

The Effect of Metacognitive Strategy Instruction on Moroccan EFL Learners' Strategy Use and Reading Achievement

Mohammed Msaddek

Regional Academy for Education and Training (Rabat- Salé)
Delegation of Salé, Morocco

Abstract

The intent of this quasi-experimental study is to investigate the impact of explicit metacognitive reading strategy instruction (RSI) on Moroccan English as a foreign language (EFL) university learners' strategy use and reading achievement. It reflects whether this sort of instruction can make of learners strategic and critical readers. In this regard, a pre-post-test design involving the administration of reading comprehension pre- and post-tests to both the control and the treatment group was used. Two research questions were addressed: To what extent does explicit metacognitive reading strategy instruction influence Moroccan EFL university learners' strategy usage? To what extent does explicit instruction in metacognitive reading strategies impact Moroccan EFL university learners' reading achievement gains? A total of 113 participants were targeted in an attempt to reveal the perceived correlation existing among the variables of strategy training, strategy use and reading achievement. The elicited data were collected by means of the reading comprehension texts, 'self-report questionnaire' and reading comprehension tests (e.g., pre-test, post-test). The findings unveiled that, through exposure to reading strategy training, as an effective medium of enhancing the learners' reading potential, the experimental group (N=63) reflected a more significant improvement at the level of strategy usage and reading performance than their counterpart, the control group (N=50), did at post-testing. Finally, the study concludes with some recommendations relatable to pedagogy and research.

Keywords: *metacognition, reading achievement, reading strategy instruction, strategy use*

Cite as : Msaddek, M. (2016) The Effect of Metacognitive Strategy Instruction on Moroccan EFL Learners' Strategy Use and Reading Achievemem. *Arab World English Journal*, 7 (3).

DOI:<https://dx.doi.org/10.24093/awej/vol7no3.21>

Introduction

The cognitive approach, as noted by Samuels (1983), has had a great impact on the reading act. In fact, with the advent of this approach in the sixties, reading has been deemed as a “perceptual and cognitive process” (Rumelhart, 1977, p.573) in which readers, as active, dynamic learners, are highly expected to make use of a wide repertory of strategies for achieving an efficient understanding of the written input. This cognitive approach, an alternative type to the ‘behaviourist’ one, places much emphasis on the thinking processes and mental mechanisms and puts forth a broader view of reading by typically characterizing it as a “process in which knowledge held by the reader interacts with textual information in the construction of meaning” (Dole, et al., 1991, p.249).

Given both the complexity of conducting the cognitive act of reading among English as a foreign language (EFL) university learners and their exposure to a large body of written discourse throughout their academic studies, it is evident that reading strategy instruction can contribute to reading development. Basically, though learners possess some basic reading skills and capabilities to understand the incorporated content, they seemingly lack awareness and sufficient use of the efficient reading strategies. In other words, most of the written discourse dealt with at the university level requires, at times, a sophisticated kind of critical, effective reading on the part of the EFL learners. In effect, it is the proper use of reading ‘tactics’ that can guarantee for learners an efficient way of approaching a given text, and thus accomplishing the positive outcomes (Huang, Chern, & Lin, 2009).

Further, most EFL learners tend to process and synthesize any written discourse by resorting to more cognitive than metacognitive strategies (MSs) for the attainment of effective comprehension. This has been substantiated and reported by many researchers (e.g., Tabataba’ian & Zabihi, 2011) who claim that EFL learners reflect insufficient reliance on metacognitive strategic moves during the act of reading. It is deduced, indeed, that learners lack some reading efficiency and proficiency as to coping with EFL written texts. Thus, the present study seeks to address this issue in its entirety by providing a sample of Moroccan EFL first-semester university learners with a comprehensive instruction in a repertoire of reading strategies (i.e., cognitive, metacognitive) in approaching textual input with the hope of improving their reading achievement.

Metacognitive Theory

The term metacognition, as a process of conceptual and critical thinking, dates back to the period of the seventies and eighties in which Flavell (1976) focuses on the study of human memory. It apparently reflects an awareness of the mental processes and strategies required for performing any cognitive endeavour (Schmitt & Newby, 1986). It is the potential capability of the learner to think critically and methodically in the act of coping with a given cognitive task (e.g., textual reading). This reveals that it is through metacognitive thinking and reflection that learners can shape and direct the course that they undertake in analyzing and processing the written discourse for attaining an optimal comprehension.

Two major interrelated constituents, as stated by many researchers (e.g., Schmitt & Newby, 1986), underlie the concept of metacognition. They are manifested in knowledge of cognition and regulation of cognition. The first component “is concerned with what a person knows about cognitive abilities, processes, and resources in relation to the performance of

specific cognitive tasks” (Lester & Garafalo, 1985, p.164), whereas the second component, regulation of cognition, pertains to the regulatory procedures used to cope with the comprehension process during reading (Griffith & Ruan, 2005). These two metacognitive constituents play an indispensable role in enabling an effective conduct of textual processing .

Further, in seeking to differentiate between cognition and metacognition, Garner (1987) maintains that “if cognition involves perceiving, understanding, remembering, and so forth, then meta-cognition involves thinking about one’s own perceiving, understanding and the rest” (p.16). This, in effect, reflects that metacognition assists readers, as potential learners, to regulate their thinking processes and engage in self-control with the primary purpose of achieving successful performance in a particular cognitive task. It is a process of ‘thinking about thinking’ with a view to facilitating the act of learning and understanding.

Metacognitive Reading Strategies

As claimed by Lawrence (2007), metacognitive strategies (MSs) involve self-reflection and thinking about reading. This demonstrates that the use of this type of strategic ‘heuristics’ by EFL learners can enable them to comprehend what the writer/author intends to convey in the text. Granted that cognitive strategies can facilitate the process of tackling learning tasks (i.e., reading), MSs are deemed as “actions which go beyond purely cognitive devices and which provide a way for learners to coordinate their own learning process” (Oxford, 1990, p.136). Indeed, learners make use of MSs with the intent of ensuring that text comprehension is sufficiently attained. These strategies allow learners to assess their cognitive progress while being engaged in the process of text reading. By utilizing MSs, learners can define the goals of the assigned task, question the intended meaning, monitor their ongoing understanding and evaluate their mastery of the overall content under study.

In essence, it can be pointed out that MSs can be classified into planning, monitoring and evaluating. These three major steps formulate the solid baseline for reaching an adequate understanding of the core text content. Clearly, implementing MSs requires learners to be more ‘self-regulated’ and ‘self-directed’ in an attempt to effectively undertake the reading process. This is illustrated in what follows.

-Planning: refers “to the cognitive processes that function to control information processing or task performance from the outset” (Schmitt & Newby, 1986, p.30). As an efficient metacognitive strategic move allowing learners to organize the way of tackling a given task, planning is viewed as a solid foundation upon which the reading process is predicated. It is through planning that learners pinpoint the major goals and define the strategies that are to be used to achieve a sufficient understanding.

-Monitoring: “aids students in keeping track of ongoing cognitive processes and using regulatory strategies to solve problems” (Nietfeld et al., 2005, p.9). It significantly assists learners not only to check their understanding of the text’s content, but also to tackle the reading task with greater effectiveness and more accurate efficiency.

-Evaluating: constitutes a paramount strategy via which learners metacognitively and critically reflect upon the processes of planning and monitoring that are involved in tackling different

academic reading tasks. Indeed, this strategy enables EFL readers to measure the extent to which the comprehension process is attained.

Thus, it is assumed that MSs occupy a great part in making the reading process more successful and efficient at the level of content analysis, meaning synthesis and comprehension construction. The usage of this typology of strategies in concert with cognitive strategies by learners predicts an efficient reading achievement. This can be put into effect through the procedure of reading strategy instruction.

Reading Strategy Instruction (RSI): Importance & Typologies

RSI can be an indispensable requisite that assists learners to adopt and apply the most effective strategies while coping with written texts. This has been proven by a large corpus of studies reflecting that instruction in comprehension strategies is effective in helping students learn strategies and improve their reading ability (Swason, 1989; Kern, 1989; Williams, 2007). In fact, RSI helps learners to be aware of the process of conducting an efficient reading in which they critically think and reflect upon the text content. This critical thinking and reflection implemented by readers can be incarnated in their planning how to approach the text under analysis, monitoring comprehension and evaluating the conducted reading process. Thus, it can be claimed that, upon receiving training in reading strategies, learners can be “purposeful, thoughtful, and reflective about the reading process” (Dole, et al., 1996, p.66).

Notably, training EFL learners in the use of reading strategies can be performed through diverse instructional approaches. The latter, given their tremendous worth and higher significance in any academic context, are likely to enable learners to be potentially dynamic participants in the process of making sense of written materials. In effect, there is a wide variety of approaches pertaining to RSI. However, some of them have proved to be worthwhile in that they can improve the student-readers’ way of handling the text content in various ways and to differential degrees.

To start with, explicit strategy instruction (ESI) is an effective approach of directly instructing learners in the use of (meta) cognitive reading strategies. A number of researchers (e.g., Derry & Murphy 1986; Jones et al. 1987) grant strong support to the prime importance of this kind of instruction. They state that strategies should be taught separately and explicitly in order to increase the readers’ metacognitive knowledge. Thus, raising the EFL learners’ overall awareness of the reading strategies can be a foundational principle that sturdily underlies ESI. This evinces that explicit training in the use of strategies is of utmost import in that it assists EFL learners, in their endeavour to comprehend the text input, to plan, direct, monitor and evaluate the course of undertaking the reading process.

Implicit strategy instruction (ISI), another instructional approach, is conceptualized as an effective way of implicitly teaching learners a series of potential strategies. This type of training is also referred to as ‘embedded instruction’ (O’Malley & Chamot, 1990) or ‘blind training’ (Cohen, 1998) because learners can internalize the target strategies that aid in the act of text comprehension without being aware of the strategy application process. This reflects the basic view that an implicitness-oriented instruction helps learners utilize reading strategies in a spontaneous, unplanned manner. Yet, Brown et al. (1986) admit that ‘embedded’ instruction does not allow learners to maintain the learnt strategies and apply them to other new tasks. In

other terms, it is assumed that, unlike ESI, ISI cannot assist the learners to further develop and strengthen their metacognitive knowledge as regards strategy use.

Reciprocal teaching (RT), as an alternative type of strategy training, essentially aims at teaching learners reading comprehension strategies in an interactive way. It was developed by Palincsar & Brown (1984) with a view to improving the learners' techniques in understanding the written text. In implementing the instructional approach of reciprocal teaching, the 'expert' reader (instructor) can perform many strategic steps that are intended to enhance the 'novice' readers' abilities in processing any written discourse. These underlying steps are manifested in (a) making predictions about the text by eliciting them from novice learners, (b) asking questions in the course of reading the text, (c) leading efforts to seek clarifications, especially when learners find some difficulties in comprehending text sections and (d) leading the construction of a text summary after reading (Pressley, et al., 1992). This, in fact, encourages learners to take an active part in the reading process.

In this undertaken empirical study, explicit strategy instruction was opted for by the researcher as an effective means to the end goal of enabling the target subjects to internalize and put into play the metacognitive strategies (MSs) while being exposed to textual input. Thus, it is assumed that the adoption of this type of instruction (ESI) is highly likely to assist learners to be both 'self-directed' in terms of the use of strategic moves and successful at the level of reading performance. In this respect, the findings of this conducted experiment will attempt to support this postulated claim.

Experimental Studies on Strategy Instruction

It is posited that a substantial amount of experimental studies have been undertaken by many reading researchers (e.g., Carrell, et al., 1989; Boulware-Gooden, et al., 2007) with the objective of instructing learners in the deployment of some reading strategies. These experiment-based studies were intended not only to raise the learners' awareness of the crucial strategic mechanisms that facilitate the comprehension of the written discourse, but also to enable the learners to approach the content in an efficient, constructive manner.

For instance, Kern (1989) undertook a training study in which intermediate French students, as L2 readers, were directly instructed in reading comprehension and meaning inferring. Fifty-three subjects took part in this study. The treatment group consisted of twenty-six students and the control group was twenty-seven. They were both assigned a pre-test prior to the strategy training process. Then, the treatment subjects were instructed in word analysis (e.g., cognates, prefixes, suffixes, orthographic cues), sentence analysis (e.g., cohesive devices, sentence cohesion), discourse analysis (e.g., inferring meaning from context, forming hypotheses, questioning) and reading for specific purposes (e.g., skimming for the main idea, scanning for a specific detail). The findings of the post-test showed, by virtue of the conducted strategy training, that the experimental group considerably improved in terms of text comprehension and meaning inferring.

From a different angle, Carrell, et al. (1989) conducted an instructional study in which they focused on training FL students in the use of two MSs: 'semantic mapping' and 'experience-text-relationship'. The subjects consisted of twenty-six students. They were divided into an experimental and a control group. Prior to receiving the instruction, both groups were assigned a pre-test with a view to measuring the students' differences in terms of reading

abilities. The first metacognitive strategy, 'semantic mapping', was taught to students by activating their schemata to enable them to understand the text under analysis. Concerning the second strategy, 'experience-text-relationship', it includes three steps: the experience step (subjects' knowledge of text content), the text step (the subjects' exposure to text reading) and the relationship step (the linkage of text content to prior knowledge). To reveal the extent to which the instruction had a positive effect on the experimental group, Carrell, et al. (1989) administered a post-test to both groups. The findings unveiled that the experimental group outperformed the controls at the level of the post-test score.

Lauterbach & Bender (1995) undertook an experimental treatment with three students who were identified as being deficient in reading skills and abilities. The main impetus for this experiment was to enhance the target subjects' paraphrasing techniques and increase their reading comprehension. The subjects were instructed in paraphrasing the main ideas and supporting details included in texts. They were exposed to the significance of paraphrasing, how and where it should be utilized and the basic steps that ought to be pursued. Then, after the target strategy is extensively modeled, the subjects were encouraged to paraphrase some assigned paragraphs. The findings revealed that the subjects reflected an increased improvement both in paraphrasing use and in textual comprehension.

Boulware-Gooden, et al. (2007) conducted an experimental study with third-grade students. The rationale behind this study was to instruct the subjects in some metacognitive reading strategies in order to improve their comprehension of written texts. The subjects included 119 students who belong to two different academic settings. In the experimental setting, the subjects, after being pre-tested, were assigned some expository passages and instructed in background knowledge building, vocabulary items, thinking aloud, summarizing and questioning. In the control setting, the subjects were pre-tested and not instructed in these variables. Afterwards, a post-test was administered to test the students' developmental progress as to vocabulary acquisition and reading improvement. The results revealed that the experimental group outperformed the control one at the level of reading comprehension.

Rahmani & Sadeghi (2011) carried out a study in which Iranian EFL learners were trained in note taking while processing written texts. The subjects were made up of 108 intermediate undergraduate students. The experimental group, consisting of 48 students, was instructed in how to take notes via graphic organizers, whereas the control group, including 60 students, did not receive any training. The treatment lasted for eight sessions during which the instructors enlightened the learners about the significance of note taking. Then, they were assigned the written text and asked to locate the important ideas via underlining, or using symbols. At the end of the experiment, both groups were given a post-test and asked to take notes in order to answer the comprehension questions. One month later, the same reading texts were assigned and it was found that the treatment group outperformed the controls in terms of ideas retention, question answering and content comprehension.

These reported experiments were conducted by reading researchers who endeavoured to inculcate learners with some effectual strategies that develop the reading ability and enhance the comprehension process amongst learners. In view of this, and based on the instructional design adopted by some of these training studies, the current study attempts to instruct a sampled group of EFL university learners in a repertory of cognitive/metacognitive strategies in approaching written texts for a semester-long period (14 weeks).

Research Objectives & Questions

The current quasi-experimental study has a two-fold purpose. It uncovers the impact of explicit reading strategy instruction (RSI) on Moroccan EFL university students' strategy use during textual reading. As a second purpose, the study seeks to reveal whether EFL learners' reading achievement gains can be improved through exposure to RSI. In this sense, for the sake of eliciting quantitative and qualitative data, a range of research instruments were employed by the researcher: Reading comprehension tests, 'self-report questionnaire' and strategy training. Thus, the following two research questions were brought forward:

- a- To what extent does explicit instruction in metacognitive reading strategies influence Moroccan EFL university students' strategy usage?
- b- To what extent does explicit instruction in metacognitive reading strategies impact Moroccan EFL university students' reading achievement gains?

Method

Participants

A sample of one hundred and thirteen Moroccan EFL university students took part in the current case study. All of them belong to the English department at the Faculty of Letters and Human Sciences, Mohammed V- Agdal in Rabat. The target subjects are in the first-semester level and they have the same educational background. The two groups, which both include students of differing language proficiency and different reading capacities, were randomly selected and the gender issue was not controlled. One group, which consists of 63 students, was assigned to the experimental treatment and the other group, consisting of 50 students, received no treatment. The subjects belonging to these two groups are not repeaters.

The plausible impetus behind addressing EFL first-semester university students in this study is that the effect of reading strategy instruction (RSI) can be more observable and fruitful at the first-semester level since most EFL learners struggle with the difficulty in attempting to achieve reading proficiency which is a precondition to undertaking their academic studies. On this basis, first-semester EFL learners were centrally targeted as the main subjects in this experimental case study.

Procedure

Given the quasi-experimental nature of the study, it was planned that the study be based on a pre-post-test design which involves the administration of reading pre- and post-tests to both treatment and control groups. The experimental group received thorough instruction in metacognitive strategies (MSs) pertaining to textual reading and meaning construction for a semester-long period. The control group remained intact since it did not receive any (meta) cognitive reading strategy training. This group was only exposed to the 'traditional' reading comprehension course without any strategy instruction. Following this, both groups were post-tested and given the 'self-report questionnaire'.

The assignment of the reading test and the 'self-report questionnaire' to the participants extended to a two-hour period which could be judged sufficient. Each group was administered a reading test and a questionnaire at both pre-testing and post-testing stages. Granted that the reading comprehension test can be regarded as an effective diagnostic tool that can measure the learners' reading abilities and comprehension performance, it was required that both groups be

tested. In this regard, the designed reading tests (i.e., pre-test, post-test) comprised four tasks (wh-questions, meaning-infering, paraphrasing, summarizing). Each task was accurately measured in accordance with a set scoring rubric.

The adopted 'self-report questionnaire' serves as an efficient means to the end goal of obtaining adequate, if not complete, knowledge about how the reading act is undertaken by EFL learners in constructing the meaning inherent in the text. In effect, though the 'think-aloud technique' has been used by many reading theorists, it actually breaks up the continuity of the reading process (Bereiter & Bird, 1985). Thus, unlike the 'think-aloud protocol', which implies that learners are expected to report on their thinking processes and the used strategies while reading the written discourse in a simultaneous manner, the 'self-report questionnaire' can be completed shortly after the accomplishment of the reading process. In this way, the target subjects can have an ample opportunity to think reflectively about their conducted reading behaviour, and thus report their invoked strategies and analytical skills by means of which they have attained comprehension.

The obtained data were treated by means of both the Excel Software Program (version 2007) and the SPSS Software Program (16.0). More specifically, the scores of the assigned reading comprehension tests (e.g., pre-test, post-test) were submitted to statistical analysis through the usage of the independent samples t-test in an attempt to define the means, standard deviations and mean differences, whereas the data reported in the 'self-report questionnaire' were computed through the Excel software Program to reflect the frequency of strategy usage among the target groups.

The Strategy Intervention

The intervention was conducted for a semester-long period (Fall Term/ 2012). It comprised 12 sessions allotted to strategy training. In the first session, the target EFL groups were pre-tested. Upon finishing the reading test, they were required to fill out a 'self-report questionnaire' in order to explore the strategies that they utilize in the course of processing and developing sense of the textual content. After diagnosing the learners' reading potential and strategy use by means of the reading comprehension pre-test and the questionnaire, the experimental group was instructed in metacognitive strategies (MSs) that are part and parcel of the achievement of efficient text understanding.

Hence, subsequent sessions were devoted to initiating the target treatment subjects into the treatment during which they were explicitly exposed to the metacognitive reading 'heuristics' used in constructing the text meaning. After that, the treatment group was supposed to apply the initiated strategies to the written texts assigned throughout the strategy training period. The instruction addressed cognitive/ metacognitive text-processing strategies (i.e., planning, inferring, paraphrasing, monitoring and evaluating). As to the comparison group, it was merely exposed to the 'traditional' reading comprehension without any strategy instruction.

At the conclusion of the strategy training intervention, a post-test, alongside the 'self-report questionnaire', was assigned to the participant EFL groups (control & experimental). Indeed, the post-test is regarded as the determining factor of whether the conducted intervention had any marked effect on the EFL learners' reading efficiency and performance. Further, the assignment of the 'self-report questionnaire' at post-testing allowed for an overview of whether

the treatment group had acquired and used the strategies under focus as effective means of attaining a thorough understanding of the discourse content.

Findings & Discussion

As it is displayed in Figure 1, the use of cognitive reading strategies amongst the control group is largely dominant. According to the data elicited through the 'self-report questionnaire', the strategies, which were reported by the subjects under the control condition at pre-testing, seem to be somewhat recurrent at post-testing. In other terms, most of the reading strategies used in pre-testing were repeatedly used by the participants of the control group at the post-testing stage.

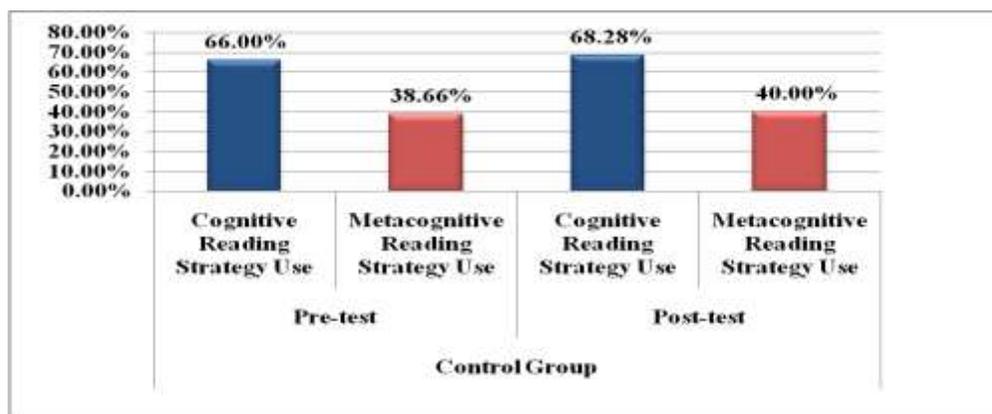


Figure 1. Frequency of control group's reading strategy use at pre- and post-test level

A close analysis of the data in Figure 1 reveals a certain degree of constancy at the level of strategy usage among the control EFL participants in their attempt to develop adequate sense of the text content included in the administered reading tests (pre- and post-tests). A higher proportion of the cognitive strategies and a small number of metacognitive strategic reading moves were depended upon by the control subjects to analyze and synthesize the textual input. As a case in point, at the pre-testing stage, the implementation of cognitive techniques seems to be largely predominant with a frequency of 66% as compared to metacognitive strategy use. Similarly, at the post-test stage, the control group maintained almost the same cognitive strategies which they recruited while coping with the reading text at the pre-test with a percentage of 68.28%. Generally, only a slight increment in terms of cognitive strategy use frequency was observed at the post-test level.

As for the metacognitive strategy usage, there was a remarkable insufficiency in terms of using this typology of strategies in analyzing the content of the reading texts included in both pre-and post-tests. As the findings display in Figure 1, the control group utilized MSs in synthesizing the written texts with percentages of 38.66% and 40% at the pre- and post-test respectively. What is noteworthy is that, though the control group's metacognitive strategy use slightly increased from 38.66% to 40% in processing the assigned written text, this does not represent any statistical significance in terms of the reading strategy application.

Hence, it can be postulated that the written texts of both the pre- and post-test were approached and analyzed by the participants belonging to the control group by means of a set of

cognitive strategies and invoking a limited number of MSs. This reveals that, given the absence of the exposure of the comparison group to the reading strategy intervention across the pre- post-test stage, no significantly substantial increase in the acquisition and deployment of (meta) cognitive reading ‘heuristics’ was found among the group in this study.

On the other hand, the sampled EFL student-readers exposed to the experimental treatment did achieve a stark improvement in terms of the application of cognitive and metacognitive strategies. In fact, the set of strategies that was reported to be implemented by the target EFL learners in processing the content of the written discourse at the pre-test stage was supplemented by other potential strategies, namely metacognitive ones, at post-testing. The results relating to the difference in the strategy usage frequency from pre-testing to post-testing are reflected in Figure 2.

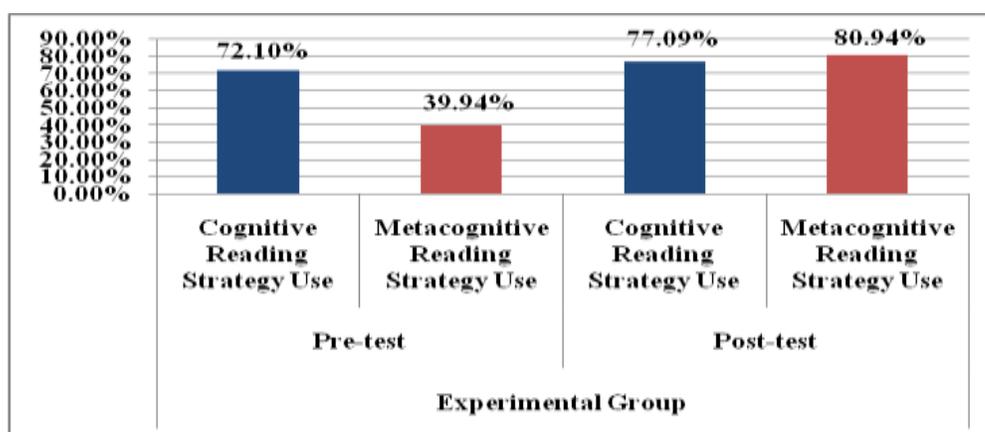


Figure 2. Frequency of experimental group's reading strategy use at pre- and post-test level

Based on the attained findings, it can be stated that the positive impact of the reading strategy training on the sampled EFL learners was prevalent at the level of strategy deployment. In effect, by drawing a certain comparison between the data obtained at the pre-test level and post-test level, it appears that the conducted strategy intervention did play an eminent role in enabling the target EFL student-readers to cognitively and metacognitively ‘strategize’ their reading of the assigned written texts. The frequency of cognitive strategy use from the pre- to the post-test increased to a significant level (see Figure 2). In a parallel fashion, MSs, which were employed by the treatment subjects to a minimal degree on the pre-test with a proportion of 39.94%, were increasingly implemented by the strategy-trained group on the post-test with a percentage of 80.94%.

From the elicited findings, one can notice that after receiving an adequate instruction in cognitive and metacognitive reading strategies, the experimental group took a developmental path towards improving their reading performance by having recourse to these text-related ‘heuristics’. This indicates that increased awareness of cognitive/ metacognitive strategies can be the determinant element for effective reading strategy use amongst the EFL participants. The evidence accounting for this high strategy consciousness is the increasing frequent use of cognitive and metacognitive strategies in coping with the textual input at post-testing.

Overall, despite the view that the targeted learners’ cognitive strategy repertoire (control & experimental) was somewhat adequate at the pre-testing stage, it is of higher importance to posit that the experimental group enhanced at the level of the applicability of this type of

strategies more significantly at post-testing. As to MSs, it was apparent that learners of both groups did not manage to extensively apply this typology of strategies at the pre-test level. However, substantive improvement was exhibited in terms of the use of these strategies at post-testing among the experimental group. Therefore, the enhancement of MSs among the experimental group can be ascribed to the strategy instruction they received. This is in concordance with the findings attained by previous related research (e.g., Paris, et al., 1984; Boulware-Gooden, et al., 2007).

Further, in an attempt to gauge the plain significance of the existing difference between the control and experimental groups at the mean score level at pre-testing, recourse to the independent samples t-test, as an efficient statistical measure, was performed. Table 1 provides the resultant output pertaining to the t-test conducted.

Table 1. EFL learners' achievement on reading comprehension test at pre-testing

Groups	N	Mean	Std. deviation	Mean dif.	t-value	Sig. (2-tailed)
Control Group	50	5.96	3.273	1.110	1.826	0.71
Experimental Group	63	4.84	3.161			

P < .05

Considering the unequal sample sizes of the control group (50) and the experimental group (63), the statistical analysis exhibits that the difference between the two sampled group means is (1.110) with a t-value of (1.826). This yields a manifest insignificance level of (0.71) which falls beyond the rejection realm of the probability value of (.05). Whereas the controls attained a mean score of (5.96), the experimental subjects reached a mean of (4.84). This shows that the treatment group did not outperform its counterpart, the comparison group, on the pre-test. This is testified to by the significance level which is higher than the set criterion (.05) for the reading test (0.71).

At the post-testing stage, it is conspicuous that the treatment group participants did score highly on the reading comprehension test compared to the control group learners. In fact, based on the obtained output of the independent samples t-test run, one can observe that there apparently exists a substantial variation as to the sampled means among the target EFL groups. The attained findings are presented in Table 2.

Table 2. EFL learners' achievement on reading comprehension test at post-testing

Groups	N	Mean	Std. deviation	Mean dif.	t-value	Sig. (2-tailed)
Control Group	50	5.65	2.814	-5.016	-9.436	.000
Experimental Group	63	10.66	2.801			

P < .05

The statistical analysis resulting from the t-test shown in Table 2 shows the substantive reading achievement gains of the experimental group compared to its counterpart, the control group. The mean difference (-5.016) between the two groups is shown to be significant at (.000) with a t-value of (-9.436). This appears to be in stark contrast to the significance level of the mean difference (1.110) between the two groups at the pre-test (see Table 1). In effect, the level of statistical significance reached at pre-testing is relatively higher than the set value (.05), whereas at post-testing, the significant level is lower than (.05).

Actually, in striking a comparison between the control group's and the experimental group's reading achievement, it is clearly manifest that the strategy-trained EFL student-readers, after receiving the instructional intervention relating to text-processing strategies, achieved massive gains from the pre- to the post-test level, and thus outperforming the control group more substantially. On the contrary, the control subjects did not show any substantial advance with respect to reading achievement gains as compared to the experimental group. Accordingly, the higher 'essentiality' of strategy instruction in the reading comprehension course can be exceedingly correlated with the nature of the findings relevant to the post-test scores reached by the treatment group.

Thus, the examination of the pre- and post-tests plausibly indicates vast differences in reading comprehension gains attained by the target groups. Whereas the control subjects' reading performance was typified by insufficiency at the level of progress, the reading achievement gains of the treatment group increased to a substantially higher level from the pre- to the post-test. This positive developmental advance in achieving rather significant grades amongst the strategy-instructed group primarily consists in efficacious strategy applicability which not only ensures success in understanding the text, but also guarantees the provision of correct responses relating to the texts' corresponding questions. This highlights the role of reading strategy instruction in enabling the target group to base their conducted reading act on a multiplicity of variables such as metacognitive knowledge and self-regulation which are the major elements of invoking and using the reading strategies.

Conclusion

The current research purported to measure the effect of metacognitive reading strategy instruction (RSI) on EFL learners' strategy use and reading achievement gains. Evidently, the assumed influence of explicit/direct strategy training on the EFL learners' strategy usage is, to a great extent, substantiated via the conducted semester-long intervention. In light of the reached results, it is posited that strategy instruction can serve as an effective medium allowing learners to developmentally acquire the reading 'heuristics' deemed of pivotal importance in the area of reading comprehension. In other terms, the development of strategic behaviour, as a major component in text processing, can only come into effect when the learners' awareness as to basic strategies is increased to an appreciably considerable level. The process of knowing what strategies to be deployed in text reading and knowing 'how' to put them into action can make of EFL learners efficient, critical readers.

The empirical evidence set in this study places into perspective the implied view that Moroccan EFL learners can foster metacognitive strategic moves and that their previously acquired strategies can be subject to improvement through strategy instruction. The latter should be imparted particular attention and implemented by academics and educational practitioners,

especially in EFL contexts. This suggests that the integration of this type of instruction in the reading comprehension course at the university level can be predictive of effective reading performance among learners. This stated fact accords with previous related research (e.g., Taraban, et al., 2004; Rupley, et al., 2009) that emphasizes the importance of reading strategy training and its seemingly fruitful impact on the learners' sense of reasoning and critical thinking in textual processing.

On the whole, though the present research provides revealing findings, it reflects some limitations. The first one is correlated with the issue of representativeness. Given that this study was restricted to the Faculty of Letters and Human Sciences in Rabat, it is recommended that many Moroccan Faculties of Letters and Humanities and other higher education institutions be taken as case studies by future researchers with a view to gaining utter 'representativity' of Moroccan EFL learners. Another limitation is bound up with the gender variable which can be, to an extent, viewed as an intervening factor. Considering that this experimental study is primarily concerned with testing the impact of strategy instruction on EFL learners' strategy use and reading achievement, it did not take account of the reading achievement gains obtained by the male as opposed to the female subjects belonging to the two groups under focus. Clearly, it is estimated that EFL female readers could perform significantly better than EFL male readers or vice versa. Thus, the investigation of this postulate, which is beyond the scope of this study, could be addressed by further studies falling within the realm of reading comprehension research.

About the Author:

Mohammed Msaddek holds a Doctorate Degree in Applied Linguistics from the Faculty of Letters and Human Sciences- Rabat, Morocco in 2015. He obtained his Master's Degree in Studies in English Language and Culture in 2010 from the Faculty of Letters and Humanities-Ibn Tofail University, Kénitra. Currently, he is a high school teacher. His research interests incorporate cognitive psychology, learning/reading strategies, critical thinking and strategy instruction.

References

- Bereiter, C., & Bird, M. (1985). Use of thinking aloud in identification and teaching of reading comprehension strategies. *Cognition and Instruction*, 2 (2), 131-156.
- Boulaware-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., Armbruster, B. B., & Baker, L. (1986). The role of metacognition in reading and studying. In J. Orasanu (Ed.), *Reading Comprehension: From Research to Practice* (pp. 49-75). Hillsdale, NJ: Erlbaum.
- Carrell, P. L., Pharis, B. G., & Liberto, J. C. (1989). Metacognitive strategy training for ESL reading. *TESOL Quarterly*, 23 (4), 647-679.
- Cohen, A. D. (1998). *Strategies in Learning and Using a Second Language*. New York: Longman.

- Derry, S. J., & Murphy, D. A. (1986). Designing systems that train learning ability: From theory to practice. *Review of Educational Research*, 56, 1-39.
- Dole, J. A., and Brown, K. J., & Trathen, W. (1996). The effects of strategy instruction on the comprehension performance of at-Risk students. *Reading Research Quarterly*, 31 (1), 62-88.
- 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.
- Flavell, J. H. (1976). Metacognitive aspects of problem solving. In Besnick (Ed.), *The Nature of Intelligence* (pp.231-235). Hillsdale, NJ: Erlbaum.
- Garner, R. (1987). *Metacognition and Reading Comprehension*. Norwood, New Jersey: Ablex Publishing Corporation.
- Griffith, P. L., & Ruan, J. (2005). What is metacognition and what should be its role in literacy instruction? In S. E. Israel, C. C., Block, K. L., Bauserman, & K. Kinnucan-Welsch (Eds.), *Metacognition in Literacy Learning: Theory, Assessment, Instruction, and Professional Development* (pp.3-18). New Jersey: Lawrence Erlbaum Associates.
- Huang, H. C., Chern, C. L., & Lin, C., C. (2009). EFL learners' use of online reading strategies and comprehension of texts: An exploratory study. *Computers and Education*, 52, 13-26.
- Jones, B. F., Palinscar, A. S., Ogle D. S., & Carr, E. G. (1987). *Strategic Teaching and Learning: Cognitive Instruction in the Content Areas*. Alexandria: Association for Supervision and Curriculum Development.
- Kern, R. G. (1989). Second language reading strategy instruction: Its effects on comprehension and word inference ability. *The Modern Language Journal*, 73 (ii), 135-149.
- Lauterbach, S. L., & Bender, W. N. (1995). Cognitive strategy instruction for reading comprehension: A success for high school freshmen. *The High School Journal*, 79 (1), 58-64.
- Lawrence, L. J. (2007). Cognitive and metacognitive reading strategies revisited: Implications for instruction. *The Reading Matrix*, 7 (3), 55-71.
- Lester, F. K., & Garafalo, J. (1985). Metacognition, cognitive monitoring, and mathematical performance. *Journal for Research in Mathematics Education*, 16 (3), 163-176.
- Nietfeld, J. L., Cao, L., & Osborne, J. W. (2005). Metacognitive monitoring accuracy and student performance in the post-secondary classroom. *The Journal of Experimental Education*, 74 (1), 7-28.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning Strategies in Second Language Acquisition*. Cambridge: Cambridge University Press.
- Oxford, R. L. (1990). *Language Learning Strategies: What Every Teacher Should Know*. Boston, Massachusetts: Heinle & Heinle Publishers.
- Palinscar, A. S., & Brown, A., L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1 (2), 117-175.

- Paris, S. G., Cross, D. R., & Lispon, M. Y. (1984). Informed strategies for learning: A program to improve children's reading awareness and comprehension. *Journal of Educational Psychology*, 76 (6), 1239-1252.
- Pressley, M., El-Dinary, P. B., Gaskins, I., Schuder, T., Bergman, J. L., Almasi, J., & Brown, R. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *The Elementary School Journal*, 92 (5), 513-555.
- Rahmani, M., & Sadeghi, K. (2011). Effects of note taking training on reading comprehension and recall. *The Reading Matrix*, 11 (2), 116-128.
- Rumelhart, D. E. (1977). Toward an interactive model of reading. In S. Dornic (Ed.), *Attention and Performance* (pp. 573-603). New York: Academic Press.
- Rupley, W. M., Blair, T. R., & Nicholas, W. D. (2009). Effective reading instruction for struggling readers: The role of direct/explicit teaching. *Reading and Writing Quarterly*, 25, (2/3), 125-138.
- Samuels, J. (1983). A cognitive approach to factors influencing reading comprehension. *The Journal of Educational Research*, 76 (5), 261-266.
- Schmitt, M. C., & Newby, T. J. (1986). Metacognition: Relevance to instructional design. *Journal of Instructional Development*, 9 (4), 29-33.
- Swason, H. L. (1989). Strategy instruction: Overview of principles and procedures for use. *Learning Disability Quarterly*, 12 (1), 3-14.
- Tabataba'ian, M. S., & Zabihi, R. (2011). "Strategies used by four Iranian EFL learners in reading ESP and GPE texts: A think-aloud case study". *World Journal of English Language*, 1(1), 53-62.
- Taraban, R., Kerr, M., & Rynearson, K. (2004). Analytic and pragmatic factors in college students' metacognitive reading strategies. *Reading Psychology*, 25, 67-81.
- Williams, J. P. (2007). Literacy in the curriculum: Integrating text structure and content area instruction. In D.S. McNamare (Ed.), *Reading Comprehension Strategies: Theories, Interventions and Technologies* (pp. 199-219). New York & London: Lawrence Erlbaum Associates.