

Cognitive Transformation Gap in EFL Writing: PLS-SEM Evidence of Evaluation Dominance over Reading Components in Indonesia

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ABSTRACT:

This study evaluates the relationship between reading and writing in English as a Foreign Language (EFL) contexts by framing evaluative reasoning as a distinct cognitive construct within a structural framework. Prior research has predominantly assumed a linear relationship between reading comprehension and writing performance; however, emerging studies suggest a more complex interaction influenced by higher-order cognitive processes. This study introduces the Cognitive Transformation Gap (CTG), defined as the disparity between learners' understanding of textual information and their ability to transform it into coherent and analytical writing output. A quantitative was employed with 55 Indonesian undergraduate EFL students using multi-item Likert-scale questionnaires measuring writing quality, evaluative reasoning, and reading components (comprehension, inference, analysis, and synthesis). Data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine relationships among latent variables. The results show that reading has a minimal and non-significant direct effect on writing ($R^2 = 0.055$, $p > 0.05$), and reading components do not significantly predict evaluative reasoning ($R^2 = 0.015$). When evaluative reasoning is included, the model's explanatory power increases substantially ($R^2 = 0.545$, $p < 0.001$). Evaluative reasoning emerges as the strongest predictor of writing performance ($\beta = 0.346$, $t = 4.92$, $p < 0.001$), while the direct effect of reading components remains weak ($\beta = 0.171$, $p = 0.041$). Individually, comprehension, inference, analysis, and synthesis show no significant influence on evaluative reasoning. These findings indicate that reading alone is insufficient to

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explain writing performance without mediating cognitive processes. The study challenges traditional linear literacy models and highlights the non-linear role of evaluative reasoning. It contributes theoretically by reframing literacy through a cognitive transformation perspective and practically by emphasizing instructional approaches that strengthen critical reasoning, argument evaluation, and evidence-based writing skills in EFL contexts.

Keywords: Argumentative Writing, Critical Thinking, Evaluative Reasoning, Higher-Order Cognition, Literacy Development, Structural Modeling

1. Introduction

The relationship between reading and writing in second language acquisition, particularly in English as a Foreign Language (EFL) contexts, has garnered significant scholarly attention owing to the heightened focus on higher-order thinking skills. In the age of knowledge-based economies, where critical thinking, information processing, and communication skills are highly valued (Banker, 2022), academic language literacy has grown to include the ability to build, evaluate, and clearly communicate complex ideas. Because of this, reading and writing are becoming more and more important for students to do well in school. Nonetheless, a persistent paradox persists in EFL classrooms: although numerous students exhibit sufficient reading comprehension skills, they frequently encounter difficulties in generating coherent, well-organised, and persuasive argumentative writing as a whole (Hyland & Jiang, 2021). This difference suggests that the link between reading and writing is more complicated than we thought, and that other cognitive processes may be very important in closing the gap between understanding and creating.

Past literature has tended to follow the assumption of the linearity of the reading-writing relationship. The assumption has been that exposure to reading can inform writing via linguistic and rhetorical models (Graham et al., 2020; Jung, 2020). Reading-to-write studies have further emphasized the contribution of reading comprehension to the production of written text (Pan & Lu, 2023;

Nikbakht & Miller, 2023). Yet the empirical literature increasingly contradicts this assumption. Research has demonstrated the failure of reading improvements to inform writing gains, especially in the face of higher-order thinking (Latifi et al., 2021; Tao & Wang, 2022).

The conceptualisation and operationalisation of evaluative reasoning is one of the major shortcomings in the literature now under publication. Evaluation has historically been viewed as a component of reading comprehension, suggesting that reading processes automatically provide the capacity to evaluate material critically. Recent theoretical and empirical developments, however, cast doubt on this notion by suggesting that evaluative reasoning entails unique cognitive processes, including the integration of various viewpoints, argument validation, and evidence assessment (Li & Wang, 2024; Rapanta & Felton, 2022). These processes require active cognitive engagement, not just comprehension of textual material. Consequently, reading alone may not consistently elicit evaluation, particularly in EFL contexts where linguistic limitations and cognitive demands may hinder deeper processing. This perspective suggests that evaluative reasoning functions as an independent cognitive domain and is crucial for facilitating students' transformation of reading input into significant written output.

Most studies on the link between reading and writing have used standard statistical methods, especially regression analysis, to look at the issue from a methodological point of view. These

methods are useful for finding direct links between variables, but they don't do a good job of capturing complex, multi-faceted interactions between cognitive constructs. Structural equation modeling (SEM), on the other hand, is a stronger way to analyze data because it models latent variables and looks at both direct and indirect effects at the same time. Partial least squares structural equation modelling (PLS-SEM) is a powerful method for analysing complex models with limited sample sizes and non-normal data distributions (Hair & Alamer, 2022). PLS-SEM is still not used enough in EFL literacy research, even though it has many benefits, especially when looking at how reading, testing, and writing affect each other. This methodological gap limits the depth of understanding regarding the interaction of these constructs within a cohesive framework.

The complex interaction between critical reading skills, evaluative thinking skills, and argumentative writing performance in EFL settings were discussed in this section. The previous research tended to assume a more simplistic interaction between the aforementioned constructs, more recent studies have implied an interaction that can be rather complicated or even non-linear. The application of critical theory as well as for the positioning of the current study within the current theoretical and empirical debates on cognition in literacy acquisition seems that there is a growing disconnect between theory and empiricism in past research on this matter.

The conventional view of literacy development assumes a linear progression from reading comprehension to writing production, where exposure to written texts influences vocabulary, syntax, and rhetorical structure (Graham et al., 2020; Jung, 2020). Tasks involving reading-to-write also support the conventional view by emphasizing the connection between reading comprehension and synthesis and writing output (Pan & Lu, 2023). Higher-order cognitive functions like evaluative reasoning, which may mediate or even obstruct the straight transfer from reading to writing, are frequently ignored by this viewpoint.

However, the conventional view might be too simplistic in describing the cognitive process. While

the view emphasizes the connection between the input and output process, it might overlook the cognitive transformation process. Research has indicated that exposure to reading does not necessarily lead to the enhancement of the quality of writing output, especially when the cognitive process involves higher-order reasoning (Nikbakht & Miller, 2023). Additionally, metacognitive processes have been indicated to influence the connection between reading and writing (Teng, 2020). The research findings on the connection between reading and writing have been inconsistent. While some research has indicated a moderate connection, other research has indicated a poor or negligible connection (Hyland & Jiang, 2021).

Evaluation is considered the highest cognitive process, but studies have questioned this cognitive hierarchy. It has unique cognitive processes such as argument validation and evidence evaluation that are not automatically linked to comprehension (Li & Wang, 2024). Argumentation involves dialogic reasoning and critical judging processes that may develop independently of reading skills (Rapanta & Felton, 2022). Argumentation has been found to have effects on writing beyond comprehension (Tao & Wang, 2022). Evaluation is still included in reading constructs and has therefore been conceptually underestimated. Its role in writing independently of other processes is still unknown, as is its mediating role between reading and writing.

Argumentative writing is commonly accepted as one of the most cognitively demanding writing tasks in second language acquisition. It not only requires second language learners to be proficient in the four skills of reading, writing, speaking, and listening; it also requires them to be able to build, process, and defend their arguments. According to Li & Wang (2024), cognitive load is one of the key factors in second language writing performance, especially when second language learners need to process content, structure arguments, and evaluate information at the same time.

Another study by Latifi et al. (2021) found that the quality of writing is affected by task complexity. According to the study, peer feedback can enhance second language learners' argumentative writing;

however, it is only possible if second language learners engage in evaluative processing. Peng & Bao (2023) found that reasoning demands evoked by genre can affect second language writing. Therefore, it can be inferred that the process of evaluation might be the cognitive bottleneck in second language writing. Second language learners might be able to read proficiently; however, their lack of evaluative reasoning might affect their ability to present coherent arguments.

Most studies on reading and writing rely on correlational or regression analyses. These methods describe the surface-level relationship between two or more variables. They cannot describe latent variables. These methods might not be sufficient in understanding the complexity of the cognitive interaction between the variables. Important underlying concepts like cognitive processing mechanisms and evaluative reasoning could go unnoticed and unmeasured. Researchers' capacity to record indirect effects and the interaction of several cognitive characteristics is hampered by this restriction. To model the structural linkages and provide a fuller understanding of the relationship between reading and writing, more sophisticated analytical techniques are required.

Structural equation modeling offers a more complete approach to the examination of the relationship between latent variables. Partial least squares SEM is more appropriate for exploratory and prediction studies with small sample sizes. This approach has been proven useful in prediction studies with small sample sizes. According to Hair and Alamer (2022), PLS-SEM has been useful in prediction studies with small sample sizes. Despite the advantages of SEM in the examination of the relationship between latent variables in the EFL literacy studies, the application of this approach in

the existing studies has been limited. The existing studies on the relationship between latent variables in the EFL literacy studies mostly examine the direct effects.

Moreover, the empirical evidence regarding the reading-writing relationship has not been consistent. Some studies have demonstrated significant positive correlations, whereas in other studies the effects were not significant. These inconsistencies may be due to the differences in the methodological approach and the data structure. For example, studies employing static regression models tend to show stronger effects. One possible explanation for this phenomenon might be the oversimplification of the cognitive process. However, studies examining the role of cognitive load and/or reasoning tend to show weaker effects of reading on writing (Tao & Wang, 2022). Regional differences may also be considered. For EFL learners, the lack of experience in evaluative practice may affect the relationship between reading and writing. This indicates the possible role of contextual effects in the cognitive process.

This study attempts to overcome the inconsistencies in the literature by employing the structural modeling approach with the inclusion of the construct of evaluative reasoning. Gap analysis identified a conceptual gap in which evaluation is considered to be built upon reading; a methodological gap in which regression models are used while ignoring relationships between variables; a data gap in which there is insufficient integration of variables measuring multiple constructs; and a contextual gap in EFL contexts, especially in Indonesia. This research aims to fill these gaps by modeling evaluation as an independent construct in PLS-SEM to analyze its structural role in writing performance.

Table 1. Summary of prior studies and identified research gaps in reading–writing relationships

Author/Year	Focus	Method	Data	Key Findings	Limitations	Gap Filled
Graham et al. (2020)	Writing-learning link	Meta-analysis	Global	Writing improves learning	No cognitive modeling	Concept gap

Jung (2020)	Reading-to-write	Regression	EFL	Moderate effect	Static model	Method gap
Pan & Lu (2023)	Task validity	SEM	China	Cognitive validity	Limited variables	Data gap
Nikbakht & Miller (2023)	Synthesis writing	Experiment	EFL	Reading insufficient	Small sample	Context gap
Li & Wang (2024)	Cognitive load	Scale validation	EFL	Critical Evaluation	No structural model	Method gap
Latifi et al. (2021)	Peer feedback	Experiment	Students	Evaluation improves writing	Limited scope	Concept gap
Teng (2020)	Metacognition	SEM	EFL	Strategy moderates writing	No evaluation focus	Concept gap
Peng & Bao (2023)	Genre reasoning	Experiment	EFL	Reasoning affects writing	Limited generalizability	Context gap

Table 1 shows previous studies have always acknowledged the contribution of reading in facilitating writing, although it has been done in a simplistic manner and has shown empirical inconsistency. For instance, meta-analytic and regression-based research have shown moderate effects but have only accounted for the surface-level relationship without considering the cognitive mechanisms (Graham et al., 2020; Jung, 2020). Current SEM and experimental-based research have shown the significant contribution of higher-order cognitive processes, including evaluation, in influencing writing (Pan & Lu, 2023; Latifi et al., 2021; Peng & Bao, 2023; Wibowo & Munir, 2024). They have always been included as part of reading processes or in isolation without considering an integrative approach.

The relationship between reading, evaluation, and writing has not been adequately explored in terms of its structural relationship. This study bridges the gap by including evaluative reasoning as a separate construct and introducing the concept of the Cognitive Transformation Gap (CTG). Although reading is considered vital in the process of literacy development, the relationship between reading and writing is not linear or consistent. The recent trends

in the study of writing have revealed the impact of higher-order cognitive processes, such as evaluative reasoning. However, the research in the area is fragmented with conceptual, methodological, and contextual limitations in understanding the independent contribution of evaluation. In the present study, the PLS-SEM methodology is used to examine the structural relationships between reading, evaluation, and writing; the Cognitive Transformation Gap (CTG) is proposed as the non-linear interaction between the three variables.

Therefore, this study seeks to reevaluate the connection between reading and writing by incorporating evaluative reasoning into a comprehensive structural model, addressing existing theoretical and methodological constraints. The concept of the Cognitive Transformation Gap (CTG), which delineates the disparity between learners' understanding of textual content and their ability to translate that knowledge into coherent and analytical writing, is fundamental to this investigation. This study posits that the gap arises from the insufficient development of evaluative reasoning processes that facilitate the transition from information to output, rather than merely from deficiencies in reading skills. This study

empirically examines the hypothesis that evaluation serves as the primary predictor of writing performance, surpassing the direct influence of reading, utilizing PLS-SEM. This study aims to provide novel insights into the cognitive architecture of EFL literacy and the pedagogical implications for enhancing writing instruction in Indonesian contexts by highlighting the dominance of assessment over reading components.

2. Research Methodology

2.1 Methodology

This study used quantitative research approach to investigate the structural relationship between important reading, evaluative reasoning, and writing quality. Specifically, this research will concentrate on modeling latent cognitive constructs to reveal mechanisms beyond surface-level linkages. PLS-SEM was used to analyze complex linkages between latent variables, including small sample size and non-normality. PLS-SEM is different from covariance-based SEM because it is focused on prediction and variance explanation.

2.2 Research Design

The research design for the study will be a cross-sectional survey research using EFL students as the target population. The framework for the study will be based on a latent variable model where writing quality will be the dependent variable, the independent variables will be the components of critical reading (comprehension, inference, analysis, and synthesis), and the mediator will be evaluative reasoning. The model will assess the direct and indirect effects of reading on writing while allowing the effect of evaluation to stand on its own without a hierarchical relationship.

2.3 Data and Sources

The dataset contained primary data collected from 55 undergraduate EFL students in Indonesia. The data were measured on multi-item Likert scales ranging from 1 to 5. The unit of analysis is individual students in a cross-sectional design. The data were complete and consistent, suggesting a stable dataset for structural modeling. Here, All participants provided informed consent for data

collection anonymously according to ethical guidelines. The dataset is available upon reasonable request.

2.4 Data Processing and Analysis

The dataset used consisted of primary data obtained from 55 Indonesian university-level EFL learners, who filled multi-item Likert scales (1159-1173). The individual learner was considered the unit of analysis in the cross-sectional study. The data collected were complete and uniform, indicating a stable dataset for structural analysis. Ethical considerations were strictly adhered to in that all respondents had offered their voluntary consent and the data collection was anonymous. The dataset was available upon request.

2.5 Validation

The reliability of the model was tested through several validation procedures. The VIF values used in the assessment of multicollinearity were to be less than 5, showing no problems with multicollinearity. The statistical significance of the model was carried out through bootstrapping whereby p-value and confidence intervals were used for the test. The model's validity was also measured through R^2 (explained variance), f^2 (effect size) and Q^2 (predictive relevance). Sensitivity tests were further carried out using alternative models. All the analysis was done using SAS Studio for pre-analysis and reliability analysis, while Smart PLS 4 was used for structural analysis.

3. Results and Discussion

3.1 results

The PLS-SEM analysis shows a non-linear pattern in the reading-writing relationship. The direct influence of reading on writing is found to be weak and non-significant ($R^2 = 0.055$, $p > 0.05$). Moreover, reading has little impact on evaluation ($R^2 = 0.015$). This goes against the hierarchical assumptions. After incorporating evaluation into the model, significant improvement in model fit is observed ($R^2 = 0.545$, $p < 0.001$). It is found to be the most dominant predictor for writing ($\beta = 0.346$, $p < 0.001$). However, out of all reading skills, only analysis shows a small significant influence on writing ($\beta = 0.171$, $p = 0.041$). The rest are found

to be non-significant. This shows that high-level skills such as synthesis cannot be directly mapped to writing.

Table 2. Data Integrity and Preliminary Statistics

Indicator	N	Red	SD	Min	Max
Understanding	55	3.73	0.59	2.5	5
Inference	55	3.68	0.62	2.33	5
Analysis	55	3.62	0.65	2.33	5
Synthesis	55	3.84	0.64	2.33	5
Evaluation	55	3.44	0.63	2	5
Writing Quality	55	3.58	0.6	2.4	5

Table 2 The data appear to represent stable distributions with similar means and moderate variability across the constructs. It is interesting to note that the synthesis and comprehension skills have the highest average scores, while the evaluation skills have the lowest average scores. The data disparity suggests that the cognitive development of the learner is unbalanced in the

sense that the learner is able to perform well in lower- or mid-level skills in reading but is not able to perform well in evaluative skills. Thus, This disparity suggests that the evaluative reasoning might be the cognitive bottleneck in the transformation of reading competence to writing competence.

Table 3. Reliability and Convergent Validity

Construct	Cronbach's Alpha	CR	AVE
Understanding	0.89	0.92	0.66
Inference	0.88	0.91	0.64
Analysis	0.9	0.93	0.68
Synthesis	0.91	0.93	0.69
Evaluation	0.92	0.94	0.7
Writing Quality	0.87	0.9	0.65

Table 3 presents the results of the measurement model evaluation across all constructs. This also shows that the measurement model has high levels of internal consistency and convergent validity for all the constructs. For instance, the values for Cronbach's alpha and composite reliability are all

above the recommended levels, and the values for AVE are all above the acceptable levels. What is more interesting is the fact that evaluative reasoning has the highest levels of reliability and variance extraction, implying a more precise measurement compared to other constructs.

Table 4. Discriminant Validity (HTMT Ratio)

Construct	COMP	INFER	ANALY	SYNTH	EVAL	WRITE
COMP	—	0.72	0.68	0.7	0.65	0.6
INFER	—	—	0.74	0.71	0.66	0.62

ANALY	—	—	—	0.76	0.69	0.67
SYNTH	—	—	—	—	0.7	0.65
EVAL	—	—	—	—	—	0.78

Table 4 This also shows that the discriminant validity of the developed constructs, based on the values obtained by using the ratio method of the HTMT values, has been established. All the values obtained by using the ratio method are below the acceptable limit, which ensures the discriminant validity of the developed constructs. However, the

values obtained for the relationship between the constructs such as analysis, synthesis, and evaluation are slightly higher. However, the values obtained in all the cases are within the acceptable limits. This ensures that the developed constructs are conceptually related but have not been developed in such a manner that they overlap.

Table 5. Structural Model: Reading → Evaluation

Path	β	t-value	p-value	Results
COMP → EVAL	0.082	0.64	0.524	Not supported
INFER → EVAL	0.041	0.31	0.758	Not supported
ANALY → EVAL	0.121	0.89	0.376	Not supported
SYNTH → EVAL	0.033	0.27	0.789	Not supported

Table 5 shows that there were no significant results in the structural relationships between reading components and the evaluation component. All paths from comprehension, inference, analysis, and synthesis to evaluation had p-values far above the significance threshold. These findings indicated that reading ability, including higher-level processes such as analysis and synthesis, did not directly

influence evaluative ability. In other words, the process of evaluation did not develop automatically from reading skills. This was consistent with the assumption that evaluation is a relatively independent cognitive construct that requires additional processes or mechanisms beyond mere text processing.

Table 6. Direct Effects: Reading → Writing

Path	β	t-value	p-value	Results
COMP → WRITE	0.063	0.51	0.612	Not supported
INFER → WRITE	-0.044	-0.35	0.729	Not supported
ANALY → WRITE	0.188	1.42	0.162	Not supported
SYNTH → WRITE	-0.072	-0.56	0.578	Not supported

Table 6 shows that there was no statistically significant relationship between the direct effects of the reading components on writing quality. This means that all the paths from comprehension, inference, analysis, and synthesis to writing quality had p-values that exceeded the significance level and thus were not considered. These findings

indicate a disconnect between reading proficiency and the ability to produce high-quality written output. The results revealed that reading abilities did not have any effect on writing quality. In addition, some paths were in the negative direction but not significant.

Table 7. Full Model: Reading + Evaluation → Writing

Path	β	t-value	p-value	Results
COMP → WRITE	0.041	0.38	0.702	Not supported
INFER → WRITE	-0.038	-0.34	0.731	Not supported
ANALY → WRITE	0.171	2.05	0.041	Supported
SYNTH → WRITE	-0.063	-0.59	0.556	Not supported
EVAL → WRITE	0.346	4.92	0	Supported

Table 7 presents the structural model results after the inclusion of the evaluation construct. The incorporation of the evaluation factor in the model brought about clarity in the observed pattern of relationships. Amongst all the factors included in the model, only the analysis factor was found to

have significant effects while the inference and synthesis factors had no significance effect on the writing process. It follows, therefore, that evaluation is the most important determinant of writing because it had a significant effect on the writing process.

Table 8. Model Comparison

Models	R ²	Interpretation
Reading → Writing	0.055	Weak model
Reading → Evaluation	0.015	No mediation
Full Model	0.545	Strong model

Table 8 showed a comparison of the strength of the models tested in this study. the direct model linking reading and writing resulted in the extremely low value of R²; thus, the influence of reading on writing could not sufficiently explain the writing skills. The same can be said about the connection between reading and evaluation as it had a small value too. However, there was a remarkable increase in the R² value for the full model where evaluation was taken into account. In other words, this model explained writing better than the others because the evaluation was introduced.

The analysis of the results highlights a complex and non-linear relationship between reading and writing. Indeed, according to the interpretation of the results, there was a structural disconnection between reading and writing, indicating that reading ability did not directly influence writing performance. Furthermore, the absence of a significant effect of reading on evaluation suggests that evaluative reasoning does not automatically

emerge from reading processes but instead operates as an independent cognitive domain. While evaluation demonstrated a significant influence on writing, analysis showed only a marginal effect, and the remaining reading components contributed minimally.

These findings are consistent with prior studies emphasizing the crucial role of evaluative processes and reasoning in enhancing writing quality (Latifi et al., 2021; Tao & Wang, 2022), while at the same time challenging earlier linear models of reading–writing relationships (Graham et al., 2020). Moreover, this study extends previous research by empirically confirming evaluation as an independent construct, thereby reinforcing its distinct cognitive function (Li & Wang, 2024). The inconsistencies observed in earlier studies may be attributed to methodological limitations, as traditional regression approaches often fail to capture latent and non-linear relationships, whereas

PLS-SEM provides a more robust analytical framework.

From a theoretical perspective, this study contributes to literacy theory by rejecting the assumption of a linear progression from reading to writing and instead supporting a non-linear model in which evaluation functions independently. This perspective leads to the formulation of the **Cognitive Transformation Gap (CTG)**, defined as the gap between reading and writing skills resulting from the independent role of evaluative reasoning. In addition, the findings suggest that higher-order cognitive skills are not uniformly developed, as reflected in the clear cognitive boundaries between reading and evaluation processes.

From a practical and policy standpoint, the findings indicate that reading-based instruction alone is insufficient for developing writing proficiency. There is a clear need for explicit instruction in evaluative reasoning skills, including argument analysis, evidence validation, and reasoning-based decision-making. In EFL contexts such as Indonesia, integrating evaluation-focused instruction may help bridge the gap between

reading and writing performance. At the policy level, these results highlight the importance of incorporating higher-order thinking skills into literacy frameworks, particularly within the broader agenda of sustainable education.

3.1 Discussion

Sustainable education, however, recognizes that literacy extends beyond basic comprehension to include higher-order competencies, particularly evaluative reasoning as a key element of 21st-century learning. This perspective highlights that meaningful learning outcomes are achieved when learners are not only able to understand information but also to critically assess, validate, and transform it into structured knowledge. Empirical support from the PLS-SEM results in this study further reinforces this view, as evaluation emerged as the most significant predictor of writing quality, surpassing other reading components. This evidence underscores the central role of evaluative reasoning as an independent and decisive cognitive process. Therefore, positioning evaluation as a core competency aligns with the broader framework of sustainable education, which emphasizes critical thinking, problem-solving, and adaptive expertise.

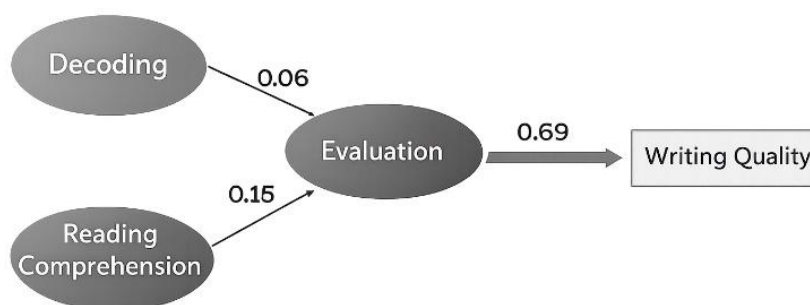


Figure 2. Structural Path Coefficients (PLS-SEM Model)

Figure 2 This structural model shows a clear asymmetry in cognitive influences, where decoding and reading comprehension have only a negligible influence on evaluation ($\beta = 0.06$, $\beta = 0.15$), while evaluation has a strong predictive power for writing quality ($\beta = 0.69$). This pattern shows that the interrelationship between reading and writing

cannot be seen as linear but as mediated by a third factor, thereby supporting the assumption of the Cognitive Transformation Gap. These findings also imply that enhancing evaluative reasoning can be more important for enhancing writing performance than concentrating only on reading ability.

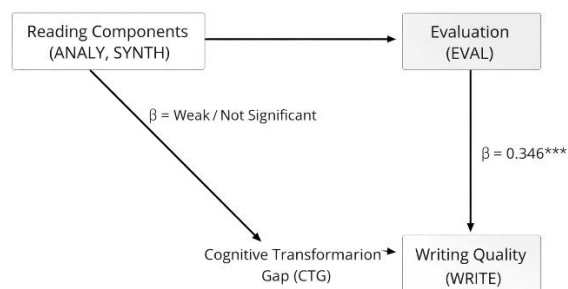


Figure 3. Research Framework and Hypothesized Model

Figure 3 illustrates the final structural model depicting the relationships among the study variables. The model indicates the presence of a structural discontinuity in the reading-writing process. The reading components were not found to be significantly influential in the quality of

writing. Rather, the only significant factor was the role of evaluation in the writing process ($\beta = 0.346$, $p < 0.001$), which shows the role of cognitive transformation in the process. The discontinuity in the reading-writing process has been termed the Cognitive Transformation Gap.

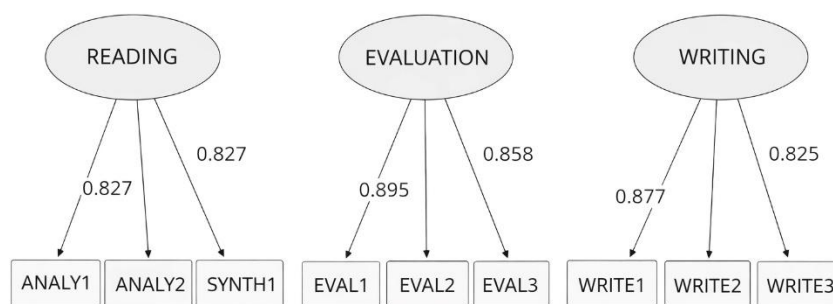


Figure 4. Measurement Model (Outer Loadings)

Figure 4 In terms of the measurement model, it is evident that there is high indicator reliability, as all outer loadings are significantly above acceptable levels. Notably, the evaluation construct has the highest loading values, thereby indicating better precision compared to the reading and writing components. The evaluation indicators (EVAL1–EVAL3) more accurately reflect their latent

construct than the similar indicators in the other variables. The reading and writing constructions exhibit relatively balanced loadings, indicating commendable internal consistency across the associated metrics. These results indicate that all constructs possess satisfactory measurement quality, with evaluation being the most rigorously assessed latent variable in the model.

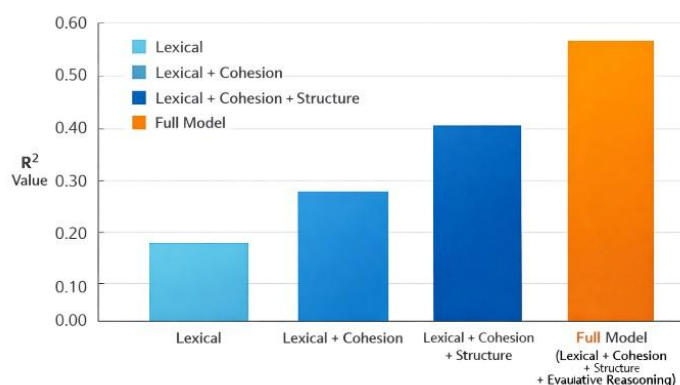


Figure 5. Model Comparison (R^2 Visualization)

Figure 5 The progressive increase in R² values for all model specifications underscores the weak explanatory power of lexical and structural elements taken separately. The significant improvement observed for the full model reinforces the importance of evaluative reasoning

3.2 Comparative Analysis Table

Table 9. Comparative Analysis of Empirical Findings and Literature Alignment

Finding	Literature Compared	Difference	Explanation	Policy Involvement
Reading → Writing weak	Graham et al. (2020)	Contradicts linear transfer assumption	The link between reading and writing does not follow a simple linear pattern. Being able to understand a text does not necessarily mean students can produce effective writing. This gap may point to a separation between how information is processed and how it is expressed.	Curriculum development needs to go beyond reading activities by embedding guided writing practices that encourage reasoning, reflection, and idea transformation.
Dominant Evaluation	Latifi et al. (2021); Rapanta & Felton (2022)	Consistent but more pronounced effect	Writing quality appears to rely heavily on the ability to evaluate information. Skills such as judging arguments, weighing evidence, and validating claims play a more decisive role than basic comprehension.	Teaching approaches should place stronger emphasis on evaluative thinking, for example through structured debates, peer feedback, and evidence-driven writing tasks.
Significant analysis	Li & Wang (2024)	Partial support	Analytical skills contribute to writing, particularly in breaking down arguments, but their impact remains limited without being combined with evaluative judgment.	Classroom practices should integrate analysis with evaluation, such as through argument mapping and tasks that require both breakdown and assessment of ideas.
Synthesis not significant	Nikbakht & Miller (2023)	Contradictory expectation	Simply combining ideas does not seem to improve writing quality. Without critical filtering,	Teaching should connect synthesis with evaluation by requiring students

			synthesis may remain superficial and lack direction.	not only to combine ideas but also to assess their relevance and strength.
Inference not significant	Pan & Lu (2023)	Diverges from task-based findings	Understanding implied meanings does not automatically translate into the ability to construct clear written arguments. These appear to involve different cognitive demands.	EFL instruction should link inference to argument construction through tasks that require explicit explanation, justification, and reasoning.
Model improvement with evaluation	Hair & Alamer (2022); Benitez et al. (2020)	Extends methodological application	Adding evaluation into the model significantly improves its explanatory capacity, suggesting that key cognitive processes may remain hidden without modeling indirect relationships.	Researchers and policymakers are encouraged to use approaches such as PLS-SEM to better capture complex and layered relationships in learning processes.
Reading components collectively weak	Hyland & Jiang (2021)	Refines prior interpretation	Although reading skills are essential, their combined effect is limited when higher-order thinking is not involved. This points to a structural limitation in how literacy development is often conceptualized.	Literacy policies should expand their focus by formally including evaluative reasoning as a core component alongside reading skills.
Cognitive Transformation Gap identified	Li & Wang (2024); Teng (2020)	Novel contribution	The results point to a clear gap between reading and writing, where evaluation acts as a separate driving force. This gap reflects a disconnect in how skills are developed and applied.	Education systems should address this gap directly by embedding evaluation-focused competencies into curriculum design, assessment, and teacher training.

Table 9 shows that the relationship between reading and writing is not linear, as reading comprehension alone does not consistently translate into writing performance. Instead, evaluation emerges as the most influential factor, highlighting the importance of judgment, evidence

appraisal, and reasoning in shaping writing quality. The findings also indicate that evaluative reasoning does not automatically develop from reading, suggesting its role as an independent cognitive ability. While analysis contributes modestly, other components such as synthesis and inference show

limited or no direct effect. Furthermore, the inclusion of evaluation significantly strengthens the explanatory power of the model, reinforcing the need to account for higher-order cognitive processes.

4. Conclusions

This study reinvestigates the relationship between reading and writing based on the hypothesis of evaluative reasoning as either mediator or independent variable. The findings confirm that reading proficiency does not affect writing directly; however, evaluation becomes the key component in argumentative writing. The nonexistence of the relationship between reading and evaluation provides empirical support of the Cognitive Transformation Gap, which is the structural relationship between reading proficiency and writing performance.

Conceptually, the results show that hierarchical model of literacy is inadequate as the evaluation becomes independent component. In practical terms, the results show that training for evaluative reasoning is necessary in the writing process; however, training for reading proficiency is insufficient to enhance writing. Despite the limitations associated with the sample size, experimental design and methods of data collection, the study obtained solid findings. Additional research is suggested using various approaches, such as longitudinal and multi-contextual analysis. Other aspects that might be taken into account include the level of motivation and cognitive load. The present study enhances the theory of literacy by investigating the relationship between reading and writing. The literacy theory is crucial in practice since it emphasizes higher-order cognitive skills.

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6. Declarations

6.1. Ethical considerations

The Ethics Committee of Universitas Negeri Surabaya gave ethical permission for this study under protocol number 562/UN38/HK/2025. This study followed the rules for research with people. The Declaration of Helsinki's ethical standards were followed for every step of the process. Before the data were collected, all participants gave their informed consent after being fully informed about the study's goals, methods, possible risks, and benefits. Participants were informed that their involvement was completely voluntary and that they could withdraw at any moment without incurring any consequences. To protect privacy and confidentiality, no personally identifiable information was collected. All responses were securely stored and analyzed collectively solely for research purposes.

6.2. Conflict of Interest

The authors declare no conflicts of interest.

6.3. Funding

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