Constructivist Teaching and Analytical Literacy for Fostering Critical Thinking among Islamic Higher Education Students

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ARTICLE INFO	ABSTRACT
	This study explores the impact of constructivist teaching strategies and analytical literacy on students' critical thinking skills among Islamic higher education students. A quantitative approach with an experimental research design was used, where data were collected via a Likert-scale questionnaire measuring three variables: constructivist strategy, analytical literacy, and critical thinking. The sample comprised 60 students from the English Education Program at IAIN Curup, selected using total sampling from three classes during the even semester of 2025. Multiple linear regression analysis revealed that both constructivist strategy and analytical literacy significantly influenced critical thinking, with a coefficient of determination (R^2) of 0.538, indicating that these two variables could explain 53.8% of the variance in critical thinking. The F-test showed a significant joint effect ($F = 33.142$, $p < 0.05$), while the t-test indicated that analytical literacy had a stronger individual impact ($t = 4.588$, $p < 0.05$) compared to the constructivist strategy ($t = 1.807$, $p = 0.076$).

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INTRODUCTION

Higher education is undergoing a significant transformation, particularly in response to the demands of 21st-century competencies that students are expected to possess. One significant implication of this transformation is the repositioning of students, not merely as passive recipients of knowledge, but as active contributors to the construction and application of knowledge. This paradigm shift underscores that modern education's goals extend beyond mastery of academic content. Instead, students must demonstrate cognitive flexibility, the ability to adapt across diverse contexts, and the capacity to develop higher-order thinking skills (HOTS).[1]

As educational paradigms evolve, critical thinking is increasingly recognized as a central competency, crucial for empowering students to meet the intellectual rigors of academia and the multifaceted realities of contemporary life.[2] Critical thinking constitutes a cornerstone of higher education, empowering learners to engage in sound decision-making, problem-solving, and managing multifaceted issues across personal, academic, and social domains.[3]

Although the development of critical thinking has been a global educational priority, empirical evidence consistently reveals that higher education institutions continue to face significant challenges in effectively fostering this competency among students.[4] Numerous studies have indicated that many students complete their academic programs without demonstrating meaningful progress in critical reasoning, problem-solving, or analytical thinking skills. This issue becomes particularly concerning in courses inherently involving philosophical and ethical dimensions, such as Islamic Philosophy of Education. Ideally, such courses stimulate deep critical reflection, abstract reasoning, and conceptual exploration. However, instructional strategies that rely heavily on expository teaching and rote memorization often result in superficial theoretical understanding, with minimal reinforcement of substantive critical thinking skills.

This phenomenon occurs amidst a global shift from content-based learning approaches to competency-based education models.[5] Educational institutions now demand that students understand the material and apply that understanding creatively and critically in various situations.[6] Thus, critical thinking skills are no longer considered an added value but an essential requirement in education.[7] This reality calls for reevaluating pedagogical

[1] Mireia Vendrell Morancho, "Developing Critical Thinking at University: Strategies for Overcoming Challenges and Promoting Its Growth" *Revista de La Educacion Superior* 53, no. 210 (2024): 1-22, https://doi.org/10.36857/resu.2024.210.2848.

[2] Helena Silva et al., "Fostering Critical Thinking through Peer Review between Cooperative Learning Group" *Revista Lusofona de Educacao* 32, no. 32 (2016): 31-45.

[3] Ovidiu Ivancu, Roma Kriaučiūnienė, and Svetozar Poštič, "Implementation of the Critical Thinking Blended Apprenticeship Curricula and Findings per Discipline: Foreign Language Teaching," *Education Sciences* 13, no. 2 (2023), https://doi.org/10.3390/educsci13020208.

[4] Amanda L Hiner, *Equipping Students for Success in College and Beyond: Placing Critical Thinking Instruction at the Heart of a General Education Program, Critical Thinking and Reasoning: Theory, Development, Instruction, and Assessment* (Leiden: Brill, 2020), 43.

[5] Garry Falloon, "From Digital Literacy to Digital Competence: The Teacher Digital Competency (TDC) Framework," *Educational Technology Research and Development* 68(5) (2020): 2449–2472, https://doi.org/10.1007/s11423-020-09767-4.

[6] Elizabeth Bishop, *Critical Literacy: Bringing Theory to Praxis* (Melbourne: Routledge, 2023), 38.

[7] Mathias Decuypere, Emiliano Grimaldi, and Paolo Landri, "Introduction: Critical Studies of Digital Education Platforms," *Critical Studies in Education* 62 (1) (2021): 1–16,

approaches, particularly in philosophy education, which should foster students' reflective thinking capabilities.

Moreover, when linked to a constructivist approach in education, which positions students as active agents in the learning process, emphasis is placed on the independent construction of knowledge grounded in direct experience and the cognitive structures they have previously acquired.[8] In this context, learning is not viewed as a linear transfer of knowledge from lecturer to student, but rather as an interactive activity that involves constructing meaning personally and socially.[9] This model encourages students' intellectual engagement through exploration, critical reflection, and collaboration, strengthening their capacity to develop deeper conceptual understanding and higher-order thinking skills.[10]

Applying the constructivist approach is highly relevant in teaching Islamic educational philosophy, which requires students to navigate abstract ideas and normative values reflectively and analytically.[11] Through a structured, dialogical, and problem-based learning experience, students are challenged to understand classical and contemporary texts and contextualize them within the realities of current educational practices.[12] Thus, this approach can potentially bridge the gap between theoretical mastery and developing critical thinking capacity in the study of Islamic philosophy.

A crucial question is what pedagogical approach is effective in stimulating the development of students' critical thinking abilities, especially in the context of philosophy education? While the importance of critical thinking has been widely recognized in academic discourse,[13] there remains a significant gap in the operational and contextual pedagogical framework to develop these skills, particularly in teaching Islamic Educational Philosophy. This disparity is even more evident in Islamic education, where efforts to integrate contemporary cognitive approaches with traditional religious paradigms present challenges and opportunities for innovation.[14] At this point, this research positions itself, aiming to explore pedagogical strategies that are not only conceptually relevant but also practical and contextual in facilitating the enhancement of critical thinking within a philosophy learning environment grounded in Islamic values.

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https://doi.org/10.1080/17508487.2020.1866050.

[8] Maryellen Allen, "Promoting Critical Thinking Skills in Online Information Literacy Instruction Using a Constructivist Approach," *College and Undergraduate Libraries* 15, no. 1–2 (2008): 21-38, https://doi.org/10.1080/10691310802176780.

[9] Michelle Searle, Claire Ahn, and Katrina Carbone, "Illuminating Transformative Learning/Assessment: Infusing Creativity, Reciprocity, and Care into Higher Education," *Journal of Transformative Education* Volume 19, no. 4 (2021): 1-15, https://doi.org/10.1177/15413446211045160.

[10] Colleen M Halupa, *Transformative Learning: Theory and Practice for Faculty and Students*, Transformative Curriculum Design in Health Sciences Education (New York: IGI Global, 2015), 69, https://doi.org/10.4018/978-1-4666-8571-0.ch001.

[11] Yazidul Busthomi, Justsinta Sindi Alivi, and Abd Haris, "Educational Thought of Islamic Philosophers Perspective of Islamic Philosophy of Education," *Al-Insyiroh: Jurnal Studi Keislaman* 10 (1) (2024): 27–50.

[12] Herdianto Wahyu Pratomo, Yeti Kuswati, and Abas Hidayat Suklani, "Educational Leadership: Islamic Religious, Philosophy, Psychology, and Sociology Perspectives," *International Journal of Social Science and Human Research* 5 (05) (2022): 1765–1770.

[13] Christine Sleeter and Miguel Zavala, *Transformative Ethnic Studies in Schools: Curriculum, Pedagogy, and Research* (New York: Teachers College Press, 2020), 52.

[14] Sytaria Adymas Pranajaya, Fadillah Fadlilah, and Syamsul Rijal, "Discourse of Islamic Educational Philosophy on Islamic Educational Psychology in Islamic Education," *Islamiyyat* Vol 46, No.1 (2024): 69–81.

To bridge this gap, this research focuses on two key instructional variables: constructivist strategies and analytical literacy practices. The constructivist approach emphasizes that knowledge is constructed through engagement, interaction, and reflection.[15] Students are no longer viewed as passive recipients but active participants in constructing meaning and understanding.[16] In philosophy education, a constructivist strategy is believed to encourage students to question assumptions, critically analyze philosophical discourses, and engage in dialogue and dialectics—skills central to higher-order thinking.[17]

On the other hand, analytical literacy—which includes skills in reading and writing analytically—also provides a strategic pathway to foster critical thinking capacity.[18] Analytical literacy trains students to dissect arguments, evaluate evidence, and articulate ideas in a logical and structured manner.[19] In studying Islamic philosophy of education—rich with complex theological, historical, and epistemological concepts—analytical literacy equips students to interpret texts deeply and develop critiques grounded in well-structured argumentation.[20] Unfortunately, despite its high relevance, empirical research exploring the contribution of analytical literacy to the development of critical thinking within this course remains notably scarce.

Analytical literacy constitutes a fundamental cognitive competence that enables students to comprehend, examine, and evaluate complex information deeply and systematically.[21] This form of literacy extends beyond mere reading comprehension; it entails the cognitive ability to critically examine arguments, identify underlying logical structures, and assess the validity and relevance of the information encountered.[22] In the context of higher education, mastery of analytical literacy is essential, as it underpins the critical thinking skills required to navigate increasingly complex academic demands.[23]

As a mode of thinking, it enables students to uncover implicit assumptions, critically evaluate the validity and structure of arguments, and construct coherent conclusions

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[15] Vu Minh Chieu, Elie Milgrom, and Mariane Frenay, "Constructivist Learning: Operational Criteria for Cognitive Flexibility" (Proceedings - IEEE International Conference on Advanced Learning Technologies, ICALT 2004, IEEE, 2004): 221-225.

[16] Katri Kleemola, Heidi Hyytinen, and Auli Toom, "Exploring Internal Structure of a Performance-Based Critical Thinking Assessment for New Students in Higher Education," *Assessment and Evaluation in Higher Education* 47, no. 4 (2022): 556-569, https://doi.org/10.1080/02602938.2021.1946482.

[17] Ervin Laszlo, *Introduction to Systems Philosophy: Toward a New Paradigm of Contemporary Thought* (Melbourne: Routledge, 2021), https://doi.org/10.4324/9781003205586.

[18] Kleemola, Hyytinen, and Toom, "Exploring Internal Structure of a Performance-Based Critical Thinking Assessment for New Students in Higher Education."

[19] Kellen Toohey et al., *Transforming Language and Literacy Education: New Materialism, Posthumanism, and Ontoethics* (Melbourne: Routledge, 2020), 13.

[20] Liliana Valladares, "Scientific Literacy and Social Transformation: Critical Perspectives about Science Participation and Emancipation," *Science &Education* 30 (3) (2021): 557–587, https://doi.org/10.1007/s11191-021-00205-2.

[21] María José Bezanilla et al., "Understanding Critical Thinking: A Comparative Analysis between University Students' and Teachers' Conception," *Tuning Journal for Higher Education* 10, no. 2 (2023): 223-244, https://doi.org/10.18543/tjhe.2515.

[22] Kleemola, Hyytinen, and Toom, "Exploring Internal Structure of a Performance-Based Critical Thinking Assessment for New Students in Higher Education."

[23] Liu Xue, "Research on the Current Situ Ation and Countermeasures of the Cultivation of Students' Critical Thinking Ability in Application-Oriented Private Universities under the Background of Big Data," vol. 251 (E3S Web of Conferences, Xiamen: TEES, 2021), https://doi.org/10.1051/e3sconf/202125101048.

grounded in evidence and logical reasoning.[24] This skill is essential across various academic disciplines, particularly in fields that demand advanced reasoning, abstract thinking, and ethical consideration.[25] Moreover, analytical literacy is crucial in shaping students' adaptive readiness to face intellectual and professional challenges in the fast-paced and dynamic information age.

Both constructivist strategies and analytical literacy have been recognized as effective in enhancing critical thinking skills. However, to date, limited research has explored how these two approaches interact and complement each other within the context of Islamic Education Philosophy. This represents the novelty of the current study. Furthermore, the focus on philosophy education within Islamic higher education remains underexplored in the global literature. Therefore, this research offers significant conceptual and contextual contributions to the discourse on pedagogy and the development of critical thinking.

RESEARCH METHOD

This study employed a quantitative approach to collect and analyze data in a structured and systematic manner.[26] This approach was chosen due to the data's numerical nature, allowing the researcher to conduct statistical analyses to identify patterns, correlations, and potential causal relationships between variables. The quantitative method also ensures the consistency and reliability of the findings, as the data collection procedures are standardized.

The research design employed is an explanatory correlational design, which aims to explain and interpret the relationships between variables within a specific context, without claiming a direct cause-and-effect relationship.[27] This design identifies significant relationships between the research variables, providing a foundation for further theoretical exploration. In the context of this study, the explanatory correlational design was chosen to examine the extent to which two independent variables—constructivist teaching strategies and analytical literacy—contribute to enhancing higher-order critical thinking skills among students.

The primary objective of this study is to identify and explain the relationship between constructivist-based pedagogical strategies and students' analytical literacy skills regarding the development of critical thinking skills, particularly in the context of the Islamic Education Philosophy course. Through this approach, the researcher can assess each independent variable's simultaneous and partial effects on the dependent variable. This design is considered relevant because it provides a deeper understanding of the contribution of each factor to students' critical thinking abilities, which, in the context of higher education, is essential for comprehensively shaping students' intellectual and professional competencies.

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[24] Ana Irhandayaningsih, "Instrument Development for Information Literacy Assessment through Analysis and Synthesis Skills in Post Covid Higher Education," vol. 317 (E3S Web of Conferences, EDP Sciences, 2021), 03016, https://doi.org/10.1051/e3sconf/202131703016.

[25] Alison Hicks and Annemaree Lloyd, "Reaching into the Basket of Doom: Learning Outcomes, Discourse and Information Literacy," *Journal of Librarianship and Information Science* 55, no. 2 (2023): 282-298, https://doi.org/10.1177/09610006211067216.

[26] Sugiyono, *Statistika untuk Penelitian* (Bandung: Alfabeta, 2014), 145.

[27] Shawn M Fitzgerald, Phillip D Rumrill Jr., and Jason D Schenker, "Correlational Designs in Rehabilitation," *Journal of Vocational Rehabilitation* 20, no. 2 (2004): 143-150.
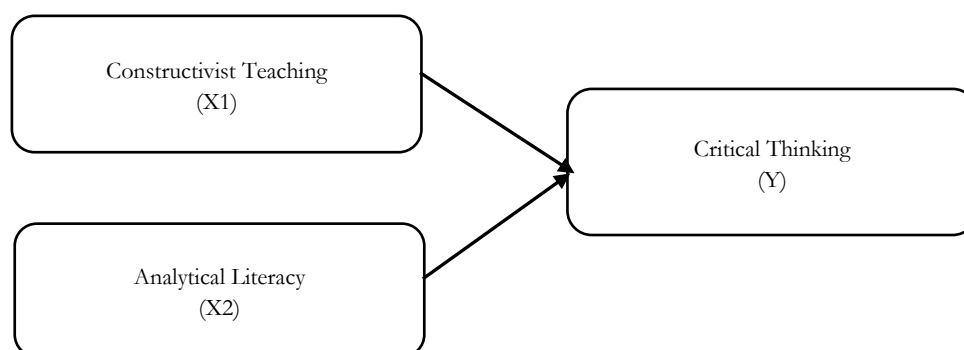
Figure 1. Correlational Explanatory Research Design

The subjects of this study are students from the English Education Department of the State Islamic Institute (IAIN) Curup who are currently taking the microteaching course. The sample comprises 60 students from three classes—2A, 2B, and 2C—selected using a total sampling technique. This technique was chosen because the entire population shares characteristics that align with the research focus, specifically students undergoing the Islamic Education Philosophy course. It ensures that the data collected is representative and valid for the analysis requirements.

Table 1. Research Population and Sample

Class	Number of Students
2A	22
2B	14
2C	24
Total research sample	**60**

Data collection was carried out using a closed-ended questionnaire with a Likert scale. The instrument was developed based on the theoretical indicators of each research variable. The indicators used for the Constructivist Teaching variable include activating prior knowledge, problem-based learning, collaboration and social discussion, scaffolding, reflection, and metacognition. The Analytical Literacy variable was measured based on critical reading, argumentative writing, analysis and evaluation of ideas, synthesis, and logical reasoning. Meanwhile, critical thinking skills were assessed based on analysis, evaluation, inference, interpretation, explanation, argumentation, and self-regulation.

Table 2. Data Collection on Variable Indicators

Variable	Indicator	Number of Statement Items	Measurement Scale
Constructivist Teaching	Prior Knowledge Activation	2	Likert scale 1–5
	Problem-Based Learning	2	Likert scale 1–5
	Collaboration and Social Discussion	2	Likert scale 1–5
	Scaffolding	2	Likert scale 1–5

Variable	Indicator	Number of Statement Items	Measurement Scale
	Reflection and Metacognition	2	Likert scale 1–5
Analytical Literacy	Critical Reading	2	Likert scale 1–5
	Argumentative Writing	2	Likert scale 1–5
	Analysis and Evaluation of Ideas	2	Likert scale 1–5
	Synthesis and Logical Reasoning	2	Likert scale 1–5
Critical Thinking	Analysis	2	Likert scale 1–5
	Evaluation	2	Likert scale 1–5
	Inference	2	Likert scale 1–5
	Interpretation	2	Likert scale 1–5
	Explanation and Argumentation	2	Likert scale 1–5
	Self Regulation	2	Likert scale 1–5

To ensure the validity and reliability of the research instrument, the questionnaire was pretested on a group of students outside the main sample. The aim was to ensure that each item accurately and consistently measures the intended variable. Validity was tested using Pearson Product Moment correlation to determine whether each item is significantly related to the total score of the variable. An item is considered valid if its correlation coefficient (r) exceeds the r-table value at the 5% significance level.

Meanwhile, reliability was tested using Cronbach's Alpha coefficient. The instrument is considered reliable if the alpha value is equal to or greater than 0.7, indicating that the items within a variable are consistent. These validity and reliability tests are crucial to ensure the collected data is accurate and scientifically accountable.

The collected data were analyzed using multiple linear regression with the assistance of SPSS software version 29. The aim is to examine the extent to which Constructivist Teaching and Analytical Literacy, collectively and individually, influence critical thinking skills. The analysis results are presented in tables and graphs for ease of understanding and are interpreted based on significance values and the strength of relationships between variables.[28] With this systematic and structured approach, the research is expected to contribute meaningfully to developing more reflective, participatory, and effective teaching strategies for Islamic Education Philosophy to enhance students' critical thinking skills.

RESULT AND DISCUSSION
Descriptive Statistics of Research Variables

The first variable analyzed in this research is Constructivist Teaching, which is defined as a teaching approach that places students as active subjects in the learning process. This strategy assumes that knowledge is built through students' direct involvement in contextual learning experiences, social discussions, provision of gradual assistance (scaffolding), and continuous reflection. To measure students' perceptions of the implementation of this strategy, an instrument consisting of 24 statement items representing six leading indicators

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[28] Sharon Sullivan, "Correlational Designs", *Research Methods in Special Education* (Melbourne: Routledge, 2024), 56, https://doi.org/10.4324/9781003526315-7.

was used: (1) Activation of prior knowledge, (2) Problem-based learning, (3) Collaboration and social discussion, (4) Scaffolding, (5) Reflection, and Metacognition.

The results of the descriptive analysis show that the total score of respondents on the Constructivist Teaching variable is in the range of 51 to 77, with an average (mean) value of 65.52 and a standard deviation of 7.217. This average value reflects that, in general, students give a positive assessment of the constructivist teaching strategies implemented during lectures. The relatively moderate variation in scores, as indicated by the standard deviation, which is in the low to medium category, indicates a consistent perception among respondents regarding the effectiveness of the constructivist approach.

Table 3. Results of Descriptive Statistical Tests for Constructivist Variables

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Constructivist Teaching	60	51	77	65.52	7.217	-.193	.309	-.969	.608
Valid N (listwise)	60								

The second variable in this research is Analytical Literacy, which represents students' cognitive capacity in critically understanding academic texts, writing logic-based arguments, evaluating ideas' validity, and conducting analysis and synthesis processes for complex information. Analytical literacy is an important dimension of higher-order thinking skills that underlies students' intellectual activities in higher education. This variable was measured through 16 statements prepared based on the academic literacy framework and high-level cognitive taxonomy.

Based on the results of descriptive analysis, students' total scores on the Analytical Literacy variable are in the range of 58 to 90, with a standard deviation of 8.480. This average score places students' analytical literacy level in a high category. This achievement shows that most students have a solid foundation in critical thinking skills, especially in interpreting scientific arguments, constructing evidence-based statements, and logically assessing the validity of a claim.

Table 4. Descriptive Statistical Test Results for Analytical Literacy Variables

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Analytical Literacy	60	58	90	75.68	8.480	-.113	.309	-.864	.608
Valid N (listwise)	60								

The third variable studied in this research is Critical Thinking Disposition, namely the tendency of students to use critical thinking in decision making, problem solving, and evaluating information. In this context, critical thinking dispositions are not only seen from cognitive abilities, but also from affective and motivational aspects, such as openness to new ideas, encouragement to think reflectively, and intellectual courage in evaluating assumptions.

The measurement instrument for this variable consists of 20 statement items that reflect six main indicators: (1) Truth-seeking (search for truth), (2) Open-mindedness (openness of mind), (3) Analyticity (analytical accuracy), (4) Systematicity (perseverance and systematic thinking), (5) Critical thinking self-confidence (confidence in critical thinking), and (6) Cognitive maturity (cognitive maturity).

Based on the results of descriptive analysis, the total student score for this variable is in the range of 39 to 65, with an average score of 53.30 and a standard deviation of 06.03. This average score indicates that students have a disposition to think critically at a relatively high level, with quite moderate variation between individuals. The reasonably wide minimum and maximum values reflect differences in students' readiness to engage in deep and reflective thinking.

Table 5. Descriptive Statistical Test Results for Critical Thinking Variables

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Critical Thinking	60	39	65	53.50	6.032	-.360	.309	-.251	.608
Valid N (listwise)	60								

Classical Assumption Test

A classical assumption test was first carried out to ensure the validity and reliability of the multiple linear regression results used in this research. This test includes normality, multicollinearity, heteroscedasticity, and autocorrelation tests. These four tests aim to ensure that the data used meets the basic assumptions of the linear regression model, so that the resulting parameter estimates are BLUE (Best Linear Unbiased Estimator).

Normality Test

The normality test is carried out to determine whether the residual data from the regression model is normally distributed. In this research, the normality test was carried out using the Kolmogorov-Smirnov (K-S) method, which was also strengthened by observing the Normal P-P Plot graph and residual histogram.

The results of the Kolmogorov-Smirnov test show a significance value of 0.330 > 0.05, which means the residual data is normally distributed. This is reinforced by the shape of the residual histogram curve, which resembles a normal distribution, and the pattern on the Normal P-P Plot graph, which follows a diagonal line, indicating no significant deviations from normality.

Table 6. Kolmogorov-Smirnov Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		60
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	4.10142798
Most Extreme Differences	Absolute	.120
	Positive	.120
	Negative	-.064
Test Statistic		.120
Asymp. Sig. (2-tailed)[c]		.330
Monte Carlo Sig. (2-tailed)[d]	Sig.	.027
	99% Confidence Interval Lower Bound	.023
	Upper Bound	.031

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Thus, it can be concluded that the residual data in this regression model meet the normality assumption.

Multicollinearity Test

The multicollinearity test aims to determine whether there is a high correlation between independent variables. This test is carried out by looking at the Tolerance and Variance Inflation Factor (VIF) values. The criteria used are: Tolerance value > 0.10 and VIF value < 10.

Table 7. Multicollinearity Test Results of Variables

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	10.786	5.363		2.011	.049		
	Constructivist Teaching	.186	.103	.222	1.807	.076	.537	1.862
	Analytical Literacy	.401	.087	.564	4.588	<,001	.537	1.862

a. Dependent Variable: Critical Thinking

The Multicollinearity Test shows that the VIF (Variance Inflation Factor) value for variable X1 (Constructivist Teaching) is 1.862 and X2 (Analytic Literacy) is 1.862. This value is smaller than 10, and Tolerance is 0.54 and greater than 0.10, so it can be concluded that there is no multicollinearity in the regression model that was built.

Heteroscedasticity Test

The heteroscedasticity test is carried out to test whether there is unequal variance in the residuals in the regression model. This test was carried out using the Glejser Test by

observing the significance value (Sig.) in the regression results on the residual absolute value. Decision-making criteria: If Sig. > 0.05, then heteroscedasticity does not occur, while if Sig. < 0.05 means heteroscedasticity occurs.

Table 8. Variable Heteroscedasticity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.870	3.402		1.431	.158
	Constructivist Teaching	.049	.065	.135	.758	.451
	Analytical Literacy	-.066	.055	-.212	-1.189	.239

a. Dependent Variable: Abs_RES

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	10.786	5.363		2.011	.049		
	Constructivist Teaching	.186	.103	.222	1.807	.076	.537	1.862
	Analytical Literacy	.401	.087	.564	4.588	<,001	.537	1.862

a. Dependent Variable: Critical Thinking

From the results of the heteroscedasticity test, the significance value (Sig.) of the two variables is above 0.05, so heteroscedasticity does not occur.

Multiple Linear Regression Test

Multiple linear regression models are used to determine the simultaneous and partial influence of constructivist teaching (X1) and analytical teaching (X2) on critical thinking skills (Y). Because the regression coefficient value is positive (+), it can be stated that X1 and X2 have a positive effect on Y. The results of the analysis show that the regression equation obtained is:

$$Y = 10,786 + 0,186X1 + 0,401X2$$

The regression coefficient value at X1 shows that every one-unit increase in peer assessment will increase pedagogical skills by 0.186 units, assuming other variables are constant. Meanwhile, at X2, every one-unit increase in constructive feedback will increase pedagogical skills by 0.401 units. Moreover, the R Square shows the number 0.538, meaning that constructivist and analytical teaching influence 53% of the critical thinking variable.

Table 9. Linear Regression Test Results for Research Variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733[a]	.538	.521	4.173

a. Predictors: (Constant), Analytical Literacy, Constructivist Teaching

Simultaneous Significance Test (F Test)

Table 10. Results of the F Test for Research Variables

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1154.119	2	577.060	33.142	<,001[b]
	Residual	992.481	57	17.412		
	Total	2146.600	59			

a. Dependent Variable: Critical Thinking

b. Predictors: (Constant), Analytical Literacy, Constructivist Teaching

From the table above, the calculated F value = 33.142 with a significance of 0.000 < 0.05, so it can be concluded that constructivist strategies and analytical literacy simultaneously significantly affect students' critical thinking abilities.

Partial Significance Test (t Test)

The t-test analysis shows that the constructivist teaching variable has a calculated t value of 1.807 with a significance of 0.076. In contrast, the analytical literacy variable has a calculated t value of 4.588 with a significance of 0.000. Both values are significant at the 5% level (p < 0.05), meaning that constructivist teaching and analytical literacy partially influence students' critical thinking skills.

Table 11. Research Variable T-test results

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	10.786	5.363		2.011	.049		
	Constructivist Teaching	.186	.103	.222	1.807	.076	.537	1.862
	Analytical Literacy	.401	.087	.564	4.588	<,001	.537	1.862

a. Dependent Variable: Critical Thinking

This research indicates that constructivist strategies and analytical literacy significantly develop students' high-level critical thinking skills in the Philosophy of Islamic Education course. This finding was obtained based on a multiple linear regression test, which showed significant values for both predictor variables (p < 0.05), with a coefficient of determination (R^2) of 0.538. This means that 53.8% of students' critical thinking skills variability can be explained by the constructivist strategies and analytical literacy applied in the learning process.

Theoretically, the constructivist approach emphasizes the active role of students in constructing knowledge through exploration, reflection, and contextual problem-solving processes. The findings of this study support this concept by demonstrating that indicators of constructivist strategies—such as activation of prior knowledge, problem-based learning,

scaffolding, social discussion, and reflection and metacognition—strongly contribute to enhancing the evaluation, inference, and self-regulation dimensions of students' critical thinking.

This finding aligns with studies that assert that the consistent use of constructivist teaching strategies can enhance students' conceptual understanding and higher-order thinking skills.[29] In Islamic Educational Philosophy, applying this strategy enables students to comprehend philosophical discourse textually and critically evaluate and engage with it in contemporary contexts.

In addition to the constructivist approach, analytical literacy significantly impacts students' critical thinking skills. This study's analytical literacy encompasses critical reading, argumentative writing, idea analysis and evaluation, synthesis, and logical reasoning. Descriptive results indicate that most respondents scored highly on the indicators of argumentative writing and idea evaluation, which means they are accustomed to assessing the validity of arguments and constructing thoughts systematically.

The theory of analytical literacy places the ability to understand and generate information reflectively and rationally at the core of critical thinking.[30] This finding confirms that students who are intensively trained in critically reading philosophical texts and composing reflective-analytical writings tend to have higher abilities in making deep inferences and interpretations regarding issues in Islamic education.

Analytical literacy equips students with the critical thinking skills to understand, analyze, and evaluate complex information. Given the challenges students face in the increasingly evolving academic world, these skills are essential, and they demand the ability to think deeply and in a structured manner.[31] The ability of analytical literacy not only influences the understanding of course material but also supports students in adapting to high academic demands, which include skills in conducting research, constructing arguments, and connecting ideas logically and critically.[32]

In various fields of study, particularly those requiring theoretical understanding and practical application, analytical literacy is key in delving into often multidimensional and complex issues. For instance, in the study of philosophy, particularly Islamic educational philosophy, students are expected not only to master basic concepts but also to evaluate existing theories and practices critically, as well as filter information relevant to contemporary thinking and practices.

Furthermore, the ability to evaluate and interpret information analytically also enables students to engage in productive intellectual discussions and debates. In this regard, analytical literacy is not just related to the ability to read and write critically, but also the ability to understand context, recognize biases, and identify invalid or weak arguments. Therefore,

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[29] Allen, "Promoting Critical Thinking Skills in Online Information Literacy Instruction Using a Constructivist Approach."

[30] Bezanilla et al., "Understanding Critical Thinking: A Comparative Analysis between University Students' and Teachers' Conception."

[31] Kleemola, Hyytinen, and Toom, "Exploring Internal Structure of a Performance-Based Critical Thinking Assessment for New Students in Higher Education."

[32] Irhandayaningsih, "Instrument Development for Information Literacy Assessment through Analysis and Synthesis Skills in Post Covid Higher Education."

strong analytical literacy will assist students in becoming more critical, reflective readers, writers, and thinkers.

Referring to the results of this study, it is evident that the contributions of constructivist strategies and analytical literacy complement each other in a highly significant way. Students who engage in collaborative problem-based learning experiences, combined with intensive practice in reading and writing analytically, demonstrate significant progress in exploring ideas deeply and making logical decisions. This indicates that integrating these two strategies can create a highly effective pedagogical approach in designing Islamic Educational Philosophy courses that foster the development of students' critical thinking.[33]

These findings also offer important contributions in higher education, particularly in teaching philosophical and ethical courses such as Islamic Educational Philosophy. It suggests that critical thinking skills in the context of educational philosophy cannot be developed solely through cognitive approaches such as rote memorization or theory learning disconnected from real-world contexts. Instead, active and reflective learning that allows students to reconstruct meaning and synthesize discourse independently becomes a key factor in strengthening their critical thinking abilities.[34]

Thus, an approach that combines constructivist strategies and enhances analytical literacy enriches students' learning experiences and allows them to engage more deeply in learning that prioritizes personal reflection and the application of ideas in real-world contexts. This paves the way for more meaningful learning, where students not only master theories but also apply them in more complex thinking and decision-making, both in academic fields and in everyday life.

The results of this study align with the theory that Constructivism and Analytical Literacy mutually support the development of critical thinking. A constructivist environment emphasizing active and collaborative learning can enhance students' analytical literacy skills, strengthening their critical thinking abilities.[35] Moreover, their relationship encourages using alternative evaluation methods such as self-assessment and peer review, which can help students develop communication and social skills essential for analytical literacy and critical thinking.

Constructivist strategies and analytical literacy are closely intertwined in fostering critical thinking. A learning environment that supports constructivism enhances student engagement and strengthens their analytical and critical abilities through active and collaborative learning approaches.

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[33] Asri Karolina et al., "The Development of Learning Outcome-Based Islamic Education Materials to Improve the Students Critical Thinking," *Cendekia: Jurnal Kependidikan Dan Kemasyarakatan* 20, no. 2 (2022): 190-211, https://doi.org/10.21154/cendekia.v20i2.3963.

[34] Lili - Halimah, Idrus Affandi, and Wiwi - Kartiwi, "The Influence of Cultural and Citizenship Literacy on Students' Critical Thinking Skill," *Cendekia: Jurnal Kependidikan dan Kemasyarakatan* 18, no. 1 (2020): 49–66, https://doi.org/10.21154/cendekia.v1i1.1888.

[35] Prajnya Sarangi and M Ramachandran, "Constructivist Approaches on Developing 4Cs of 21 Century Skills," *Lecture Notes in Networks and Systems* 1167 LNNS (2024): 374-383, https://doi.org/10.1007/978-3-031-73318-5_39.

CONCLUSION

Based on the research findings, it can be inferred that constructivist strategies and analytical literacy are pivotal in enhancing students' critical thinking skills within the Islamic Educational Philosophy course context. Constructivist approaches, which emphasise the activation of prior knowledge and problem-based learning, as well as reflection and metacognition, effectively facilitate students' abilities to critically analyse, evaluate, and organise their thoughts. This approach encourages active student engagement through experiential learning and collaboration, enabling a comprehensive understanding of fundamental philosophical concepts and the capacity to critically assess and relate these ideas to practical, real-life contexts.

Moreover, analytical literacy significantly contributes to developing critical thinking by fostering skills in critical reading, argumentative writing, and the systematic analysis and evaluation of philosophical texts. Such competencies empower students to interpret and synthesize complex ideas more deeply, promoting systematic and rational thinking essential for addressing advanced academic challenges. Combining constructivist strategies with analytical literacy in Islamic education helps improve students' critical thinking skills. Therefore, adopting a learning model that combines these approaches offers an effective means of cultivating in-depth comprehension and refined analytical skills among students.

REFERENCES

Allen, Maryellen. "Promoting Critical Thinking Skills in Online Information Literacy Instruction Using a Constructivist Approach." *College and Undergraduate Libraries* 15, no. 1–2 (2008): 21-38. https://doi.org/10.1080/10691310802176780.

Bezanilla, María José, Héctor Galindo-Domínguez, Lucía Campo, Donna Fernández-Nogueira, and Manuel Poblete Ruiz. "Understanding Critical Thinking: A Comparative Analysis between University Students' and Teachers' Conception." *Tuning Journal for Higher Education* 10, no. 2 (2023): 223-244. https://doi.org/10.18543/tjhe.2515.

Bishop, Elizabeth. *Critical Literacy: Bringing Theory to Praxis.* Melbourne: Routledge, 2023.

Busthomi, Yazidul, Justsinta Sindi Alivi, and Abd Haris. "Educational Thought of Islamic Philosophers Perspective of Islamic Philosophy of Education." *Al-Insyiroh: Jurnal Studi Keislaman* 10 (1) (2024): 27–50.

Chieu, Vu Minh, Elie Milgrom, and Mariane Frenay. "Constructivist Learning: Operational Criteria for Cognitive Flexibility," 221-225. IEEE, 2004.

Decuypere, Mathias, Emiliano Grimaldi, and Paolo Landri. "Introduction: Critical Studies of Digital Education Platforms." *Critical Studies in Education* 62 (1) (2021): 1–16. https://doi.org/10.1080/17508487.2020.1866050.

Falloon, Garry. "From Digital Literacy to Digital Competence: The Teacher Digital Competency (TDC) Framework." *Educational Technology Research and Development* 68 (5) (2020): 2449–2472. https://doi.org/10.1007/s11423-020-09767-4.

Fitzgerald, Shawn M, Phillip D Rumrill Jr., and Jason D Schenker. "Correlational Designs in Rehabilitation." *Journal of Vocational Rehabilitation* 20, no. 2 (2004): 143-150.

Halimah, Lili -, Idrus Affandi, and Wiwi - Kartiwi. "The Influence of Cultural and Citizenship Literacy on Students' Critical Thinking Skill." *Cendekia: Jurnal Kependidikan dan Kemasyarakatan* 18, no. 1 (2020): 49–66. https://doi.org/10.21154/cendekia.v1i1.1888.

Halupa, Colleen M. *Transformative Learning: Theory and Practice for Faculty and Students.* Transformative Curriculum Design in Health Sciences Education. New York: IGI Global, 2015. https://doi.org/10.4018/978-1-4666-8571-0.ch001.

Hicks, Alison, and Annemaree Lloyd. "Reaching into the Basket of Doom: Learning Outcomes, Discourse and Information Literacy." *Journal of Librarianship and Information Science* 55, no. 2 (2023): 282-298. https://doi.org/10.1177/09610006211067216.

Hiner, Amanda L. *Equipping Students for Success in College and Beyond: Placing Critical Thinking Instruction at the Heart of a General Education Program. Critical Thinking and Reasoning: Theory, Development, Instruction, and Assessment.* Leiden: Brill, 2020.

Irhandayaningsih, Ana. "Instrument Development for Information Literacy Assessment through Analysis and Synthesis Skills in Post Covid Higher Education," 317:03016. EDP Sciences, 2021. https://doi.org/10.1051/e3sconf/202131703016.

Ivancu, Ovidiu, Roma Kriaučiūnienė, and Svetozar Poštič. "Implementation of the Critical Thinking Blended Apprenticeship Curricula and Findings per Discipline: Foreign Language Teaching." *Education Sciences* 13, no. 2 (2023). https://doi.org/10.3390/educsci13020208.

Karolina, Asri, Nyayu Khodijah, Zuhdiyah Zuhdiyah, and Aini Syahira Jamaluddin. "The Development of Learning Outcome-Based Islamic Education Materials to Improve The Students Critical Thinking." *Cendekia: Jurnal Kependidikan dan Kemasyarakatan* 20, no. 2 (2022): 190–211. https://doi.org/10.21154/cendekia.v20i2.3963.

Kleemola, Katri, Heidi Hyytinen, and Auli Toom. "Exploring Internal Structure of a Performance-Based Critical Thinking Assessment for New Students in Higher Education." *Assessment and Evaluation in Higher Education* 47, no. 4 (2022): 556-569. https://doi.org/10.1080/02602938.2021.1946482.

Laszlo, Ervin. *Introduction to Systems Philosophy: Toward a New Paradigm of Contemporary Thought.* Melbourne: Routledge, 2021. https://doi.org/10.4324/9781003205586.

Morancho, Mireia Vendrell. "Developing Critical Thinking at University: Strategies for Overcoming Challenges and Promoting Its Growth; [Desarrollo Del Pensamiento Crítico En La Universidad: Estrategias Para Superar Desafíos y Fomentar Su Crecimiento]." *Revista de La Educacion Superior* 53, no. 210 (2024): 1-22. https://doi.org/10.36857/resu.2024.210.2848.

Pranajaya, Sytaria Adymas, Fadillah Fadlilah, and Syamsul Rijal. "Discourse of Islamic

Educational Philosophy on Islamic Educational Psychology in Islamic Education." *Islamiyyat* Vol 46, No.1 (2024): 69–81.

Pratomo, Herdianto Wahyu, Yeti Kuswati, and Abas Hidayat Suklani. "Educational Leadership: Islamic Religious, Philosophy, Psychology, and Sociology Perspectives." *International Journal of Social Science and Human Research* 5 (05) (2022): 1765–1770.

Sarangi, Prajnya, and M Ramachandran. "Constructivist Approaches on Developing 4Cs of 21 Century Skills." *Lecture Notes in Networks and Systems* 1167 LNNS (2024): 374-383. https://doi.org/10.1007/978-3-031-73318-5_39.

Searle, Michelle, Claire Ahn, and Katrina Carbone. "Illuminating Transformative Learning/Assessment: Infusing Creativity, Reciprocity, and Care into Higher Education." *Journal of Transformative Education* Volume 19, no. 4 (2021). https://doi.org/10.1177/15413446211045160.

Silva, Helena, José Lopes, Caroline Dominguez, Rita Payan-Carreira, Eva Morais, Maria Manuel Nascimento, and Felicidade Morais. "Fostering Critical Thinking through Peer Review between Cooperative Learning Groups." *Revista Lusofona de Educacao* 32, no. 32 (2016): 31-45.

Sleeter, Christine, and Miguel Zavala. *Transformative Ethnic Studies in Schools: Curriculum, Pedagogy, and Research.* New York: Teachers College Press, 2020.

Sugiyono. *Statistika Untuk Penelitian.* Bandung: Alfabeta, 2014.

Sullivan, Sharon. *Correlational Designs.* Research Methods in Special Education. Melbourne: Routledge, 2024. https://doi.org/10.4324/9781003526315-7.

Toohey, Kellen, Suzanne Smythe, Diane Dagenais, and Magali Forte. *Transforming Language and Literacy Education: New Materialism, Posthumanism, and Ontoethics.* Melbourne: Routledge, 2020.

Valladares, Liliana. "Scientific Literacy and Social Transformation: Critical Perspectives about Science Participation and Emancipation." *Science &Education* 30 (3) (2021): 557–587. https://doi.org/10.1007/s11191-021-00205-2.

Xue, Liu. "Research on the Current Situ Ation and Countermeasures of the Cultivation of Students' Critical Thinking Ability in Application-Oriented Private Universities under the Background of Big Data," Vol. 251. Xiamen: TEES, 2021. https://doi.org/10.1051/e3sconf/202125101048.