

Metacognitive Agency in Reading Strategies in Moroccan Higher Education: An Overview

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Abstract

This overview article synthesizes the existing body of research on metacognitive agency in reading strategies within Moroccan higher education, drawing exclusively on 18 selected articles. Metacognitive agency, defined as the learner's capacity to plan, monitor, and evaluate their own reading comprehension processes, has emerged as a critical determinant of academic success in English as a foreign language (EFL) contexts. The reviewed studies collectively reveal a dynamic trajectory: while Moroccan EFL university learners demonstrate insufficient awareness and use of metacognitive reading strategies (MRSs) at the outset of their academic journeys, explicit strategy-based instruction yields substantial improvements in strategy application, reading comprehension outcomes, and cross-linguistic transfer. This synthesis examines the theoretical foundations of metacognition, the empirical evidence from quasi-experimental and correlational studies, the role of text genre, the transferability of strategies across languages, and the integration of emerging technologies such as artificial intelligence (AI) in fostering metacognitive regulation. The findings underscore the necessity of embedding explicit metacognitive strategy instruction into the Moroccan higher education curriculum to cultivate autonomous, self-regulated readers.

Keywords: metacognition, reading strategies, Moroccan higher education, metacognitive agency, EFL reading comprehension, strategy instruction

1. Introduction

Reading comprehension in a foreign language is a cognitively demanding endeavor that requires learners to orchestrate a complex repertoire of cognitive and metacognitive strategies. Within the Moroccan higher education context, where English serves as a third language (L3) for most students, the ability to read and comprehend academic texts in English is indispensable for academic success (Msaddek, 2015). However, a substantial body of research indicates that Moroccan EFL university learners often struggle with reading comprehension due to insufficient awareness and ineffective use of metacognitive reading strategies (MRSs) (El Madani et al., 2024; Msaddek, 2020; Razkane et al., 2025).

Metacognition, originally conceptualized by Flavell (1971, 1979) as "cognition about cognition," encompasses the knowledge and regulation of one's cognitive processes. In the context of reading, metacognitive agency refers to the learner's capacity to plan, monitor, and evaluate their comprehension processes, thereby enabling them to become self-regulated, strategic readers (Msaddek, 2015, 2024). The development of such agency is not automatic; it requires explicit instruction, sustained practice, and opportunities for reflection (Aichi, 2026; Msaddek, 2015).

This overview article synthesizes the findings of 18 articles—comprising empirical studies, theoretical reviews, and pedagogical interventions—to provide a comprehensive understanding of metacognitive agency in reading strategies among Moroccan higher education learners. The article is organized around key themes: the theoretical underpinnings of metacognition in reading, the empirical evidence on strategy awareness and use, the efficacy of explicit strategy instruction, the role of text genre, the transfer of strategies across languages, and the integration of AI and technology in metacognitive regulation. The synthesis concludes with pedagogical implications and recommendations for future research.

2. Methodology

2.1. Research Design

This study adopts a systematic overview approach to synthesize the existing body of research on metacognitive agency in reading strategies within Moroccan higher education. An overview article is a comprehensive synthesis of the literature on a specific topic, designed to provide a broad and critical summary of the current state of knowledge. Unlike a systematic review, which follows a highly structured protocol with predefined inclusion and exclusion criteria, an overview article allows for a more flexible, thematic synthesis of the literature, enabling the researcher to identify patterns, gaps, and implications across a range of studies (Msaddek, 2015). This design was deemed appropriate for the present study, given the objective of providing a comprehensive overview of the multifaceted dimensions of metacognitive agency in reading strategies in the Moroccan EFL context.

2.2. Data Sources and Selection Criteria

The corpus for this overview article consists of 18 articles, all of which were authored by Moroccan researchers and focus on metacognition, reading strategies, and related pedagogical interventions in the Moroccan higher education context. These articles were selected based on their relevance to the central theme of metacognitive agency in reading strategies. The selection criteria included: (a) publication in peer-reviewed journals or as scholarly book chapters; (b) a focus on metacognition, cognitive and metacognitive reading strategies, or metacognitive regulation; (c) a specific emphasis on the Moroccan EFL context, particularly at the tertiary level; and (d) a mix of empirical studies (quasi-experimental, correlational, exploratory), theoretical papers, and pedagogical interventions to ensure a comprehensive synthesis.

The 18 articles included in this overview are: Msaddek (2015, 2016, 2020, 2023, 2024a, 2024b, 2025a, 2025b), Razkane and Diouny (2024), Razkane et al. (2025), Mouchrif et al. (2025), El Madani et al. (2024), El Hosayny et al. (2026), El Basri et al. (2018), Belouiza and Jamiai (2025), Kemmach (2024), Aichi (2026), Esegghir and El Khalfi (2024), and Tamesna (2014).

2.3. Data Analysis Procedures

The analysis of the selected articles was conducted using a thematic synthesis approach. This involved a systematic process of reading, coding, and categorizing the content of each document to identify recurring themes, patterns, and findings related to metacognitive agency in reading strategies. The following steps were undertaken:

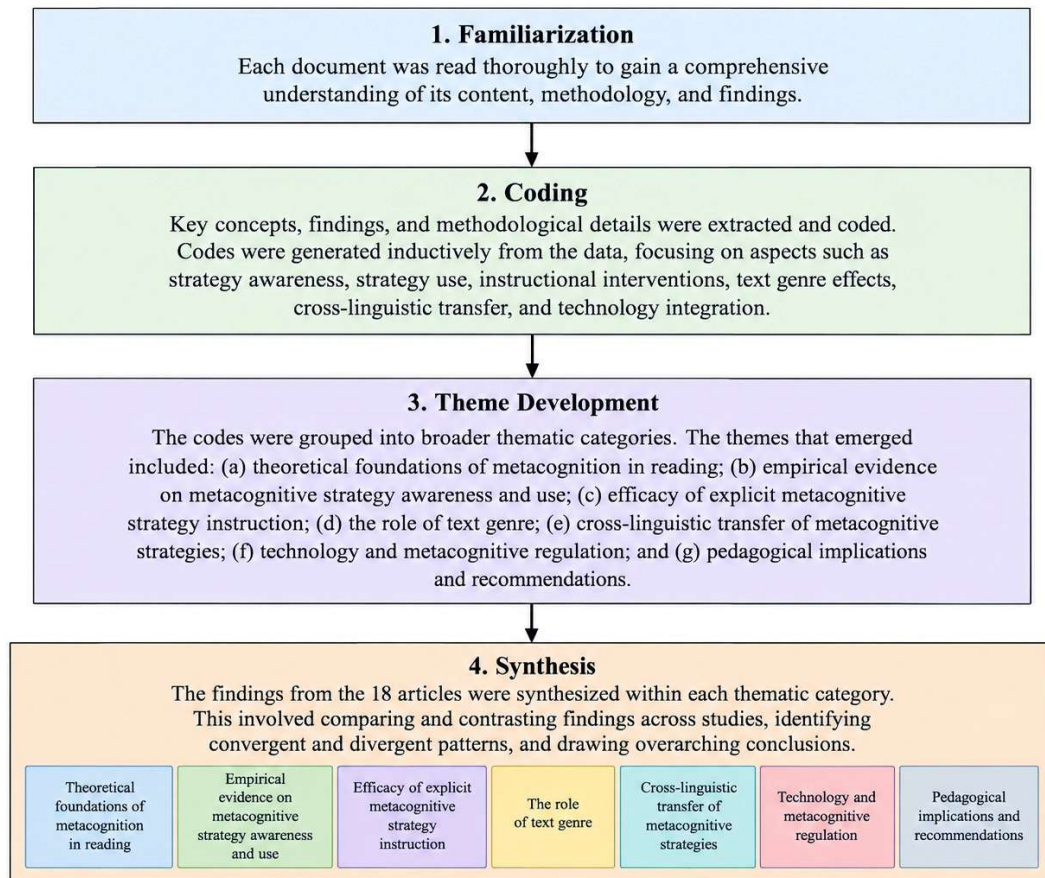
1. **Familiarization:** Each document was read thoroughly to gain a comprehensive understanding of its content, methodology, and findings.

2. **Coding:** Key concepts, findings, and methodological details were extracted and coded. Codes were generated inductively from the data, focusing on aspects such as strategy awareness, strategy use, instructional interventions, text genre effects, cross-linguistic transfer, and technology integration.

3. **Theme Development:** The codes were grouped into broader thematic categories. The themes that emerged included: (a) theoretical foundations of metacognition in reading; (b) empirical evidence on metacognitive strategy awareness and use; (c) efficacy of explicit metacognitive strategy instruction; (d) the role of text genre; (e) cross-linguistic transfer of metacognitive strategies; (f) technology and metacognitive regulation; and (g) pedagogical implications and recommendations.

4. **Synthesis:** The findings from the 18 articles were synthesized within each thematic category. This involved comparing and contrasting findings across studies, identifying convergent and divergent patterns, and drawing overarching conclusions.

Figure 1
Data Analysis Procedures



2.4. Scope and Limitations

This overview article is deliberately restricted to the 18 articles that form its corpus. While this ensures a focused and in-depth synthesis of the Moroccan context, it also limits the generalizability of the findings to other contexts. Furthermore, the reviewed studies themselves vary in their methodological rigor, with some employing quasi-experimental designs and others relying on self-report data. These limitations are acknowledged, and the synthesis is presented with a critical awareness of these constraints. The strength of this overview lies in its ability to provide a comprehensive, thematically organized synthesis of a significant body of research, thereby offering a valuable resource for researchers, educators, and policymakers interested in metacognitive agency in the Moroccan EFL context.

3. Theoretical Foundations: Metacognition and Reading Comprehension

3.1. Defining Metacognition

Metacognition, as originally defined by Flavell (1971), refers to one's knowledge concerning one's own cognitive processes and products. This foundational definition has been elaborated by numerous scholars who distinguish between metacognitive knowledge and metacognitive regulation (Brown, 1987; Schraw & Moshman, 1995). Metacognitive knowledge encompasses declarative knowledge (knowing what strategies exist), procedural knowledge (knowing how to use them), and conditional knowledge (knowing when and why to use them) (Msaddek, 2015; Razkane et al., 2025). Metacognitive regulation, on the other hand, involves planning, monitoring, and evaluating one's cognitive activities (Brown, 1987; Zimmerman, 2002).

Within the domain of reading, metacognition manifests as the reader's awareness of their comprehension processes and their ability to regulate these processes before, during, and after reading (Baker & Brown, 1984; Msaddek, 2015). This includes planning strategies (e.g., goal-setting, activating background knowledge), monitoring strategies (e.g., self-monitoring, self-questioning, rereading), and evaluating strategies (e.g., recalling, summarizing) (Msaddek, 2015, 2016; Razkane et al., 2023).

3.2. The Metacognitive Nature of Reading

Reading comprehension is inherently metacognitive because it requires readers to continuously monitor their understanding, detect comprehension breakdowns, and deploy appropriate repair strategies (Msaddek, 2015; Razkane et al., 2025). Grabe and Stoller (2001) stated that the reader will begin to interpret the information from the text in terms of his or her own goals, feelings and background expectations. This interpretative process is guided by metacognitive awareness of the reading task, the text, and the strategies available.

Research has consistently demonstrated that skilled readers differ from less skilled readers in their metacognitive awareness and strategic behavior (Baker & Brown,

1984; Msaddek, 2015). Skilled readers plan their reading, monitor their comprehension, and evaluate their understanding, whereas less skilled readers often lack these metacognitive skills (Msaddek, 2020; Razkane et al., 2025). In the Moroccan context, Msaddek (2015) found that first-semester university learners exhibited insufficient use of MRSs, relying predominantly on cognitive strategies such as predicting, inferring, and paraphrasing.

3.3. Metacognitive Agency and Self-Regulation

Metacognitive agency refers to the learner's active role in directing their own cognitive processes. It involves self-regulation, which Zimmerman (2002) conceptualizes as a cyclical process involving forethought (planning), performance (monitoring), and self-reflection (evaluating). In reading, self-regulated learners set goals, select appropriate strategies, monitor their comprehension, and adjust their approach when necessary (Msaddek, 2015, 2016).

The development of metacognitive agency is crucial for academic success, as it enables learners to take ownership of their learning and to adapt to the diverse reading demands of higher education (Aichi, 2026; El Madani et al., 2024). However, research indicates that Moroccan EFL learners often struggle to exercise this agency due to a prior reliance on teacher-directed instruction and displaying limited awareness of their own cognitive processes (Aichi, 2026; Msaddek, 2020).

4. Empirical Evidence on Metacognitive Strategy Awareness and Use

4.1. Awareness and Use of Cognitive and Metacognitive Strategies

A series of studies conducted by Msaddek (2015, 2016, 2020, 2024) have systematically examined the awareness and use of cognitive and metacognitive reading strategies among Moroccan EFL university learners. In a study involving 63 first-semester English Department students, Msaddek (2020) found that learners' awareness of cognitive reading strategies (CRSs) was 41.26%, while their awareness of metacognitive reading strategies (MRSs) was only 22.22%. Similarly, their use of CRSs was 73.01%, compared to 39.68% for MRSs. These findings indicate that Moroccan EFL learners are more familiar with and more frequently use cognitive

strategies, such as predicting, inferring, and paraphrasing, than metacognitive strategies, such as planning, monitoring, and evaluating.

Msaddek (2015) further reported that at the pre-intervention stage, learners in both the control and experimental groups demonstrated insufficient use of MRSs, including goal-setting, self-questioning, recalling, and summarizing. For instance, only 7.93% of the experimental group reported using goal-setting, 3.17% used self-questioning, 1.58% used recalling, and 4.76% used summarizing. These findings align with those of Razkane et al. (2025), who found that pre-service teachers exhibited high awareness of MRSs ($M = 3.77$ for planning, $M = 3.78$ for monitoring, $M = 3.54$ for evaluating) but a weak positive correlation between this awareness and their reading comprehension performance ($r = 0.168$ for planning, $r = 0.209$ for monitoring, $r = 0.040$ for evaluating).

4.2. Discrepancy Between Awareness and Use

A recurring finding across the reviewed studies is the discrepancy between learners' awareness of metacognitive strategies and their actual use of these strategies in reading tasks (Razkane et al., 2025; Msaddek, 2020). Razkane et al. (2025) found that although pre-service teachers demonstrated high awareness of MRSs, there was only a weak positive correlation between this awareness and their reading comprehension performance. This suggests that knowing about MRSs does not guarantee learners' application of such strategies when dealing with reading comprehension tasks (Razkane et al., 2025).

This discrepancy can be explained by the distinction between declarative and procedural knowledge (Razkane et al., 2025). While learners may possess declarative knowledge of MRSs (i.e., they know what the strategies are), they may lack procedural knowledge (i.e., they do not know how to apply them effectively). As Msaddek (2015) argues, explicit strategy instruction is necessary to bridge this gap and to help learners internalize metacognitive strategies as part of their reading repertoire.

4.3. Metacognitive Awareness and Reading Proficiency

Several studies have examined the relationship between metacognitive awareness and reading proficiency. El Madani et al. (2024) conducted a study with 94 third-year university students and found a strong positive correlation ($r = 0.810$) between participants' English reading proficiency and their metacognitive awareness of reading strategies. Furthermore, reading metacognitive awareness predicted 65% of reading comprehension ability ($R^2 = 0.656$). These findings suggest that learners with higher metacognitive awareness tend to exhibit better reading comprehension skills.

Similarly, Msaddek (2015) reported that explicit instruction in metacognitive monitoring strategies (self-monitoring, self-questioning, and rereading) led to significant improvements in reading comprehension scores among the experimental group. The experimental group achieved a mean score of 10.08 on the post-test, compared to 5.03 on the pre-test, with a t -value of -16.286 ($p < .001$). In contrast, the control group showed no significant improvement (pre-test $M = 4.81$, post-test $M = 5.51$, $t = -1.770$, $p = .083$).

5. Efficacy of Explicit Metacognitive Strategy Instruction

5.1. Quasi-Experimental Evidence

The most robust evidence for the efficacy of metacognitive strategy instruction comes from quasi-experimental studies conducted by Msaddek (2015, 2016, 2023, 2024). These studies consistently demonstrate that explicit instruction in MRSs leads to significant improvements in reading comprehension outcomes.

In a semester-long intervention involving 113 first-semester English Department students, Msaddek (2015) found that the experimental group ($n = 63$) exhibited significant gains in reading comprehension from pre-test to post-test, while the control group ($n = 50$) did not. The experimental group's mean score increased from 5.03 to 10.08, with a t -value of -16.286 ($p < .001$), whereas the control group's mean score increased only slightly from 4.81 to 5.51, with a t -value of -1.770 ($p = .083$).

Similar results were reported by Msaddek (2016), who examined the impact of metacognitive strategy training on comprehension monitoring. The findings revealed that instruction in planning, monitoring, and evaluating strategies significantly enhanced learners' metacognitive control in textual reading. The experimental group demonstrated marked improvement in planning (from 44.44% to 61.90%), monitoring (from 39.68% to 88.88%), and evaluating (from 6.34% to 68.25%) strategies.

5.2. Strategy Instruction and Reading Achievement

Msaddek (2015) also investigated the effect of explicit instruction in metacognitive evaluating strategies (recalling and summarizing) on learners' strategic reading behavior. The findings indicated that the experimental group significantly outperformed the control group on summary writing tasks. At post-testing, the experimental group achieved a mean score of 2.94 on summary tasks, compared to 1.46 for the control group, with a t -value of -9.412 ($p < .001$).

Furthermore, Msaddek (2023) examined the learnability of cognitive and metacognitive reading strategies in Moroccan higher education. The study revealed that explicit strategy instruction led to increased use of both cognitive and metacognitive strategies among the experimental group. For instance, the use of goal-setting increased from 7.93% to 61.90%, self-questioning from 3.17% to 69.84%, recalling from 1.58% to 71.42%, and summarizing from 4.76% to 68.25%.

5.3. Instructional Approaches

The reviewed studies highlight the importance of using structured instructional approaches to teach MRSs. Msaddek (2015) employed a three-stage model of strategy instruction: strategy introduction, strategy practice, and strategy application. This model, based on the work of Carnine et al. (2004), involves explicit explanation of strategies, guided practice, and independent application.

Similarly, Razkane et al. (2025) used the Cognitive Academic Language Learning Approach (CALLA) model, which includes five stages: preparation, presentation, practice, self-evaluation, and expansion. This approach was found to

be effective in enhancing ESP students' reading comprehension and strategy awareness.

5.4. The Role of Teacher Mediation

The reviewed studies also underscore the critical role of teacher mediation in fostering metacognitive agency. Aichi (2026) found that while teachers recognize the importance of metacognition, its implementation in Moroccan secondary classrooms remains largely implicit and fragmented. Teachers tend to prioritize planning over regulation, focusing on task completion rather than on the cognitive processes involved in reading. This gap between theoretical conceptions and actual practices highlights the need for institutional training to promote explicit teaching of thinking processes.

Msaddek (2015) argues that teacher mediation is essential for helping learners develop metacognitive knowledge and skills. Teachers should model metacognitive strategies, provide opportunities for guided practice, and encourage learners to reflect on their own cognitive processes. This aligns with the findings of Portelance and Ouellet (2004), who identified several pedagogical practices that promote metacognition, including the integration of metacognition into instruction, the use of meaningful learning situations, and the promotion of metacognitive questioning.

6. The Role of Text Genre in Metacognitive Strategy Use

6.1. Genre-Specific Strategy Use

Research has consistently shown that the use of metacognitive reading strategies is influenced by the genre of the text being read (Msaddek, 2025; Msaddek, 2015). In a study examining the use and transfer of cognitive and metacognitive reading strategies across narrative and expository texts, Msaddek (2025) found that learners transferred some strategies across text types with varying frequencies. For instance, visualizing was used more frequently in reading narrative texts (57.14% for the experimental group) than expository texts (47.62%), while paraphrasing was used more frequently in reading expository texts (65.07%) than narrative texts (58.73%).

Similarly, rereading, a metacognitive monitoring strategy, was used more frequently in reading expository texts (58.73%) than narrative texts (50.79%) among the experimental group. These findings suggest that text genre influences the selection and deployment of metacognitive strategies, with learners adapting their strategic approach to the demands of the text.

6.2. Implications for Instruction

The genre-specific nature of strategy use has important implications for instruction. Msaddek (2025) recommends that academic practitioners select a broad range of narrative and expository texts and assign them to university learners. This exposure to diverse text types can help learners develop "genre awareness" and enhance their ability to transfer strategies across different reading contexts.

Furthermore, Msaddek (2025) argues that the assignment of challenging texts can increase learners' reading efficiency and monitoring competency. This is consistent with the findings of Duke et al. (2011), who note that difficult texts provide learners with a platform for utilizing and adjusting their strategic processes.

7. Cross-Linguistic Transfer of Metacognitive Strategies

7.1. Transfer from L2 to L3

An emerging area of research in the Moroccan context is the cross-linguistic transfer of metacognitive reading strategies. Mouchrif et al. (2025) conducted a quasi-experimental study with 105 ESP students to examine the transfer of MRSs from L2 (French) to L3 (English). The findings revealed that the experimental groups showed significant improvements in reading comprehension scores in both French and English, suggesting that MRSs can be transferred across languages. The experimental group with higher proficiency (B1+) demonstrated a mean difference of 16.0 in English reading comprehension, compared to 11.0 for the lower proficiency group (A1).

These findings align with Cummins' (1991) linguistic interdependence hypothesis, which posits that language processes such as reading and writing are transferable across languages. Mouchrif et al. (2025) also found that language

proficiency played a significant role in the transfer of MRSs, with higher proficiency learners demonstrating greater transfer. This suggests that explicit MRS instruction should occur in intermediate or proficient English contexts to maximize its effectiveness.

7.2. Retroactive Transfer

Razkane and Diouny (2024) examined the cognitive retroactive transfer of metacognitive reading strategies from English (L3) into French (L2) among trilingual learners. The findings revealed that explicit instruction in MRSs in L3 English enhanced strategy use and awareness in both languages, indicating the transfer of such strategies to L2 French. This suggests that strategy instruction in one language can have beneficial effects on reading in other languages, highlighting the interconnected nature of multilingual reading processes.

7.3. Implications for Multilingual Contexts

The findings on cross-linguistic transfer have important implications for the Moroccan multilingual context. Given that Moroccan learners are typically trilingual, speaking Arabic (L1), French (L2), and English (L3), the potential for cross-linguistic transfer of metacognitive strategies is significant. Mouchrif et al. (2025) recommend that MRS instruction be integrated into language courses across the curriculum, not just in English courses, to maximize the potential for transfer and to support learners' overall academic literacy development.

8. Technology and Metacognitive Regulation

8.1. AI and Metacognitive Regulation in Writing

While the majority of the reviewed studies focus on reading, two articles address the intersection of metacognition and technology. El Hosayny et al. (2026) examined the use of metacognitive regulation (MR) strategies by Moroccan postgraduate students when using ChatGPT for academic writing. The findings revealed that students with higher MR skills tended to use ChatGPT more productively, employing strategies such as planning, monitoring, evaluating, information management, and debugging. Based on these findings, the authors

proposed an interactive model of MR in AI-assisted writing, which highlights the dynamic interplay between learners' metacognitive engagement and their use of AI tools.

8.2. Metacognitive Agents in E-Learning

El Basri et al. (2018) explored the integration of a metacognitive agent into a learning management system (LMS) to support learners' metacognitive skills in e-learning. The study found that the percentage of learners who successfully completed the learning was greater (71%) with the integration of the metacognitive agent than without it (30%). The agent provided metacognitive assistance by encouraging learners to use planning, self-assessment, self-regulation, and memorization strategies based on their state (disoriented, confused, imprudent).

8.3. AI for Prior Knowledge Activation

Belouiza and Jamiai (2025) explored the potential of AI to support the activation of students' prior knowledge in reading comprehension activities in Moroccan EFL classrooms. Drawing on schema theory, the authors argue that AI tools such as ChatGPT, visual content generators, and adaptive pre-reading platforms can be used to personalize schema activation, offer multimodal scaffolding, and enhance learner engagement. However, they also caution that AI should be positioned as a pedagogical aid rather than a replacement for teacher expertise.

These studies suggest that technology, when thoughtfully integrated, can support the development of metacognitive agency by providing personalized, adaptive, and interactive learning experiences. However, they also highlight the need for careful consideration of ethical issues, teacher preparedness, and digital access.

9. Pedagogical Implications and Recommendations

9.1. Integrating Metacognitive Strategy Instruction into the Curriculum

The reviewed studies consistently recommend that metacognitive strategy instruction be integrated into the Moroccan higher education curriculum, particularly in Reading Comprehension courses (Msaddek, 2015, 2016; Razkane

et al., 2025). This integration should be explicit, systematic, and sustained over time, rather than incidental or implicit (Aichi, 2026; Msaddek, 2015).

Msaddek (2015) argues that the Reading Comprehension Course should be reconsidered and given utmost significance by academics and instructors. The course should provide an effective gateway into refining EFL learners' reading performance along the continuum of their academic studies. This involves not only teaching strategies but also helping learners develop declarative, procedural, and conditional knowledge of these strategies (Msaddek, 2015; Razkane et al., 2025).

9.2. Training Teachers in Metacognitive Pedagogy

Aichi (2026) highlights the need for institutional training to promote explicit teaching of thinking processes. The study found that teachers' knowledge of metacognition is largely experiential and self-taught, leading to fragmented and implicit implementation. To address this, teacher training programs should include modules on metacognitive pedagogy, providing teachers with the knowledge and skills to integrate metacognitive instruction into their classrooms.

This recommendation is echoed by Msaddek (2015), who argues that teachers should be trained to model metacognitive strategies, provide guided practice, and encourage learners to reflect on their own cognitive processes. Teachers should also be equipped to create a classroom climate that values reflection and self-regulation (Aichi, 2026).

9.3. Promoting Learner Autonomy

The ultimate goal of metacognitive strategy instruction is to promote learner autonomy—the ability of learners to take charge of their own learning (Msaddek, 2015; Razkane et al., 2025). This involves helping learners develop the skills to plan, monitor, and evaluate their reading comprehension independently. As Msaddek (2015) stated that the development of self-regulated and self-directed reading ability among the experimental group can be ascribed to the training they received throughout the semester-long period.

To promote learner autonomy, instruction should gradually release responsibility to the learner, moving from teacher modeling to guided practice to independent application (Msaddek, 2015). Learners should also be encouraged to set their own reading goals, select appropriate strategies, and reflect on their effectiveness (Razkane et al., 2025).

9.4. Addressing the Awareness–Use Gap

The discrepancy between learners' awareness of metacognitive strategies and their actual use of these strategies in reading tasks is a significant concern (Razkane et al., 2025). To address this gap, instruction should focus not only on raising awareness but also on providing opportunities for practice and application. Razkane et al. (2025) recommend that explicit reading–strategy programs should focus on the practical implementation of MRSs, using hands–on activities, guided practice, and reflective exercises.

Furthermore, assessment should evaluate not only learners' knowledge of MRSs but also their ability to apply these strategies effectively (Razkane et al., 2025). This could be achieved through think–aloud protocols, self–reflection tasks, and performance–based assessments.

9.5. Leveraging Technology

The integration of technology, including AI tools, offers new opportunities for supporting metacognitive regulation (El Hosayny et al., 2026; El Basri et al., 2018). AI–powered platforms can provide personalized, adaptive support for learners, helping them to plan, monitor, and evaluate their reading comprehension (Belouiza & Jamiai, 2025). However, the use of technology should be carefully integrated into instruction, with a focus on enhancing rather than replacing teacher mediation (Belouiza & Jamiai, 2025).

10. Limitations and Directions for Future Research

10.1. Limitations of Existing Research

The reviewed studies have several limitations that should be acknowledged. First, many of the studies are quasi–experimental in design, which limits the ability

to establish causal relationships (Msaddek, 2015; Mouchrif et al., 2025). Future research should employ randomized controlled trials to establish stronger causal inference.

Second, most of the studies are conducted in some universities, such as (Faculty of Letters and Human Sciences in Rabat), which limits the generalizability of the findings (Msaddek, 2015, 2020). Future research should target learners from diverse Moroccan higher education institutions to ensure global representativeness.

Third, the studies rely heavily on self-report data, such as retrospective questionnaires, which may be subject to social desirability bias (Razkane et al., 2025). Future research should incorporate multiple data sources, including think-aloud protocols, interviews, and observational data, to triangulate findings.

10.2. Directions for Future Research

Several directions for future research emerge from this synthesis. First, longitudinal studies are needed to examine the durability of metacognitive strategy instruction over time (Msaddek, 2015, 2020). This would help determine whether the effects of instruction are maintained beyond the immediate intervention period.

Second, future research should examine the role of individual differences, such as language proficiency, gender, and learning styles, in the development of metacognitive agency (Msaddek, 2025; Razkane et al., 2025). This would help tailor instruction to the diverse needs of learners.

Third, research should explore the transfer of metacognitive strategies across different text genres and languages in greater depth (Msaddek, 2025; Mouchrif et al., 2025). This would enhance our understanding of how learners adapt their strategic approach to different reading contexts.

Fourth, the integration of AI and technology in metacognitive instruction warrants further investigation (El Hosayny et al., 2026; Belouiza & Jamiai, 2025). Future research should examine the effectiveness of AI-powered tools in supporting metacognitive regulation and their impact on reading comprehension outcomes.

11. Conclusion

This overview article has synthesized the existing research on metacognitive agency in reading strategies in Moroccan higher education, drawing on 18 articles. The findings reveal a consistent pattern: Moroccan EFL university learners demonstrate insufficient awareness and use of metacognitive reading strategies, which hinders their reading comprehension performance. However, explicit strategy instruction, delivered through structured instructional models, has been shown to significantly enhance learners' metacognitive knowledge, strategy use, and reading achievement.

The development of metacognitive agency is not automatic; it requires explicit instruction, sustained practice, and opportunities for reflection. Teachers play a critical role in mediating this process, modeling metacognitive strategies and creating a classroom climate that values self-regulation. The integration of metacognitive instruction into the curriculum, combined with teacher training and the thoughtful use of technology, can help Moroccan EFL learners become autonomous, self-regulated readers.

While the existing research provides valuable insights, further studies are needed to address the limitations of current research and to explore new directions, including the role of individual differences, the transfer of strategies across languages, and the integration of AI in metacognitive instruction. By advancing this research agenda, we can better support Moroccan EFL learners in developing the metacognitive agency they need to succeed in higher education and beyond.

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