European Journal of Literature, Language and Linguistics Studies
ISSN: 2559 - 7914
ISSN-L: 2559 - 7914
Available on-line at: www.oapub.org/lit

DOI: 10.46827/ejlll.v8i2.545 Volume 8 | Issue 2 | 2024

UNVEILING THE CAUSAL LINK BETWEEN MONITORING STRATEGIES INSTRUCTION AND EFL READING COMPREHENSION OUTCOMES AMONG MOROCCAN ENGLISH DEPARTMENT UNIVERSITY STUDENTS: A METACOGNITIVE PERSPECTIVE

Mohammed Msaddek[i]
Associate Professor,
Department of English Language & Literature,
Faculty of Letters & Human Sciences-Mohammedia,
Hassan II University,
Casablanca, Morocco

Abstract:
The current study, being part and parcel of my unpublished doctoral dissertation which is entitled *"Moroccan EFL Students' Learning of Cognitive and Metacognitive Reading Strategies: Rabat FLHS Semester One Students as a Case Study"* (defended in 2015), is intended to unravel the conceived impact of comprehension-monitoring strategies instruction (self-monitoring, self-questioning, and rereading) on the first-semester English Department learners' reading comprehension scores. It is a manifestation of the extended depth and scope of the conducted explicit training in monitoring strategies, as high-order metacognitive heuristics, in the promotion of the learners' text-processing mode and reading performance in English (L3). With a view to achieving this stated goal, 113 first-semester university students (Control Group: N= 50; Experimental Group: N= 63) undertaking their studies in the English Department took part in this quasi-experimental study. The data were gathered through the implementation of the strategy training, a select range of 'experimental' reading comprehension texts (i.e., narrative, expository), and narrative and expository reading tests (pre-tests and post-tests). The research findings reveal that instruction in L3 comprehension monitoring strategies resulted in positive reading achievement gains at post-testing among the experimental group. As to the control group, it did not exhibit any developmental progress at the level of the reading scores across the pre-post-test continuum. Thus, some action-oriented recommendations and implications relative to the undertaken research study, as well as a few limitations, are plausibly brought forth.

Keywords: metacognition, comprehension-monitoring strategies, metacognitive experience, monitoring strategy training, self-efficacy

[i] Correspondence: email msadek60@gmail.com

1. Introduction

The lens through which the metacognitively-driven reading act is perceived reveals the pivotal role of working-memory mechanisms and meta-level processing modes in the construction of text comprehension. The latter, which is the resultant outcome of the application of a host of deep-level heuristics, is substantially contingent upon background knowledge and textual content (Alderson, 2000; Carrell, 1983, 1984; Lin, 2002; Rumelhart, 1980). This evinces the dynamic interaction between the readers, as active agents in the multidimensional reading process, and the written text as the frame of reference encompassing a multitude of conceptions, premises, and epistemologies. It is, in effect, the rich input put forth in the written discourse that initiates the learners in the multifaceted process of thinking retrospectively and retroactively for the main purpose of assimilating the articulated viewpoints and ideas. Evoking the requisite reading strategies (RSs) and deploying them throughout textual synthesis necessitates not only self-regulated thinking processes but also the activation of working memory (Conway *et al.*, 2009) to reach the required efficacy-based understanding. Therefore, metacognition, which involves 'cognition about cognition' (Flavell, 1971; Garner, 1987), is deemed to be the sturdy base that assures effectiveness in L3 text processing.

Actually, the performance of textual comprehension is correlated with the learners' perceived self-efficacy (e.g., Giladi *et al.*, 2022; Muche *et al.*, 2023). The latter, couched within the lively arena of cognitive psychology, has been conceptualized as a sophisticated form of self-regulation by many leading researchers (Bandura, 1977; Wang *et al.*, 2013). In effect, self-efficacy beliefs, which are a stark manifestation of self-regulated and self-controlled textual processing, can only be strengthened through explicit strategy instruction, which furnishes the learners with cognitive and metacognitive reading strategies (CMRSs). Allocating the cognitive resources and selective attention to text processing gives the university learners, as mature agents in the operation of high-level learning, an ample opportunity to think, monitor, reconsider, revise, and assess the adopted course of action during the perceptual process of reading. This shows that the execution of a series of self-regulated steps intended to monitor and oversee one's progression in comprehension achievement is predicated on one's overall awareness of his/ her cognitive abilities, the nature of the reading task, and the strategies that should be deployed (Msaddek, 2015). These stated variables (i.e., person variable, task variable, and strategy variable) constitute the self-efficacy beliefs exhibited by mature, independent learners.

It is noteworthy, then, to posit that reading comprehension monitoring fundamentally constitutes the core of metacognition and self-regulation (Baumann, Seifert-Kessell, & Jones, 1992; Casanave, 1988; Collins & Smith, 1980; Edossa, Lockl, & Weinert, 2023; Garner, 1987; Msaddek, 2013, 2015; Schmitt & Newby, 1986). This delineates that metacognitive monitoring, meta-strategic regulation, and attentional control, which are enacted and directed through the working memory processes, are paramount in importance for disentangling the textual message. That is, self-monitoring while reading texts in English (L3), self-questioning the incorporated meaning, and rereading the difficult segments of the written material can serve as the essential requisites of the comprehension monitoring process. It is through the intentional use of these

cited strategies that EFL student-readers can control, regulate, and direct their cognitive capabilities and mental efforts in a conscious attempt to reach an overall, if not an efficacy-based, assimilation of the textual input. Hence, the present study attempts to unveil the impact of comprehension-monitoring strategies instruction (i.e., self-monitoring, self-questioning, and rereading) on Moroccan English Department first-semester university students' reading outcomes.

2. Review of Related Literature

2.1. Metacognition & Metacognitive Experience

Conceived as a 'deep-level' form of thinking and meta-awareness in language learning, metacognition facilitates the processing of information and the production of differing forms of output. According to Flavell (1971), metacognition is viewed as one's awareness of cognitive mechanisms and mental processes. Indeed, one cannot absorb, acquire, and process the ideational content, nor can one reflect upon and assess one's developmental progress in executing a particular cognitive task (i.e., reading), unless recourse to metacognition/ metacognitive thinking is made. This shows that metacognition, being construed in the broad cognitive literature as 'thinking about thinking' (e.g., Brown, 1981; Flavell, 1971), is performed through the cognitive memory system that is responsible for using and adjusting the optimal strategic behaviors that are certain to fulfill the requirements of any endeavor taken charge of by the language learners within the sphere of education. In fact, metacognitive thinking enables the learners to execute any assigned cognitive task (i.e., reading) effectively (Msaddek, 2013).

As a matter of fact, language learning, textual processing, writing performance, and speaking activity depend, to a large extent, on metacognitive thinking and retrospection. These language-related tasks not only involve meta-thinking and metamemory, which facilitate the activation of prior knowledge (i.e., content, cultural, and formal schemata) but also the meta-analysis and meta-synthesis of the encountered premises and views for assuring a high-level form of efficiency at the level of learning performance. Formulating the cornerstones of metacognition in all of its manifestations and facets, meta-thinking, meta-analysis, and meta-synthesis remain the prime constituents that hold great potential in optimizing the learners' strategic course of action in the execution of varied academic tasks (i.e., reading, writing, speaking). Thus, metacognition serves as a sturdy foundation for coping with tasks and assignments entailing attentiveness, time allocation, and strategic thinking (Brown, 1981; Garner, 1987; Veenman *et al.*, 2006). It provides the learners with the potential ability to utilize the key skills and toolkits that are necessary for self-regulating, monitoring, and adjusting their adopted learning modalities in an attempt to attain optimum academic achievement.

Under this account, metacognitive experience contributes to facilitating the reading process. As postulated by Flavell (1971-1981), metacognitive experiences are part and parcel of the proactive process of reading. This showcases that higher-order cognitive capabilities occupy a paramount role in both disentangling the essential portions of the text and unraveling the embedded messages stated by the author/ writer. In this regard, Zhang (2002) remarks that

metacognitive experience constitutes a platform for efficient reading performance. Indeed, having recourse to metacognitive experience enables the learners to 'revise' and reconsider their metacognitive knowledge and select the strategies deemed necessary for coping with the textual input. In other terms, if learners realize that the comprehension process is not taking place, they, at times, have recourse to certain strategies, such as rereading some sections of the text and questioning the meaning of the included difficult ideas, concepts, and views (Msaddek, 2015). Planning how to approach a given written text, monitoring the comprehension process, and evaluating the use of strategies all entail metacognitive experience, which guides readers towards interpreting the text's underlying meaning. Hence, one of the main aspects of this experimental study is to instruct EFL learners in fostering metacognitive experience and comprehension-checking procedures in text processing and analysis in an attempt to revamp their reading achievement scores.

2.2. Comprehension Monitoring in EFL Reading

Prior to elucidating the proactive procedure of comprehension monitoring and setting forth its varying dynamics and facets, it is relevant to showcase the overriding role of reading in the enhancement of language use. In this regard, it is a true fact that the perceptual process of foreign language (FL) reading, which involves neural mechanisms (Turkeltaub *et al*., 2003) and eye movements (Gough, 1976; Rayner, 1978) on an exceedingly large scale, is deemed the most important skill in the field of EFL learning and teaching. The reason why it is accorded such great, vital significance is that the reading skill, as a 'cognitive enterprise' in the vast sphere of academia, can enable learners to become proficient in such language skills as listening, speaking, and writing, which can be constantly improved and developed through the reading process. This articulated assertion was outstandingly emphasized by Williams (1984), who argues that:

> *"If we accept the view that all four skills contribute to language development and that we need not follow the listen-speak-read-write sequence, then, we also have to accept that a great deal of new language will be met through reading."* (p.20)

Hence, foreign language (FL) reading, which entails both literal and inferential understanding of the written discourse (Kim, 2022), can be considered as a crucial activity via which students learn the language. It is through the multifaceted act of reading that learners can acquire many vocabulary items which constitute a great part of the language. This means that the reading process and foreign language learning (FLL), as it has been plausibly asserted by many educational researchers (Amini *et al*., 2020; Zhou & Day, 2023), are intricately interconnected. In fact, with the practice of reading in English (L3) as a cognitively demanding task requiring strategy deployment and progress monitoring skills, learners can use the L3 for many academic purposes (i.e., writing, speaking, translation). In this respect, involving literal/ low-order as well as inferential/ high-order processing modes, L3 reading does contribute, to a large extent, to the mastery of the English language (L3) that is to be learnt by the students.

Besides, what should be underscored is that the achievement of high-level, inferential comprehension of the textual input is firmly premised on the use of metacognitive monitoring heuristics (e.g., Baumann *et al.*, 1992; Huff & Nietfield, 2009; Msaddek, 2015, 2016). This unveils that comprehension monitoring, which embodies metacognition in differing ways and constitutes the foundation of strategic reading behavior to varying levels, is a requisite procedure that allows learners to proceed so effectively and successfully in their enquiry-oriented reading of written materials. In effect, it is through checking one's understanding while being engaged in reading a particular text that one can reach the intended meaning (Msaddek, 2015). This can be achieved by EFL learners through regularly questioning and explaining the core concepts, ideas, and viewpoints presented in the text so as to digest the essential conceptualizations and epistemological assumptions declared by the author/ writer in his/her text.

Obviously, engagement in comprehension-checking behavior is part of the key to restoring understanding and strengthening the mastery of textual content. That is, if they detect a comprehension problem, EFL learners can have recourse to a constellation of potent strategic steps. Some of these 'corrective' strategies used in the case of comprehension breakdown are put forth by Collins and Smith (1980), who classify them into: (i) ignoring the obstacles and reading on, (ii) suspending judgment, (iii) forming a tentative hypothesis, (iv) rereading the current sentence, (v) rereading the previous context, and (vi) going to an expert source. In fact, once these metacognitive procedures are undertaken and applied to any printed discourse by EFL learners, they can ensure an effectual comprehension of the included content. It is through the implementation of these procedural steps, which are metacognitive in nature, that the learners can guide, direct, and monitor their understanding while reading the target text in a highly effective way. This will be dealt with in this study to find out whether explicit instruction in such 'monitoring' procedures as well as in self-questioning can assist the EFL learners under focus to attain better grades on the reading comprehension tests.

2.3. Metacognitive Monitoring Strategies in Text Processing

It is commonsensical that textual processing requires using an enabling host of strategies, techniques, and heuristics. In this vein, Block (1986) states that reading strategies (RSs) *"indicate how readers conceive a task, what textual cues they attend to, how they make sense of what they read, and what they do when they do not understand"* (p.465). That is, strategies assist readers to process, analyze, synthesize, question, and critique any encountered text input in an effectual fashion. Plausibly, RSs are conceptualized as the mental operations via which readers purposefully cope with the text and make sense of what they read (Barnett, 1989). As tacitly argued by Davies (1995), strategies can be implemented by the learners either consciously or unconsciously to facilitate textual comprehension. In explicit terms, whereas cognitive reading strategies (CRSs) (i.e., predicting, inferring, main idea selection, visualizing, underlining, note taking, and paraphrasing) can be unconsciously tapped by the learners in deriving the text content, metacognitive reading strategies (MRSs) such as planning strategies (i.e., goal-setting, background knowledge use), monitoring strategies (i.e., self-monitoring, self-questioning,

rereading), and evaluating strategies (i.e., recalling, summarizing) are deliberately called upon and put into practice by the learners so as to optimize their mastery the author's/ writer's perceptions, premises, and views (Msaddek, 2015).

In principle, predicated on self-regulated behavior and constituting the core of metacognition on a massive scale, metacognitive monitoring strategies used in textual reading include self-monitoring, self-questioning, and rereading (Msaddek, 2015). With respect to self-monitoring, it refers to exercising inner control to check, record, and correct reading behaviours (Clay, 1991). This reveals that learners, in monitoring textual comprehension, are expected to control and regulate their way of coping with the given written discourse by processing the content and checking from time to time that they are proceeding in the right way towards attaining an effective, if not complete, understanding. Indeed, once learners, especially skilled ones, fail or are unable to comprehend the ideas and views contained in the text, they try to identify and locate the key source of comprehension failure and make use of some *"fix-up strategies"* (Baker & Brown, 1984; Paris & Myers, 1981) with the basic intent of redirecting their unsuccessful attempts and remedying the eventual comprehension breakdown that they encounter in the process of text analysis.

Another metacognitive monitoring strategy that can be implemented by learners in the process of text comprehension is self-questioning. This strategy directs the learners' attention to the critical aspects of the written text (Nolan, 1991). In fact, the process of generating questions pertaining to the subject matter of the written text is the master key to facilitating and gaining thorough comprehension (Msaddek, 2020). The cognitive immersion in textual processing necessitates asking a range of questions such as (a) what am I trying to accomplish? (b) What strategies am I using? (c) How well am I using them? (d) What else could I do? (Anderson, 2002). These self-regulatory, directive questions, among others, serve as guideposts for gearing EFL learners toward unraveling and digesting the content of the written discourse. Hence, self-questioning, forming part and parcel of metacognitive thinking and higher-order reasoning, is intended to substantively facilitate the process of reading comprehension.

Rereading is deemed an effective monitoring strategy for remediating comprehension failure, which is, at times, encountered in reading text passages. It is regularly performed by mature learners with a view to redirecting their cognitive efforts and attempts to achieve an entirely adequate understanding. For Dowhower (1989), *"repeated reading as a study strategy increases factual retention"* (p.503) as the reprocessing of the focused written text gives readers the opportunity to strengthen their weak comprehension and gain a thorough insight into the underlying included meaning. For instance, when readers do not understand the content or are slightly confused about the meaning of some portions of the text, they resort to rereading as an efficient first step to solve the comprehension problem that hinders their progress in textual processing (Msaddek, 2015). Hence, it can be stated that text rereading, as a 'corrective' strategy, leads to the betterment of the readers' way of analyzing, synthesizing, understanding, and revising the stated information.

Therefore, keeping track of textual comprehension in an efficient way requires learners to have greater knowledge of 'how' and 'when' to implement metacognitive monitoring

strategies. Clearly, the medium of monitoring involves a broad series of procedural processes that can be undertaken by learners. Some of these processes are markedly embodied in *"checking for understanding and evaluating the effectiveness of one's efforts or strategy use"* (Joseph, 2005). This shows that metacognitive monitoring provides a certain kind of guidance and self-direction in trying to reach the intended meaning (Msaddek, 2015). For instance, when the student-readers, namely the mature ones, realize that a certain strategy does not contribute to attaining full comprehension, they resort to other alternative strategies to achieve that particular end. This implies that readers are supposed to be fully aware of and have complete control over the use of an enabling set of comprehension-monitoring RSs.

2.4. Reading Strategy Training: An Overall Overview

It is manifest that strategy instruction plays a contributory role in heightening the learner's awareness of the essential strategic steps in reading (Cohen, 1998). Actually, the overall significance of the reading strategy instruction manifests itself in the development of the learners' potential ability to process and understand the written texts more efficiently and accurately. Thus, it can be stated that the process of instructing EFL learners in the use of reading strategies (RSs) can be executed by instructors, as educational practitioners, through the adoption and application of some effectual instructional methods. In this context, Baker and Brown (1984) eloquently affirm that:

> *"[A]n essential aim (in reading instruction) is to make the reader aware of the active nature of reading and the importance of employing problem-solving, trouble-shooting routines to enhance understanding. If the reader can be made aware of (a) basic strategies for reading and remembering, (b) simple rules of text construction, (c) differing demands of a variety of tests to which his knowledge may be put, and (d) the importance of attempting to use any background knowledge he may have, he cannot help but become a more effective reader."* (p.376)

This stated fact evinces that explicit training in the use of RSs is of utmost importance in the sense that it assists EFL learners, in their multifaceted endeavor to comprehend the text content, to plan, direct, monitor and evaluate the course of undertaking the reading process. In a real sense, a direct, explicit explanation of the underlying strategies relatable to reading constitutes a promising technique to enhance the readers' performance in an effective, productive way. Accordingly, reading strategy instruction serves as the underlying bedrock for consolidating the learners' metacognitive knowledge, self-regulated behavior, and cognitive control, which aid in the conduct of high-order, inferential text processing.

It can be acknowledged, then, that the process of explicitly training learners in the employment of RSs can be carried out in three major stages, which are 'strategy introduction', 'strategy practice', and 'strategy application' (Carnine *et al.*, 2004). The first stage is mainly concerned with the clear-cut presentation and explanation of the commonest and most feasible text-related strategies where learners are made aware of the central importance and the differential typologies of RSs so as to increase their metacognitive knowledge more substantially

and efficiently (Msaddek, 2015). Indeed, at this initial, basic stage, a direct explanation of strategies, including when, why, and how they should be used (Duke & Pearson, 2002; Duffy, 2003), is also provided in order to considerably promote and augment the learner readers' procedural knowledge.

As for the second stage, 'strategy practice', it provides readers, as potential learners, with an ample opportunity to put their metacognitive knowledge of RSs into actual practice. At this stage, the instructor can present the learners with the target reading texts and assist them in building an effective understanding of the content by making use of the most promising RSs (Msaddek, 2015). This can be achieved by 'modeling' the focused strategies that contribute to attaining the text's meaning. In other words, the instructor can present an exemplary way of applying the RSs while attempting to help learners cope with the text under study. In this respect, Duke and Pearson (2002) maintain that guided practice is collaborative; the teachers and students share the responsibility of employing the strategy. In fact, the instructor's guidance is of principal importance in that it directs readers towards the fitting pathway of reaching content comprehension.

At the third stage, which is associated with 'strategy application', the learner readers are encouraged by the instructor to use the strategy independently (Reid & Lienemann, 2006). They are highly expected, after being exposed to the process of utilizing the RSs, to apply the introduced and practised strategies to given texts in order to efficiently analyze and synthesize the sought meaning. It is at this stage that the student-readers self-direct their cognitive efforts and thinking faculties by opting for the feasible, efficient RSs (Msaddek, 2015). Following this, they can receive the instructor's constructive feedback pertaining to strategy use so as to gradually improve their strategic behavior in dealing with various subsequent written discourses.

Basically, the main purpose that lies behind undertaking an explicitness-based instruction in reading 'heuristics' is to make of the learners highly strategic readers (Msaddek, 2015). When EFL learners receive this kind of instructional procedure, they can certainly develop and nurture the essential strategies and conveniently utilize them in processing any academic written input. Therefore, explicit strategy instruction can be applied for enhancing the metacognitive capabilities of the student-readers and, thus enabling them to conduct a successful textual reading. This is, in effect, what the present study is intended to put a spotlight on.

3. The Current Study

3.1. Participants

One hundred thirteen (113) university students from the Faculty of Letters and Human Sciences in Rabat took part in this quasi-experimental study. In fact, all the participants were enrolled in the English Department at the first-semester level during the Autumn Semester (2012-2013). The first group (The control group) included 50 students, whereas the second group (the

experimental group) consisted of 63 learners. Their ages ranged between 19 and 23 years-old. However, it is worth stating that some of them, as an exception, were over 23 years-old.

3.2. Research Questions:

Based on the overriding objective of the undertaken study, two research questions were formulated:

1. To what extent does instruction in comprehension-monitoring strategies impact on the English Department learners' reading comprehension scores?
2. Is there any correlation between comprehension-monitoring strategies instruction and reading comprehension outcomes?

3.3. Procedure

Based on the qualitative-quantitative research design, the experimental study under focus is largely dependent on the use of deductive reasoning as a bottom-line for investigating the set research questions. As it primarily tends to explore the perceived and marked effect of the experimental treatment (monitoring strategy instruction) on the target EFL learners' reading achievement scores, the study seeks to find out the causal connection existing between these two variables (i.e., experimental treatment, reading achievement scores). This necessitates a thorough analysis and interpretation of the data collected to achieve this stated objective.

The adopted strategy intervention lasted for a semester-long period (Autumn Semester: 2012-2013). After the pre-testing procedure to which both groups (i.e., control group, treatment group) were exposed, the experimental group was instructed in a wide set of self-regulatory reading strategies (RSs) with a particular focus on self-monitoring, self-questioning, and rereading, which formulate the core essentials of metacognition and cognitive control. Actually, both the importance and application of these 'deep-level', meta-strategic techniques were emphasized during the training sessions with a view to alerting the target learners in the experimental condition to the multifaceted process of how, when, where, and why to implement the comprehension-checking strategies. Thus, the overall function of the monitoring strategy instruction executed throughout the semester was to strengthen the targeted experimental group's declarative, procedural, and conditional knowledge of RSs in the hope of elevating their reading comprehension scores on both narrative and expository reading tests.

It is worth noting that, after the selection of the proper reading texts and the designing of the pertinent reading comprehension tasks (e.g., wh-questions task, meaning-inferring task, paraphrasing task, summarizing task), which imply that the targeted SL/FL learners invoke a series of meaning-oriented strategies to attain understanding, the reading texts included in both the pre- and post-tests were evaluated in terms of the content, the vocabulary contained, the readability level, and the difficulty level. These fundamental constituents, which should be taken into account in the construction of any reading test, are considered as a precondition to a prominent evaluating procedure so far as the learners' text-processing abilities are concerned. In fact, the cited constituents increasingly enable the feasibility and suitability of the reading tests that can be taken by learners in an EFL academic setting. With this being done, all the

designed reading comprehension tests were mixed by the researcher and randomly selected with the intent of determining the ones that would be devoted to the pre-test (narrative and expository) and the ones that would be allotted to the post-test (narrative and expository).

Two reading comprehension tests (i.e., pre-test, post-test) were administered to the EFL subjects (i.e., control group, experimental group). These reading tests included diverse tasks (i.e., wh-questions, meaning-inferring, paraphrasing, summarizing). The pre-test, which includes both narrative and expository texts with different types of questions, was assigned to both the control and experimental groups prior to embarking on the monitoring strategies instruction in order to tap their reading comprehension performance level. In essence, the pre-test, in this study, indicated the extent to which the target two EFL groups were similar or different in terms of reading comprehension outcomes. Further, the reading comprehension pre-test scores of the control as well as the treatment participants were methodically compared to those of the reading comprehension post-test in an attempt to reflect any observable progress at the level of text processing and synthesis.

In a similar fashion, the post-test, made up of expository and narrative written texts, was delivered to both groups (control and experimental) at the end of the training sessions. Actually, the prime impetus for the assignment of the reading comprehension post-test was to ensure whether the process of training the target subjects (the experimental group) in making efficient use of metacognitive monitoring strategies (i.e., self-monitoring, self-questioning, rereading) could have any potential impact on the EFL learners' strategic behavior and reading comprehension gains. In other words, post-testing can reveal the degree to which the undertaken reading strategy intervention is of great and marked significance as suggested in many studies (e.g., Dole *et al*., 1991; Pressley, 2000). In fact, the two reading comprehension tests (pre- and post-tests), which were operated throughout this experimental study, are seemingly identical in format and are manifestly comparable, to some extent, at the linguistic level, length, text type, and the nature of the comprehension questions/ tasks.

It is evident, then, that the pre- and post-tests are the foundational components the use of which can determine the impact that the experimental treatment may have on the subjects' overall performance in textual reading. In more explicit terms, the pre-test was delivered for the sake of exploring either the perceived comparability or the likely discrepancy between the two groups in terms of reading achievement, whilst the post-test was assigned to the subjects (both treatment and control groups) in an attempt to reveal the efficacy of the strategy-based instruction in improving the experimental participants' text-processing capabilities and reading achievement gains.

It is of particular relevance to declare that the significance of all the reading comprehension tasks implemented in the pre- and post-tests is assumed to be attached to the fact that they show, to a certain extent, the EFL learners' potential of deploying the RSs while coping with the assigned written discourse. This demonstrates that metacognitive monitoring strategies, which are purely based on critical thinking and reasoning skills, are the core constituents of unraveling the implications, viewpoints, and conceptualizations that are both implicitly and explicitly presented in the author's written text. Generally, the four mentioned

reading tasks adopted in the reading tests required the learners to tap the effectual metacognitive monitoring strategies (i.e., self-monitoring, self-questioning, rereading) in an endeavor to comprehend the text content.

As an integral element of the data collection process, the scoring procedure provides an overall overview and systematic measure of the learners' performance in a particular cognitive task (e.g., reading, writing). It is an effective method of assessing the quality and quantity of the testees' presented responses to the set reading comprehension questions. In this respect, each one of the reading comprehension tests, consisting of a variety of tasks, was accorded a score of twenty (20) points. To clarify further, the expository and narrative reading pre-test were assigned twenty (20) points for each one and a similar pattern of the scoring scale was applied to the reading post-test (narrative and expository reading tests) as well.

The data attained in light of the conduct of this study were analyzed through the SPSS Software Program (Version 16.0). Both descriptive and inferential statistical analyses were executed to substantiate the extent to which the adopted comprehension-monitoring strategy training impacted the reading comprehension scores gained by the first-semester university-level learners. In effect, the reading test scores obtained by the target two groups (i.e., control group, treatment group) were submitted to statistical analysis by using the paired samples *t*-test for showcasing the means and the significance levels at both pre-testing and post-testing stages.

4. Results

4.1. Control Group's Reading Achievement on the Pre- and Post-test

It is evident that there had been no substantial improvement among the control group from the pre-test to the post-test stage. The figure presented below illustrates the mean scores of both the narrative and expository reading tests among the control subjects.

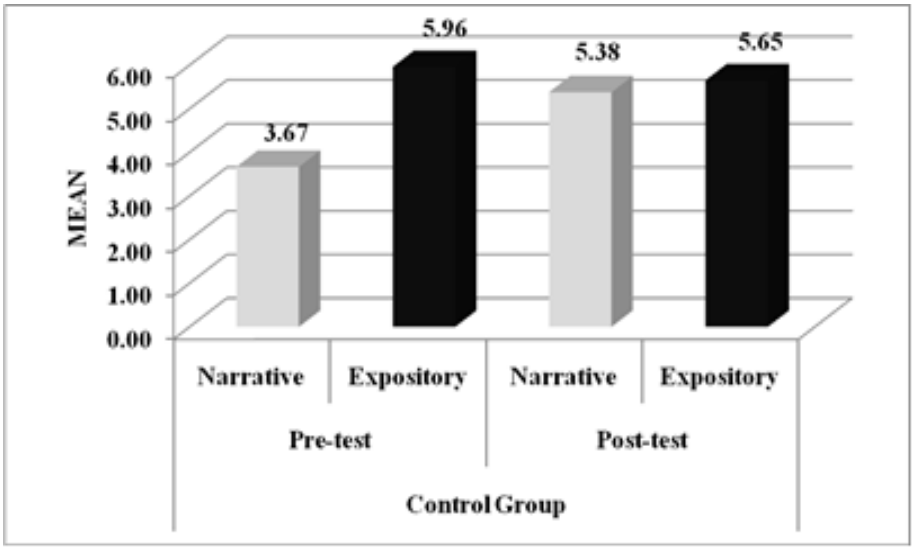

Figure 1: Control Group's Mean Scores on Pre-and Post-tests (Narrative & Expository Reading Tests)

As shown in Figure 1, there is an apparently negligible difference between the expository and narrative reading tests in terms of the obtained mean scores among the control group. Noteworthy is the fact that at the pre-test level, the subjects of the control group achieved mean scores of (3.67) and (5.96) for the narrative and expository reading tests respectively. Yet, at the post-test level, there is a slight increase in the target group' reading performance with a (5.38) as a mean on the narrative reading test. However, the mean score of the expository reading test did decrease from (5.96) to (5.65) across the pre- and post-test. This is ample evidence that the scores relating to this group's reading comprehension tests were somewhat lower.

Indeed, a lack of progress from the pre- to the post-test is evident, namely at the level of the expository reading test. This shows that the possibility of the potential influence of the text type on the learners' reading performance can be, in one way or another, refuted. Nonetheless, given this fact, it is manifest that when comparing the mean scores reached on the pre- and post-expository reading tests (pre-test: M= 5.96; post-test: M= 5.65), it can be stated that the control group did not reflect any major enhancement in terms of reading comprehension performance. Conversely, some improvement was achieved from the pre- to the post-narrative reading test among the same group (pre-test: M= 3.67; post-test: M= 5.38). Thus, it can be observed that the mean score of the expository reading test slightly declined from pre- to post-testing, whereas the mean score of the narrative reading test only slightly increased.

In calculating the global grade of both the pre-test (e.g., narrative, expository) and the post-test (e.g., narrative, expository) and performing a paired samples *t*-test, as a statistical measure, it is clear that no significant, positive improvement did mark the control group subjects' reading achievement gains. The resultant output of the *t*-test conducted is illustrated in the following two tables.

Table 1: Descriptive Statistics on Reading Scores
on Pre-test & Post-test among the Control Group

	Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pre-test	4.8150	50	2.80888	.39724
Post-test	5.5150	50	2.44188	.34533

Table 2: The Paired Samples *t*-test for the Control Group's
Reading Comprehension Outcomes at Pre-testing & Post-testing

	Paired Differences					**t**	**df**	**Sig. (2-tailed)**
	Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
				Lower	**Upper**			
Pretest - Post-test	-.70000	2.79714	.39558	-1.49494	.09494	-1.770	49	.083

P<.05

As manifested above, drawing a comparison between the obtained mean scores of the comparison group at the pre- and post-test levels, it is of particular relevance to state that the mean difference (-.70000) between the paired means yields a t-value of (-1.770) with an insignificant level of (.083). This is explicitly indicative of the fact that the observed difference

across the paired samples of the control group is not of any positive and statistical significance. Indeed, no substantial discrepancy in terms of the reached mean scores was observed among the control subjects from the pre-test to the post-test.

On the whole, it can be indicated that the reading comprehension performance of the group in the control condition does not seem to have increased on a large scale. In plain words, neither increased reading gains in the expository reading test, nor substantial achievement gains in the narrative reading test were reflected among this group across the continuum of the pre- and post-test. Actually, as Figure 1 and tables 1 and 2 above show, the mean scores achieved on the pre-test (narrative and expository) tend to approximate, in a way, those gained on the post-test (narrative and expository) by the control group.

4.2. Experimental Group's Reading Achievement on Pre- & Post-test

As far as the experimental EFL subjects are concerned, they noticeably outperformed the control group in terms of textual processing and reading comprehension performance. The findings illustrating this somewhat sizeable, developmental progress across the pre- and post-testing stages are presented in the figure below.

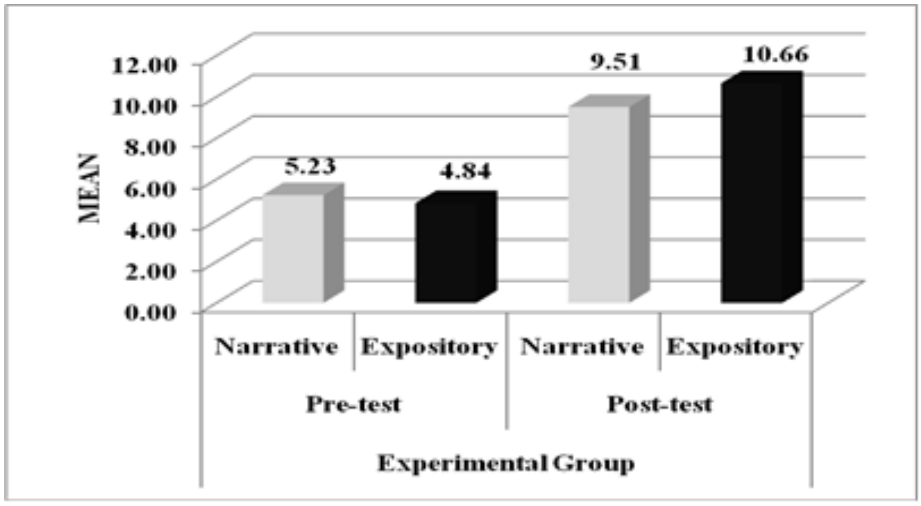

Figure 2: Experimental Group's Mean Scores on
Pre-& Post-tests (Narrative & Expository Reading Tests)

Clearly, explicit instruction in metacognitive monitoring strategies played an increasingly functional role in boosting the experimental group's reading capabilities and enabling them to acquire effective strategic processes for achieving greater performance on the post-test. This can be attested to by the plausible increase in the mean scores of both narrative and expository reading post-tests compared to the means reached by the control group. As revealed in Figure 2 above, the strategy-instructed subjects attained a mean score of 9.51 for the narrative reading test and reached 10.66 as a mean for the expository reading test. Thus, the significant superiority of the treatment group in terms of the reading achievement gains on the post-test was due, it is claimed, to the metacognitive monitoring strategy training to which the experimental group was exposed. More importantly, the higher scores of the post-test did

manifest the progressive development that the group under the treatment condition realized in text processing, content synthesis, and meaning construction.

Furthermore, considering the means of (5.03) and (10.08) as global grades for the pre-test (i.e., narrative, expository) and post-test (i.e., narrative, expository), respectively, the paired samples *t*-test output yielded in light of the comparison between the mean scores of the pre-test and the post-test reveals a marked increase in reading performance gains amongst the experimental group throughout the conducted instructional treatment. The latter did prove to be a potential predictor for the enhancement in textual processing among this target group. The relevant results are presented in the ensuing tables.

Table 3: Descriptive Statistics on Reading Scores on Pre-test & Post-test among the Treatment Group

	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	5.0357	63	2.75727	.34738
Post-test	10.08	63	2.583	.325

Table 4: The Paired Samples *t*-test for the Treatment Group's Reading Comprehension Outcomes at Pre-testing & Post-testing

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre-test - Post-test	-5.04762	2.46011	.30994	-5.66719	-4.42805	-16.286	62	.000

P<.05

The *t*-test outcomes, as expressly indicated above, evince a difference of the paired means (-5.047) with a t-value of (-16.286). The latter is increasingly significant at a level of (.000), which is by no means superior to the set probability value (.05). Thus, the resulting pair-wise comparison is clear-cut evidence of the substantial betterment in the treatment group's reading comprehension gains from the pre-test to the post-test condition. In fact, the marked increase in the strategy-trained group's mean scores backs up the importance of the intervening independent variable, which is embodied in the metacognitive monitoring strategy instruction. What is of equally potential significance is that, given the fact that the experimental group received comprehensive instruction in metacognitive monitoring strategies, their reading achievement drastically increased. In effect, the disparity between the mean scores of the pre- and post-test reveals the fruitful, positive bearing that the strategy training had upon the experimental group's reading potentiality, inferential capabilities, and comprehension-monitoring behaviors. The strategy-oriented intervention disposed the EFL subjects under the experimental condition to acquire the overriding reading 'heuristics' that tremendously facilitated their comprehension while they were engaged in processing the assigned written texts included in the post-test. Hence, the increased betterment in the treatment subjects' performance in text reading was highly and tangibly substantive.

5. Discussion

Conducted within the arena of metacognitive reading, the present study probed into the conceived impact of explicit instruction in metacognitive monitoring strategies (i.e., self-monitoring, self-questioning, rereading) on the first-semester English Department learners' L3 reading comprehension scores. The attained research findings strongly underpin the potentiality of explicit strategy instruction on metacognitive strategic moves in consolidating the EFL learners' monitoring behaviors, attentional control, and self-regulatory steps that assure significant gains at the level of reading comprehension. This was achieved in this experimental study by relying on the method of explicit strategy instruction.

In effect, substantial gains were achieved by the treatment group from the pre-test to the post-test. Specifically, the scores of the narrative reading test did reach the level of statistical significance at the post-test stage. In a comparable way, much greater advancement from the pre-test to the post-test at the level of the expository reading test was also evidenced among the strategy-instructed subjects. This indicates that, due to the lack of exposure to the monitoring strategy instruction and in view of the fact that they were not presented with highly challenging written texts in the reading comprehension course like their counterparts in the experimental group, the control group learners did not develop and improve their reading comprehension performance and text processing competency in an effective way.

Hence, reading strategy instruction is a potentially important instructional method that aims to raise the learners' awareness of the strategies that can be applied to the reading and studying tasks. As claimed by Oxford (1990), awareness-training, which reinforces the learners' metacognitive knowledge of RSs, is referred to as *"a program in which participants become aware of and familiar with the general idea of language learning strategies and the way such strategies can help them accomplish various language tasks"* (p.202). This denotes that strategy training is basically intended to get the learners acquainted with the view that the cognitive process of reading can be efficiently undertaken through the use of strategies. In fact, awareness-training can be delivered in varying ways, such as presenting lectures and conducting discussions, which can heighten the learners' overall awareness of the major meta-level mechanisms that are involved in textual reading.

It is clear that the primary purpose behind the implementation of metacognitive strategy awareness training was to enhance the learners' knowledge of strategic monitoring moves. This can enable EFL learners to formulate the basic idea that RSs are crucial techniques which facilitate text understanding. According to Cohen (1998), strategy training *"could be characterized as a 'wake-up call' to learners"* (p.75) in that the development of an active potential of processing the written text is likely to take place. Being informed about the critical importance and the diverse kinds of RSs, as a form of strategic awareness instruction, EFL learners can foster the ability to select the strategies that suit a given reading task and monitor their progress in text processing. Thus, instructing learners to be metacognitively conscious of RSs constitutes an authentic essential in the process of strategy-based awareness-training.

It is postulated that monitoring strategy knowledge, strategy use, and reading performance form the robust continuum along which EFL readers can undertake textual analysis and synthesis in an efficient way. Providing that the EFL learners are knowledgeable about a broad series of effective monitoring reading 'tactics' and familiar with their application to a diversity of written texts (e.g., narrative, expository), their text-processing performance can be elevated to a more sophisticated level. This accounts for the perceived correlation that bonds the above-cited elements (strategy knowledge, strategy use, and reading performance) as a whole entity. Therefore, instruction in metacognitive monitoring strategies did benefit the target EFL learners in gaining an accumulated knowledge of comprehension-checking techniques (i.e., self-monitoring, self-questioning, rereading), which are part and parcel of attaining high-quality comprehension of the content. It is via the conducted semester-long strategy training that the treatment of EFL learners' reading readiness was reinforced and that their monitoring heuristics and metacognitive abilities relative to text study were enhanced. Under this perspective, the procedure of initiating the EFL learners into the core metacognitive reading strategies (MRSs), namely self-monitoring, self-questioning, and rereading, can be viewed of prime importance so long as it guarantees an efficient grasp of the author's/writer's implied textual meaning.

However, the point worth investigating is the actual existence of multi-level EFL student-readers among the experimental and control groups of this study. This multiplicity in and diversity of reading-ability levels among the targeted subjects could not rule out the probability that reading strategy instruction (RSI) had an influential, positive impact on their monitoring accuracy and reading performance. To further illustrate, the strategy-trained EFL learners who were of somewhat advanced level and intermediate level did foster thorough insights into the 'intricacies' of reading strategy application, which, in turn, maximized their reading potentiality in interpreting the included content more efficiently. In fact, low achievers, who got low grades in the reading comprehension tests (e.g., narrative, expository) at pre-testing, exhibited a certain quality improvement as to text processing and meaning construction. Further, high-achieving EFL learners, though they maintained their text-analysis abilities and unconsciously tapped a range of cognitive reading strategies (i.e., predicting, inferring, main ideas selection, visualizing, underlining, note taking, and paraphrasing), did internalize the metacognitive monitoring strategies under focus (e.g., self-monitoring, self-questioning, rereading) which assisted them to upgrade their reading comprehension performance at post-testing.

The process of instructing EFL learners in comprehension monitoring strategies resulted in the development of reading competency, which is predicated on the broadening of 'declarative', 'procedural', and 'conditional' knowledge among the experimental subjects. In effect, conceptually knowing 'what' strategies to use in the course of textual reading, developing utter awareness as to 'how' to implement them throughout text processing, and getting accustomed to 'when' and 'why' to apply the text-related 'heuristics' are the key components underpinning the variable of reading strategy training. Through exposure to these steps that enable effectual text comprehension, EFL learners can consolidate their monitoring capacity to reflectively and analytically make sense of what is encompassed within the frame of any written discourse. Thus, the present study findings pertaining to the role of explicit comprehension-

monitoring strategy instruction in enhancing the learners' reading achievement are in complete accord with the outcomes of previous research studies (e.g., Boulware-Gooden *et al.*, 2007; Baumann *et al.*, 1992; Dugassa *et al.*, 2022; Edossa *et al.*, 2023; Fan, 2010; Huff & Nietfield, 2009; Nietfield & Schraw, 2002; Nist & Holschuh, 2000; Taraban *et al.*, 2004). Through the conduct of their empirical studies, these established researchers concluded that the improvement of the learners' inferential ability and reading potential is attributed to the provision of an explicitness-based reading strategy instruction (RSI).

6. Conclusions, Implications & Limitations

The present research study set out to showcase the effect of monitoring strategy instruction on the Moroccan EFL university learners' reading comprehension outcomes in English (L3). The sampled EFL learners were provided with instruction in metacognitive monitoring 'heuristics' (i.e., self-monitoring, self-questioning, rereading) to better enhance their L3 reading achievement. Indeed, the reached findings substantiate that the possession of metacognitive knowledge of strategies, the adoption of metacognitive experience in text processing as well as the acquisition of metacognitive monitoring moves through the instructional intervention enabled the learners in the experimental condition to comprehend the textual content in an efficient way, and thus gaining higher reading comprehension scores compared to their counterparts in the control condition.

It is noteworthy that the deployment of the monitoring reading 'heuristics', as the basic tenets of metacognition and self-regulation, can be substantially contributive to facilitating the way of interpreting and comprehending the underlying message encompassed in the L3 written discourse. That is, the unraveling of what the writer/author intends to convey is largely dependent on the extent to which EFL learners make use of cognitive and metacognitive reading strategies (CMRSs) (Msaddek, 2015). Clearly, representing both 'lower-order' and 'higher-order' processing steps respectively, these two cited kinds of RSs (i.e., cognitive, metacognitive) can assist the learners to reach a certain amount of reading competence and effectiveness. Therefore, it is supposed that, if learners are provided with an extensive training in metacognitive monitoring strategies (self-monitoring, self-questioning, and rereading), which are the central foci of the underlying metacognitive theory, it is likely that they will perform the reading task in an exceedingly successful manner. Plainly, the role of metacognitive strategies can be accorded an invaluable significance in enabling learners to critically approach the content of any given text, and thus achieving positive reading scores.

It seems logical, then, to maintain the view that training the student-readers in comprehension-monitoring 'heuristics' can, to a certain extent, expand their metacognitive knowledge which, in itself, allows them to engage and interact more fully with the textual input. This manifests that self-monitoring, self-questioning, and rereading entail metacognitive control, self-regulation, and reasonable reflection for optimally taking charge of the cognitive process of reading. It is unlikely, indeed, based on the reached findings of the conducted experiment, that EFL learners will be strategic, reflective readers unless they are presented not

only with a critical overview of the metacognitive monitoring strategies used in regulating and checking their comprehension of the textual message, but also with sustained practice in these strategies across the different texts which are characterized by greater difficulty, for difficult texts provide learners with a platform for utilizing and adjusting the text-related strategic processes more accordingly (Duke *et al*., 2011; Magliano *et al*., 2005).

It is implied that Moroccan first-semester English Department learners be exposed to thorough, systematic instruction in metacognitive monitoring strategies in the Reading Comprehension Course. In light of the research findings, Moroccan EFL learners should be trained in the meaning-checking process while being involved in the critical analysis and reasoned synthesis of the reading comprehension texts. Given that most Moroccan EFL first-semester university readers possess an adequate amount of lexical input and self-monitor the written texts by rereading some sentences and engaging in slow reading, their strategic reading behaviors as well as their monitoring capacities are typified by inefficiency. In fact, inaccuracy in the process of comprehension-tracking and ineffectiveness in deciphering the author's/ writer's intended and unintended premises, views, and speculations were attributable to the lack of engagement in self-questioning and the infrequent text reprocessing. Hence, instructing EFL learners in self-monitoring, self-questioning, and rereading, which optimally facilitate higher-order, inferential reading comprehension to substantive degrees, can heighten their meta-strategic awareness, initiate them in an enquiry-driven reading, and enable them to assume responsibility for performing textual reading in an efficacy-based mode.

Overall, despite the richness and positiveness of the attained findings relative to the dynamic interplay between the monitoring reading strategy instruction and the EFL learners' reading comprehension scores, a couple of limitations can be acknowledged. One limitation is that the undertaken quasi-experimental study could have addressed other EFL first-semester student-readers belonging to different Faculties of Letters and Human Sciences across differing geographical areas in Morocco. This could, to an extent, guarantee a great measure of generalisability of the attained research outcomes. However, delimiting this experimentally-based case study to the EFL student-readers studying at the Faculty of Letters and Human Sciences in Rabat was of tremendous advantage on the grounds that this Moroccan prestigious higher education institution receives students from different parts of Morocco.

The other limitation was apparently correlated with the lack of synchronization with regard to the administration of the pre-test and post-test to the target EFL groups (control and experimental) throughout the instructional intervention. To illustrate, the control subjects were pre-tested one week after the experimental group took the pre-test. This, indeed, was due to the difficulty which the researcher did encounter in finding the class that would serve as the control group. Likewise, at post-testing, whereas the treatment subjects were post-tested at the end of the semester, the control participants were assigned the post-treatment reading comprehension test until the outset of the Spring Semester (2012-2013). This was, again, traceable to the fact that the control group was not available on the grounds that the first-semester exams neared and this required from the subjects to get prepared for the forthcoming examinations. Nevertheless, this stated limitation did not rule out the seeming possibility of proving the positive advantage of

the reading strategy instruction among the strategy intervention group as far as the reading achievement scores are concerned.

Conflict of Interest Statement

The author declares no conflicts of interest.

About the Author(s)

Mohammed Msaddek is an Associate Professor at the Faculty of Letters and Human Sciences-Mohammedia, Hassan II University, Casablanca. He obtained his PhD on the perceived impact of explicit instruction in cognitive and metacognitive reading strategies on Moroccan EFL university learners' strategy use and reading comprehension scores from Mohamed V University, Rabat, in 2015. His current research interests encompass cognitive and educational psychology, first/ second language acquisition, teaching methods/ approaches, neurolinguistics, metalinguistics, psycholinguistics, metacognition/ metacognitive thinking, metacognitive reading, self-regulated learning, and metacognitive learning strategies.

References

Alderson, J. C. (2000). *Assessing reading*. Cambridge: Cambridge University Press.

Amini, M., Zahabi, A., Amini, D., & Hosseini, S. S. A. (2020). A review of reading strategies and models in learning and teaching of English as a foreign language. *AJELP: Asian Journal of English Language and Pedagogy*, *8*(2), 14-26. https://doi.org/10.37134/ajelp.vol8.2.2.2020

Anderson, N. J. (2002). The role of metacognition in second/foreign language teaching and learning. ERIC Digest. *ERIC Clearinghouse on Languages and Linguistics*. https://www.cal.org/ericcll/digest/0110anderson.html

Baker, L., & Brown, A. L. (1984). Cognitive monitoring in reading. In J. Flood (Ed.), *Understanding reading comprehension* (pp. 21-44). Newark, DE: International Reading Association.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 129.

Barnett, M.A. (1989). *More than meets the eye: Foreign language reading theory and practice*. New York: Prentice Hall.

Baumann, J. F., Seifert-Kessell, N., & Jones, L. A. (1992). Effect of think-aloud instruction on elementary students' comprehension monitoring abilities. *Journal of Reading Behavior*, *24*(2), 143–172. https://doi:10.1080/10862969209547770

Block, E. (1986). The comprehension strategies of second language readers. *TESOL Quarterly*, *20*(3), 463-494. https://doi.org/10.2307/3586295

Boulware-Gooden, R., Carreker, S., Thornhill, A., & Joshi, R. M. (2007). Instruction of metacognitive strategies enhances reading comprehension and vocabulary achievement of third-grade students. *The Reading Teacher*, *61* (1), 70-77.

Brown, A. L. (1981). Metacognition: The development of selective attention strategies for learning from texts. In M. L. Kamil (Ed.), *Directions in reading: Research and instruction* (pp. 501-529). Washington, D.C.: National Reading Conference.

Carnine, D. W., Silbert, J., Kame'enui, E. J., & Tarver, S. G. (2004). *Direct instruction in reading* (4th ed.). Upper Saddle River, New Jersey: Pearson-Prentice Hall.

Carrell, P. L. (1983). Three components of background knowledge in reading comprehension. *Language Learning*, *33* (2), 183-203. https://doi:10.1111/j.1467-1770.1983.tb00534.x.

Carrell, P. L. (1984). Schema theory and ESL reading: Classroom implications and applications. *The Modern Language Journal*, *68*(4), 332-343. http://dx.doi.org/10.1111/j.15404781.1984.tb02509

Casanave, C. P. (1988). Comprehension monitoring in ESL reading: A neglected essential. *TESOL Quarterly*, *22*(2), 283-302. https://doi.org/10.2307/3586937

Clay, M. M. (1991). *Becoming literate: The construction of inner control*. Portsmouth, NH, Heinemann

Cohen, A. D. (1998). *Strategies in learning and using a second language*. New York: Longman.

Collins, A. & Smith, E. E. (1980). *Teaching the process of reading comprehension*. Illinois: Bolt Beranek and Newman Inc.

Conway, A. R. A., Moore, A. B., & Kane, M. J. (2009). Recent trends in the cognitive neuroscience of working memory. *Cortex*, *45* (2), 262-268. https://doi:10.1016/j.cortex.2008.05.006

Davies, F. (1995). *Introducing reading*. London: Penguin Group.

Dole, J. A., Duffy, G. G., Roehler, L. R., & Pearson, P. D. (1991). Moving from the old to the new: Research on reading comprehension instruction. *Review of Educational Research*, *61* (2) 239-264.

Dowhower, S., L. (1989). Repeated reading: Research into practice. *The Reading Teacher*, *42* (7), 502-507.

Duffy, G. G. (2003). *Explaining reading: A resource for teaching concepts, skills, and strategies*. New York: Guilford Press

Dugassa, G., Olana, T., & Ali, S. (2022). Effects of explicit reading strategy instruction on grade 9 students' achievement in reading comprehension. *Educational Research International*, *2022*, 1-13. https://doi:10.1155/2022/7872840

Duke, N. K., & Pearson, P. D. (2002). Effective practices for developing reading comprehension. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (3rd ed., pp. 205-242). Newark, DE: International Reading Association.

Duke, N. K., Pearson, P. D., Strachan, S. L., & Billman, A. K. (2011). Essential elements of fostering and teaching reading comprehension. In S.J. Samuels, & A.E. Farstrup (Eds.), *What research has to say about reading instruction* (4th ed., pp. 51-93). Newark, DE: International Reading Association.

Edossa, A. K., Lockl, K., & Weinert, S. (2023). Developmental relationship between metacognitive monitoring and reading comprehension. *Journal of Educational and Developmental Psychology*, *13* (1), 1-16. Canadian Center of Science and Education. https://doi:10.5539/jedp.v13n1p1.

Fan, Y. C. (2010). The effect of comprehension strategy instruction on EFL learners' reading comprehension. *Asian Social Science*, *6* (8), 19-29. https://doi:10.5539/ass.v6n8p19

Flavell, J. H. (1971). First discussant's comments: What is memory development the development of? *Human Development*, *14*(4), 272-278. https://doi.org/10.1159/000271221

Flavell, J. H. (1981). Cognitive Monitoring. In W. P. Dickson (Ed.), *Children's oral communication skills*. New York: Academic Press.

Garner, R. (1987). *Metacognition and reading comprehension*. Norwood, New Jersey: Ablex

Giladi, A., Koslowsky, M., & Davidovitch, N. (2022). Effort as a mediator of the relationship between English learning self-efficacy and reading comprehension performance in the EFL field: A longitudinal study. *International Journal of Higher Education*, *11* (1), 114-125. https://doi:10.5430/ijhe.v11n1p114

Gough, P. B. (1976). One second of reading. In H. Singer & R.P. Ruddell (Eds.), *Theoretical models and processes of reading* (2nd ed., pp. 509-535). Newark, DE: International Reading Association

Huff, J. D., & Nietfeld, J. L. (2009). Using strategy instruction and confidence judgments to improve metacognitive monitoring. *Metacognition and Learning*, *4* (2), 161-176.

Joseph, L. M. (2005). The role of self-monitoring in literacy learning. In S.E. Israel, C.C. Block, K.L. Bouserman, & K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning: Theory, assessment, instruction and professional development* (pp. 199-214). London: Lawrence Erlbaum Associates, Publishers.

Kim, M. (2022). Exploring literal and inferential reading comprehension among L2 adolescent learners: The roles of working memory capacity, syllogistic inference, and L2 linguistic knowledge. *Reading and Writing*, *36* (2), 1-26. https://doi.org/10.1007/s11145-022-10320-3

Lin, Z. (2002). Discovering EFL learners' perception of prior knowledge and its roles in reading comprehension. *Journal of Research in Reading*, *25*(2), 172-190.

Magliano, J., P., Todaro, S., Millis, K., Wiemer-Hastings, K., Kim, H., J., McNamara, D., S. (2005). Changes in reading strategies as a function of reading training: A comparison of live and computerized training. *Journal of Educational Computing Research*, *32* (2), 185-208.

Msaddek, M. (2013). The role of metacognitive thinking in text processing. In A. Zaki, M. Najbi, & A. Chaibi (Eds.), *Critical Thinking Skills in English Language Education: Proceedings of the 32nd Moroccan Association of Teachers of English Annual Conference Oujda, April 9 through 12, 2012* (pp. 41-46). Oujda: Publication of the Moroccan Association of Teachers of English (MATE). Printed by Safahate Design, Béni Mellal. Dépôt légal: 2013 M0 0221. ISBN: 978-9981-9537-3-4

Msaddek, M. (2015). *Moroccan EFL Students' Learning of Cognitive and Metacognitive Reading Strategies: Rabat FLHS Semester One Students as a Case Study* (Unpublished Doctoral Dissertation). Faculty of Letters and Human Sciences, Mohamed V University, Rabat, Morocco.

Msaddek, M. (2016). The impact of metacognitive strategy training on comprehension monitoring among Moroccan EFL university learners. *Arab World English Journal (AWEJ)*, *7*(4), 139-154. https://doi.org/10.24093/awej/vol7no4

Msaddek, M. (2020). The incorporation of self-questioning training in the reading comprehension course: The case of Moroccan EFL university learners. *Studies in Literature and Language*, *20* (3), 6-12. http://dx.doi.org/10.3968/11754

Muche, T., Simegn, B., & Shiferie, K. (2023). Self-efficacy and metacognitive strategy use in reading comprehension: EFL learners' perspectives. *The Asia-Pacific Education Researcher*, *33*(1), 219–227. https://doi.org/10.1007/s40299-023-00721-5

Nietfeld, J., & Schraw, G. (2002). The effect of knowledge and strategy training on monitoring accuracy. *The Journal of Educational Research*, *95* (3), 131–142. https://doi:10.1080/00220670209596583

Nist, S., & Holschuh, J. L. (2000). Comprehension strategies at the college level. In R. F. Flippo & D. C. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 75-104). Longman: Lawrence Erlbaum Associates

Nolan, T. E. (1991). Self-questioning and prediction: Combining metacognitive strategies. *Journal of Reading*, *35* (2), 132-138.

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Boston, Massachusetts: Heinle & Heinle Publishers.

Paris, S. G., & Myers, M. (1981). Comprehension monitoring, memory, and study strategies of good and poor readers. *Journal of Reading Behaviour*, *13*(1), 5-22. https://doi.org/10.1080/10862968109547390

Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 545–561). Mahwah, NJ: Erlbaum.

Rayner, K. (1978). Eye movements in reading and information processing. *Psychological Bulletin*, *85*(3), 618-660. https://doi.org/10.1037/0033-2909.85.3.618

Reid, R., & Lienemann, T. O. (2006). *Strategy instruction for students with learning disabilities*. New York & London: The Guilford Press.

Rumelhart, D. E. (1980). *Schemata: The building blocks of cognition*. New Jersey: Erlbaum.

Schmitt, M. C., & Newby, T. J. (1986). Metacognition: Relevance to instructional design. *Journal of Instructional Development*, *9*(4), 29-33. https://doi.org/10.1007/BF02908316

Taraban, R., Kerr, M., & Rynearson, K. (2004). Analytic and pragmatic factors in college students' metacognitive reading strategies. *Reading Psychology*, *25*, 67-81.

Turkeltaub, P. E., Gareau, L., Flowers, D. L., Zeffiro, T. A., & Eden, G. F. (2003). Development of neural mechanisms for reading. *Nature Neuroscience*, *6*(7), 767–773. https://doi.org/10.1038/nn1065

Veenman, M. V. J., Van Hout-Wolters, B. H. A. M., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, *1* (1), 3-14. https://doi.org/10.1007/s11409-006-6893-0

Wang, C., Schwab, G., Fenn, P., & Chang, M. (2013). Self-efficacy and self-regulated learning strategies for English language learners: Comparison between Chinese and German college students. *Journal of Educational and Developmental Psychology*, *3*(1), 173-191. https://doi.org/10.5539/jedp.v3n1p173

Williams, E. (1984). *Reading in the language classroom*. London: Macmillan Publishers Ltd.

Zhang, L. J. (2002). Exploring EFL reading as a metacognitive experience: Reader awareness and reading performance. *Asian Journal of English Language Teaching*, *12*, 69-94.

Zhou, J. & Day, R. R. (2023). Establishing an extensive reading program in a Chinese as a foreign language context. *Reading in a Foreign Language*, *35* (2), 222-246. https://hdl.handle.net/10125/67448