

## **READING STRATEGIES AS MODERATORS AND MEDIATORS IN EFL READING COMPREHENSION: A SYSTEMATIC REVIEW OF PERSONALITY-BASED DIFFERENCES**

**Muzdalifah Misbah<sup>1\*</sup>, Kalsum Kalsum<sup>2</sup>**

*Institut Agama Islam Negeri Parepare, Indonesia<sup>1,2</sup>*

\*Corresponding Author: muzdalifahmisbah@iainpape.ac.id

*Article Submission:*  
18 December 2025

*Article Revised:*  
23 December 2025

*Article Accepted:*  
29 December 2025

*Article Published:*  
30 December 2025

### **ABSTRACT**

This study aims to synthesize empirical evidence on the relationship between personality traits, reading strategies, and English as a Foreign Language (EFL) reading comprehension, with a specific focus on the roles of reading strategies as mediators and moderators. Although previous studies have examined personality traits and reading strategies separately, findings remain fragmented and inconclusive regarding when and how reading strategies influence the relationship between personality and reading comprehension. To address this gap, a systematic literature review was conducted following PRISMA guidelines. Thirty empirical studies published between 2016 and 2025 were identified through searches of major academic databases, including Scopus, ERIC, Google Scholar, and ScienceDirect, and were screened and appraised for methodological quality before being analyzed thematically. The findings reveal that reading strategies predominantly function as moderators, indicating that their effectiveness depends on specific instructional and contextual conditions, particularly in relation to introversion-extroversion differences. In contrast, evidence supporting the mediating role of reading strategies remains limited and is mainly found in studies employing advanced analytical approaches, such as structural equation modeling. This review suggests that reading strategies operate both as conditional factors determining when personality traits influence reading comprehension and as potential cognitive-metacognitive mechanisms explaining how such influence occurs. The study highlights the need for future research to adopt process-oriented designs that simultaneously examine mediation and moderation to advance theory and practice in EFL reading instruction.

**Keywords:** EFL Reading Comprehension, Mediator, Moderator, Personality Traits, Reading Strategies

### **INTRODUCTION**

English reading ability is an essential skill for English as a Foreign Language (EFL) learners, particularly at secondary and tertiary levels. Through reading activities, EFL learners gain access to academic knowledge, develop critical literacy, and enhance independent learning skills. However, a common phenomenon in EFL learning contexts indicates significant variation in reading comprehension achievement among learners, even though they are taught using relatively similar curricula, materials, and learning

environments (Stoller, 2019). This variation indicates that reading success is determined not only by linguistic factors but also by individual factors inherent to the learner.

One of the individual factors widely studied in EFL reading research is personality and its associated cognitive characteristics. Numerous studies have shown that differences in personality and thinking styles are associated with differences in learning styles, information processing, and academic performance, including in reading comprehension (Aghajani, 2019; Annas et al., 2024). Research in the Indonesian EFL context also shows that differences in students' thinking styles and learning preferences contribute significantly to variations in reading comprehension achievement, even in relatively homogeneous learning environments (Kalsum, 2022).

Besides personality, reading strategies are also recognized as an important component in EFL reading comprehension. Reading strategies include cognitive, metacognitive, and supporting strategies that enable learners to consciously plan, monitor, and evaluate the reading process (Mokhtari & Reichard, 2002). Previous studies have shown that the use of effective reading strategies is positively correlated with improved reading comprehension and learning engagement in EFL learners (Pradana, 2022; Husna et al., 2025). Similar findings have also been reported in the context of Islamic education, where the implementation of reflective reading strategies such as reading logs has been shown to increase students' literacy interest and metacognitive awareness (Kalsum, et al., 2022).

A review of the literature shows that most studies examining personality and EFL reading comprehension still focus on the direct relationship between the two variables or on comparing reading outcomes across personality types ( Widhyastika et al., 2017; Efendi, 2018). This approach produces descriptive and comparative findings, but fails to fully explain when and how reading strategies influence the relationship between personality and reading comprehension.

Conceptually, reading strategies have the potential to play two important roles. First, reading strategies can function as moderators (WHEN), that is, as instructional conditions that determine when the influence of personality on reading comprehension becomes stronger or weaker. Second, reading strategies can function as mediators (HOW), that is, as cognitive and metacognitive mechanisms that explain how personality characteristics influence reading comprehension achievement. However, empirical evidence explicitly testing these two roles remains limited and scattered in the literature, particularly in EFL contexts.

Based on these gaps, this study is important to systematically synthesize empirical findings by highlighting the role of reading strategies as moderators and mediators in the relationship between personality and EFL reading comprehension. Through a systematic literature review approach, this study is expected to provide a more comprehensive understanding of the conditions and mechanisms of personality's influence on reading learning, as well as offer relevant theoretical and pedagogical implications for the development of EFL reading instruction.

## **RESEARCH METHOD**

### **1. Research Design**

This study uses a Systematic Literature Review (SLR) approach to identify, select, and synthesize the results of previous studies that examine the relationship between personality, reading strategies, and reading comprehension in the context of learning English as a Foreign Language (EFL). The SLR approach was chosen because it allows researchers to conduct a systematic, transparent, and replicable literature review, so that patterns of findings, consistency of results, and research gaps can be comprehensively identified (Xiao & Watson, 2019)

In addition, SLR is considered appropriate for answering research questions that focus on mapping the role of reading strategies as moderators and mediators, because this approach allows for comparisons across research designs, learning contexts, and statistical analysis methods (Petticrew, n.d.)

### **2. Sources and Literature Search Procedure**

Data collection was conducted through a literature search of several reputable open academic databases, namely OpenAlex, Semantic Scholar, and Consensus. These databases were selected based on their multidisciplinary coverage and ability to provide scholarly articles in applied linguistics, language education, and educational psychology (Gusenbauer, 2020).

The search process was conducted using a combination of the main keywords: personality traits, reading strategies, and EFL reading comprehension. The search was limited to articles published between 2016 and 2025 to ensure the relevance and novelty of the studies. The entire process of article identification, screening, and selection followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and traceability of the review process (Page et al., 2021).

### **3. Inclusion and Exclusion Criteria**

To ensure the quality and relevance of data sources, this study applied clear inclusion and exclusion criteria. Inclusion criteria included:

- (1) empirical research articles examining personality, reading strategies, and/or reading comprehension;
- (2) research conducted in an EFL context;
- (3) articles published between 2016 and 2025; and
- (4) articles available in full text and written in English.

Conversely, exclusion criteria included:

- (1) non-empirical articles such as opinion pieces, conceptual essays, or narrative reviews without data.
- (2) articles that did not clearly report research methods and results.
- (3) research that did not directly address personality, reading strategies, or reading comprehension; and
- (4) articles that were irrelevant to the EFL learning context (Petticrew & Roberts, 2006).

### **4. Data Analysis**

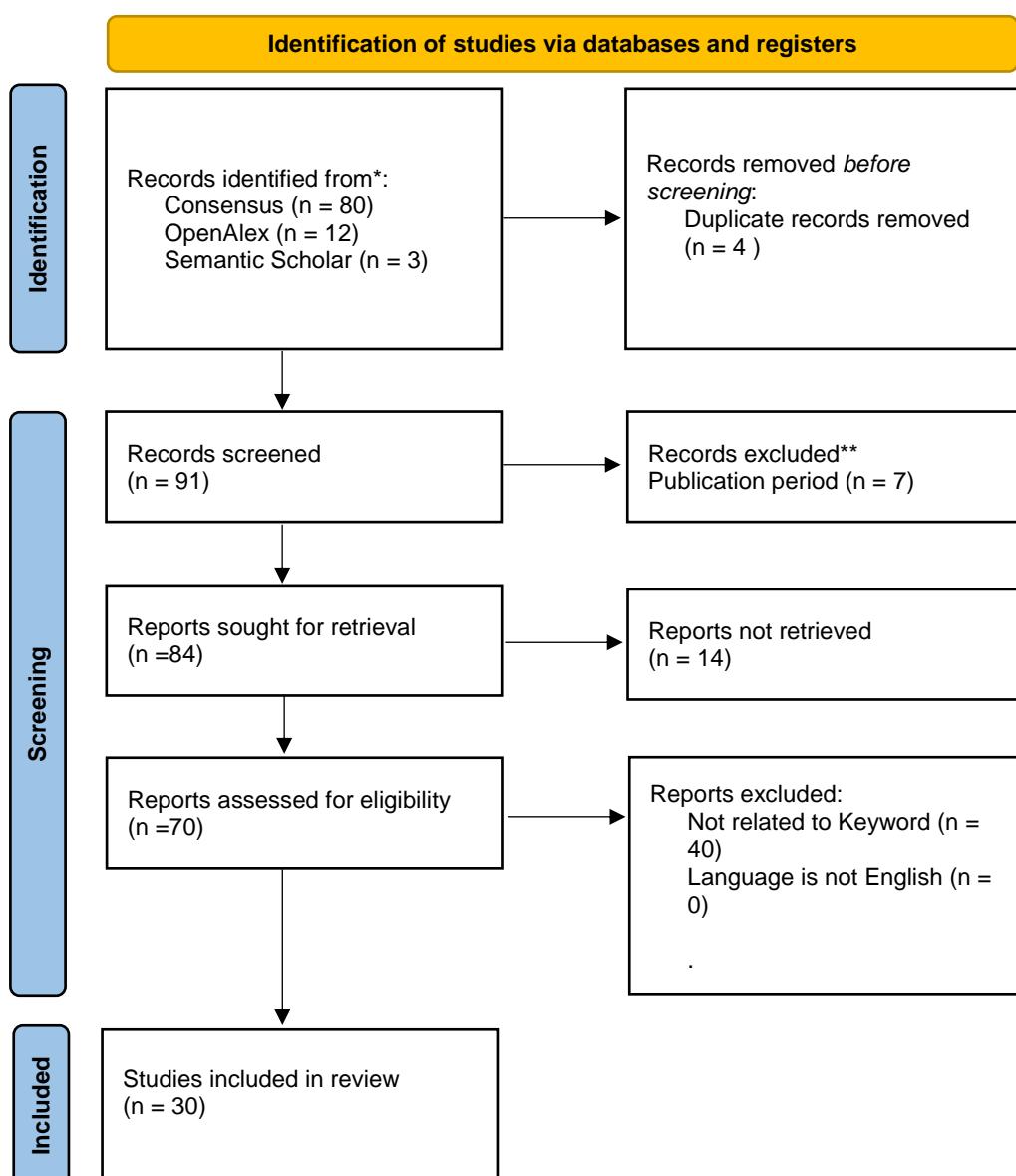
Articles meeting the inclusion criteria were analyzed using thematic analysis. A standardized data extraction form was developed to ensure consistency across studies. Each article was systematically extracted based on the research context, participant characteristics, research design, variables examined, analytical approaches, and key findings. Prior to full extraction, the form was piloted on a subset of selected studies to refine the extraction categories and ensure clarity. To enhance the reliability of the extraction process, two independent reviewers were involved in extracting and coding the data. Any discrepancies identified during the extraction process were discussed and resolved through consensus, and when necessary, by revisiting the original articles. The analysis focused on how reading strategies were conceptually and empirically positioned across studies, whether as independent variables, moderators, mediators, or instructional interventions (Braun, n.d.)

Furthermore, particular attention was given to the statistical analysis methods employed in each study, especially those that explicitly tested interaction effects (moderation) or indirect pathways (mediation). The extracted findings were then compared across studies to identify common patterns, consistencies, and variations, which were subsequently synthesized narratively to address the research questions (Xiao & Watson, 2019).

## 5. PRISMA Flow Diagram

The article selection process in this study is visualized using a PRISMA flowchart. Of the total articles identified through the database, several articles were removed due to duplication. The remaining articles were then screened based on their titles and abstracts to assess their suitability to the research focus. In the next stage, articles meeting the initial criteria were fully evaluated based on inclusion and exclusion criteria. Articles irrelevant to the focus of the relationship between personality, reading strategies, and EFL reading comprehension were excluded from the analysis. In the final stage, articles meeting all criteria were included in this systematic review (Page et al., 2021).

**Figure 1.** Illustrates the PRISMA flowchart



Source: Authors' results (2025)

## **FINDINGS AND DISCUSSION**

### **1. Findings**

#### **a. General Characteristics of the Reviewed Studies**

The 30 articles analyzed in this systematic literature review come from various contexts of learning English as a foreign language (EFL) and a small number of English as a second language (ESL). The majority of the studies were conducted in Asia, particularly Indonesia, Iran, and China, with educational levels dominated by high school and college. In terms of research design, these studies included correlational, quasi-experimental, experimental factorial, Structural Equation Modeling (SEM), and systematic review approaches. The most frequently studied personality variable was introversion-extroversion, while reading strategies included cognitive, metacognitive, support, and cooperative and individual strategies. This diversity of contexts, designs, and analytical approaches provides a sufficient basis for identifying general patterns regarding the role of reading strategies in the relationship between personality and reading comprehension.

#### **b. The Direct Relationship between Personality and Reading Comprehension**

The 30 articles analyzed in this systematic literature review come from various contexts of learning English as a foreign language (EFL) and a small number of English as a second language (ESL). The majority of the studies were conducted in Asia, particularly Indonesia, Iran, and China, with educational levels dominated by high school and college. In terms of research design, these studies included correlational, quasi-experimental, experimental factorial, Structural Equation Modeling (SEM), and systematic review approaches. The most frequently studied personality variable was introversion-extroversion, while reading strategies included cognitive, metacognitive, support, and cooperative and individual strategies. This diversity of contexts, designs, and analytical approaches provides a sufficient basis for identifying general patterns regarding the role of reading strategies in the relationship between personality and reading comprehension.

However, studies that only examine this direct relationship have not included reading strategies as explanatory or conditional variables. In this context, personality is treated as a sole predictor of reading outcomes, without considering how or under what conditions this influence operates. Thus, although a direct relationship between personality and reading comprehension has been widely reported, these findings do not address the role of reading strategies as mediators or moderators.

### **c. The Role of Reading Strategy as a Moderator (WHEN)**

Several studies in this research corpus explicitly tested the moderating role of reading strategies, namely by analyzing the interaction between personality and reading strategies on reading comprehension. Studies with factorial experimental designs showed that, in certain contexts, the effectiveness of reading strategies differed significantly between introverted and extroverted students. For example, several studies reported that cooperative reading strategies such as jigsaw or collaborative learning were more beneficial for extroverted students, while more structured and individualized strategies, such as SQ4R, were more effective for introverted students. These findings suggest that there are specific conditions under which reading strategies influence the strength of the relationship between personality and reading comprehension.

However, not all factorial studies found significant moderating effects. Some studies examining the interaction between reading strategies and personality reported that while certain strategies improved reading comprehension overall, the interaction between strategies and personality type was not statistically significant. This suggests that the moderating role of reading strategies is not universal, but rather depends on the learning context, the type of strategy used, the characteristics of the text, and the learner's language proficiency level.

In addition to statistically tested moderation, a number of other studies indicate conceptual or conditional moderation. These studies typically report that certain strategies are "more suitable" for certain personality types based on comparisons of results between groups, but without conducting formal interaction tests. Such findings provide preliminary indications of the role of reading strategies as conditions influencing personality effectiveness, but do not yet constitute statistically robust evidence of moderation.

### **d. The Role of Reading Strategy as a Mediator (HOW)**

In contrast to moderation, the role of reading strategies as mediators has been relatively rarely examined in the reviewed literature. Only a few studies explicitly position reading strategies as psychological mechanisms mediating the relationship between personality and reading comprehension. Studies that test for mediation generally use Structural Equation Modeling (SEM) or path analysis approaches, with reading strategies treated as process variables influenced by personality and subsequently influencing reading outcomes. The results of these studies indicate that metacognitive and self-regulation strategies significantly mediate the influence of personality on

reading comprehension.

However, these mediation findings are still limited compared to correlational or simple experimental studies. Most EFL research still treats reading strategies as instructional treatments or co-variables, rather than as mediators tested through indirect pathways. This suggests that the "how" aspect namely, how personality influences reading comprehension through reading strategies has not been explored in depth in the existing literature, opening up opportunities for further, more mechanism-oriented research.

**Table 1.** Synthesis of the Roles of Reading Strategies in the Reviewed Studies

The Role of Reading Strategies	Number of Studies (N=30)	General Characteristics of the Study	Representative Study Example
<b>Moderator (WHEN)</b>	Dominant	Experimental or factorial design; reading strategies are positioned as instructional treatments; focus on differences in strategy effectiveness across personality types (introvert-extrovert). Personality $\times$ strategy interactions are sometimes tested statistically, sometimes only conditionally inferred.	Nourzad Haradasht et al. (2021); Wijayati et al. (2017); Shabani et al. (2017); Widhyastika et al. (2017)
<b>Mediator (HOW)</b>	Very limited	Advanced analysis design (SEM or path analysis); reading strategies are positioned as cognitive/metacognitive processes that bridge the influence of personality on reading comprehension; focus on self-regulation and metacognitive strategies.	Zhang et al. (2023); Xu (2025)
<b>Not tested as a mediator/moderator</b>	Lots	Correlational or comparative designs; personality and reading strategies are tested separately or only direct relationships; reading strategies are treated as a general technique without modeling interactions or indirect paths.	Mayasari (2016); Efendi (2018); Noviarini (2021); Annas et al. (2024)

*Source:* Authors' results.

## 2. DISCUSSION

Based on a synthesis of 30 reviewed articles, this study shows that the role of reading strategies in the relationship between personality and reading comprehension appears more often as a conditional factor (WHEN) than as a mediating mechanism (HOW). Most studies confirm the relationship between personality types especially introversion and extroversion and reading comprehension achievement. However, only a small number explicitly model how or under what conditions this influence operates through

reading strategies. This finding confirms that the EFL literature is still dominated by descriptive and comparative approaches, while processual approaches that explain psychological mechanisms are relatively limited.

### **a. WHEN: Why Reading Strategies Work Conditionally**

The review results indicate that reading strategies tend to act as moderators when positioned as specific learning conditions interacting with students' personality characteristics. Studies that found significant moderating effects generally used factorial experimental designs and indicated that the effectiveness of reading strategies is not uniform across personality types. Cooperative reading strategies, such as jigsaw and collaborative learning, are more beneficial to extroverted students who are socially inclined, active in discussions, and comfortable in group interactions. Conversely, more structured and individualized reading strategies, such as SQ4R or metacognitive approaches, tend to be more appropriate for introverted students who rely on internal reflection and deep processing.

However, the inconsistent findings of moderation across studies suggest that reading strategies do not always function as a differentiating factor between personality types. This indicates that the moderating effect is strongly influenced by the learning context, including students' proficiency level, text complexity, and the quality of strategy implementation. In other words, reading strategies function as a factor not simply because of their nature, but because of their appropriateness to the cognitive and social demands faced by students in a given context.

The predominance of reading strategies as moderators observed in this review is consistent with prior evidence from similar EFL contexts, which indicates that individual cognitive and learning preferences shape how instructional strategies are enacted in reading classrooms. Empirical findings from Indonesian EFL settings have shown that differences in thinking styles and learning styles are associated with variations in reading comprehension outcomes, particularly when instructional approaches are not uniformly aligned with learners' individual characteristics. This convergence suggests that reading strategies operate primarily as conditional factors that activate or constrain the influence of personality traits under specific learning conditions.

### **b. HOW: Why Mediation in Reading Strategies Is Still Rare**

In contrast to moderation, empirical evidence supporting reading strategies as mediators is still very limited. This finding can be explained by two main factors: methodological and conceptual limitations in previous research. Methodologically, many

studies treat reading strategies as instructional treatments taught by researchers, rather than as behaviors or processes that emerge naturally as a result of students' personality characteristics. Under these conditions, reading strategies cannot function as mediators because they do not qualify as variables influenced by personality.

Conceptually, reading strategies are often viewed as pedagogical techniques, rather than as mechanisms of cognitive and metacognitive regulation. Consequently, research rarely examines the indirect pathways that explain how personality influences reading comprehension through strategy use. Studies using a Structural Equation Modeling approach have shown that when strategies are positioned as internal processes such as self-regulation and metacognitive strategies their mediating role becomes more visible. This suggests that the limited HOW evidence is not due to the insignificance of strategies, but rather to previous research designs not adequately capturing these mechanisms.

In contrast, the limited evidence supporting the mediating role of reading strategies reflects the scarcity of studies that conceptualize strategies as internal cognitive and metacognitive processes rather than as instructional techniques. Prior research conducted in comparable EFL contexts has demonstrated that reflective reading practices can enhance learners' metacognitive awareness and engagement with texts, yet such practices are rarely modeled as mediating mechanisms linking individual differences to reading outcomes. This gap underscores the need for process-oriented research designs to capture how strategies function as psychological pathways in reading comprehension.

### **c. Integrating WHEN and HOW: Toward a More Comprehensive Conceptual Model**

The synthesis of findings suggests that the separation between the roles of reading strategies as moderators and mediators is artificial if not placed within a more integrative conceptual framework. Reading strategies can function as conditional factors (WHEN) at the instructional and contextual levels, as well as psychological mechanisms (HOW) at the individual level. Thus, the relationship between personality and reading comprehension is best understood as a dynamic process involving the interaction of individual characteristics and strategy use in specific contexts.

This approach points to the need for conceptual models that simultaneously integrate moderation and mediation, such as the conditional process model. In such models, personality influences the propensity to use reading strategies, these strategies then mediate reading outcomes, while the learning context or specific strategy types moderate

the strength of these relationships. This integration is a key conceptual contribution of this systematic literature review, as it bridges the gap between descriptive findings and mechanistic explanations in the EFL literature.

#### **d. Theoretical Implications and Further Research Directions**

Theoretically, the findings of this study confirm that reading comprehension in an EFL context cannot be adequately explained through personality or reading strategies alone. Personality needs to be understood as a predispositional factor, while reading strategies serve as a bridge connecting individual characteristics to reading performance. Therefore, theories of reading and language learning need to more comprehensively accommodate the interaction between affective, cognitive, and contextual aspects.

For future research, it is recommended that researchers use designs that allow for simultaneous testing of mediation and moderation, such as SEM-based multi-group analysis or PROCESS analysis. Furthermore, reading strategies should be measured as actual behaviors and self-regulatory processes, not simply as instructional treatments. Research should also consider contextual factors such as text type, task complexity, and language proficiency level as variables that may influence when and how reading strategies operate in the relationship between personality and reading comprehension.

### **CONCLUSION**

This study aims to systematically synthesize previous research findings that examine the relationship between personality, reading strategies, and reading comprehension in the context of English as a Foreign Language (EFL) learning, with a particular focus on the role of reading strategies as moderators and mediators. Based on an analysis of 30 reviewed articles, it can be concluded that personality, particularly the introversion-extroversion dimension, is related to EFL reading comprehension, but this influence is not direct and universal. The main findings indicate that reading strategies function more often as conditional factors (WHEN) that influence the strength of the relationship between personality and reading comprehension, rather than as mediating mechanisms (HOW) that explain the internal processes of this influence.

Furthermore, the results of this study indicate that the role of reading strategies as moderators tends to emerge in specific learning contexts, such as the use of cooperative or individual strategies aligned with the learner's personality characteristics. Conversely, empirical evidence that positions reading strategies as mediators is still relatively limited and is generally found in studies using advanced analytical approaches, such as

Structural Equation Modeling. These findings indicate that the EFL literature is still dominated by descriptive and comparative approaches, while studies oriented towards the mechanisms of the reading process have not yet developed optimally.

### **Research Implications**

The practical implication of this research is that reading instruction in EFL contexts should not use a one-size-fits-all approach. Teachers and lecturers need to consider students' personality differences when selecting and implementing reading strategies. Cooperative reading strategies may be more effective for extroverted learners, while individual and metacognitive strategies are more appropriate for introverted learners. Thus, adaptive, learner-centered reading instruction has the potential to improve reading comprehension effectiveness more evenly.

From a pedagogical perspective, the findings suggest that reading instruction should be designed to accommodate learners' individual cognitive and learning characteristics. Evidence from EFL classrooms indicates that instructional practices which acknowledge students' learning preferences and reflective reading habits can foster greater engagement and comprehension. Therefore, teachers are encouraged to adopt flexible reading strategies that can be adjusted to learners' profiles rather than relying on uniform instructional approaches.

Academically, the findings of this study contribute to the development of EFL reading theory by emphasizing the importance of viewing reading strategies not only as instructional techniques but also as part of a psychological process that interacts with individual characteristics. This study reinforces the need to integrate personality psychology and learning strategy perspectives in English reading research.

### **Research Limitations**

Although this review was conducted systematically, it has several limitations. First, the number of studies explicitly examining the mediating and moderating roles of reading strategies is limited, so generalizing findings regarding the mechanisms and conditions of influence requires caution. Second, most of the articles reviewed were from EFL contexts in Asia, thus underrepresenting other cultural and educational contexts. Third, variations in research designs, measurement instruments, and types of reading texts used in previous studies may influence the consistency of the findings synthesized in this review.

### **Suggestions for Further Research**

Based on these limitations, further research is recommended to develop research

designs that allow for simultaneous testing of mediation and moderation, such as conditional process modeling or multi-group structural equation modeling. Researchers are also advised to measure reading strategies as actual behaviors and self-regulatory processes, rather than solely as instructional treatments. Furthermore, future research should involve more diverse EFL contexts, in terms of culture, proficiency level, and text type, to gain a more comprehensive understanding of the role of personality and reading strategies in EFL reading comprehension.

## REFERENCES

Aghajani, M. (2019). The Relationship Between Persobnality Traits and Reading Comprehension Achievement of EFL Learners, *Journal of Language Teaching and Research*, 10(2), 341–347.

Annas, A., Setiawan, B., & Herlina, H. (2024). Personality traits and EFL students' reading comprehension achievement. *Journal of English Education*, 9(1), 33–44.

Braun, V. (n.d.). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

Efendi, A. (2018). The influence of personality traits on students' reading comprehension. *Journal of English Education and Linguistics*, 2(2), 77–88.

Gusenbauer, M. (2020). Which academic search systems are suitable for systematic reviews or meta-analyses? Evaluating retrieval qualities of Google Scholar , PubMed , and 26 other resources, (September 2019), 181–217. <https://doi.org/10.1002/jrsm.1378>.

Husna, Z. F., Wulandari, R. S., Wahyuni, S., & Rukmini, D. (2025). The impact of cognitive and metacognitive reading strategies on EFL students' reading comprehension. *International Journal of Instruction*, 18(1), 213–228.

Kalsum, K. (2022). Snap To Read Islamic Boarding School Students ' Learning Styles In Efl Class, 14(1), 57–70.

Kalsum, K., Rauf, F. A., & Sardi, A. (2022). Implementation of Reading-Log to Increase Students ' Interest on Literacy at Islamic Boarding School, 4778, 1887–1898. <https://doi.org/10.24256/ideas.v10i2.3202>

Mokhtari, K., & Reichard, C. A. (2002). Assessing Students ' Metacognitive Awareness of Reading Strategies, 94(2), 249–259. <https://doi.org/10.1037//0022-0663.94.2.249>

Page, M. J., Mckenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, C., Mulrow, C. D., ... Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews Systematic reviews and Meta-Analyses. <https://doi.org/10.1136/bmj.n71>

Petticrew, M. (n.d.). Systematic Reviews In The Social Sciences : A Practical Guide By Mark Petticrew.

Pradana, S. A. (2022). Journal of English Education and Teaching (JEET) e-ISSN: 2622-5867, 6(3), 458–468.

Stoller, F. L. (2019). Teaching and researching reading (3rd ed.). Routledge. <https://doi.org/10.4324/9781315145877>

Widhyastika, A., Sutarsyah, C., & Suparman, U. (2017). Reading strategies and personality traits in EFL reading comprehension. *Journal of Language Education*, 5(1), 61–70.

Xiao, Y., & Watson, M. (2019). Guidance on Conducting a Systematic Literature Review. <https://doi.org/10.1177/0739456X17723971>