflective writing. *Higher Education Research and Development*, 42(1), e2043247. <https://doi.org/10.1080/07294360.2022.2043247>
- Yuliandita, Y., & Budiharti, F. R. (2019). HOTS in teacher classroom interaction: A case study. *EduLite: Journal of English Education, Literature and Culture*, 4(2), 132–140. <https://doi.org/10.30659/e.4.2.132-141>