Macrothink Institute™

International Research in Education
ISSN 2327-5499
2023, Vol. 11, No. 2

Exploration of Moroccan EFL University Students' Retrospective Knowledge of Cognitive and Metacognitive Reading Strategies in Processing Advanced-level Written Discourse in English

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Received: August 17, 2023 Accepted: September 2, 2023 Published: September 6, 2023

doi: 10.5296/ire.v11i2.21289 URL: https://doi.org/10.5296/ire.v11i2.21289

Abstract

Based on my unpublished Doctoral Dissertation (Defended in 2015) that investigates the impact of explicit reading strategy instruction on Moroccan EFL university learners' (meta) cognitive reading strategy use and reading achievement, the present exploratory study reflects the extent to which the learners are retrospectively conscious of the (meta) cognitive reading strategies (RSs) that facilitate the assimilation and comprehension of the textual input. It addresses 113 English department university students belonging to two groups (Group 1: N= 50; Group 2: N= 63) studying at the first-semester level. The data were obtained through the dependence on two advanced-level EFL reading comprehension texts (i.e., narrative, expository) which were accompanied by a retrospective questionnaire (RQ). The results evince that, given that the targeted two groups unconsciously used some (meta) cognitive reading strategies (RSs) for attaining the textual comprehension, their retrospective consciousness of the core nature and essence of these metacognitively-oriented strategic moves is typically typified by utmost inadequacy. Finally, some useful recommendations relative to both EFL reading research and pedagogy as well as some unavoidable limitations are presented.

Keywords: Cognitive strategies, information processing theory, metacognitive strategies, textual processing, retrospective awareness, schemata

1. Introduction

The richly expanded body of research done on EFL reading comprehension in the past decades has attained a certain stage at which it is unnecessary to redefine and expatiate upon the reading process. The latter, constituting a fundamentally integral part of any academic domain pursued by learners in tertiary education, has been explicitly expounded and critically delved into by a group of reading specialists and scholars (e.g., Afflerbach, 1990; Alderson, 2000; Boakye, 2017; Carrell, 1984; Celce-Murcia & Alshtain, 2000; Davies, 1995; Durkin, 1993; Gelderen, et al., 2003; Goodman, 1982; Gough, 1976; He, 2008; Iwai, 2016; Kern, 1989; Msaddek, 2017; Smith, 1982; Snow, 2002) from a broad diversity of perspectives. In essence, a rich corpus of seminal research studies associated with EFL reading in all its plausible orientations and manifestations have provided a sufficient, holistic account of this receptive and cognitive skill that is integrally paramount in importance not only for primary and high school students, but also for university-level learners who are expected to display autonomy, self-efficacy, and self-regulation in their learning pathways.

It is a truism that a vast range of reading materials coped with by the EFL learners at the university level necessitate not only a measurable degree of cognitive sophistication and critical thinking, but also recourse to the working memory mechanisms and the high-order processes for achieving high-level comprehension. As emphasized by some researchers (e.g., Boakye, 2017; Hoeft, 2012; Msaddek, 2015; Msaddek & Boudassamout, 2023; Pintrich & Garcia, 1991; Suyitno, 2017), awareness of efficient higher-order reading strategies (RSs) is part of the key to complying with the criteria of successful university-level reading undertaking. In this regard, given the complexity of understanding the diversified types, the functional role, and the concerted application of (meta) cognitive RSs used for absorbing the authentic textual meaning, the present study tends to target university-level rather than high school-level students on the grounds that university learners exhibit both greater cognitive maturity in learning and more robust readiness to process a variety of cognitively demanding written discourse assigned by professors in many courses throughout the semesters.

In fact, considering the strategic nature of textual processing and the metacognitive mechanisms involved in the meaning comprehension, it is manifest that reading strategy use (RSU) plays a facilitative role in constructing the textual understanding. In this vein, various research studies attest to the firm link between RSs and reading performance (e.g., Huang, et al., 2009; He, 2008; Hussain, Hashmi, & Mehboob, 2019; Mokhtari & Reichard, 2002; Suyitno, 2017; Zhang & Wu, 2009; Vellutino, 2003). Hence, the overarching value of RSs is manifested in many respects. First, they can allow learners to predict the text meaning and to infer, through the context, the connotation of some terminologies stated by the writer/author. Second, for making efficient sense of the content, learners are supposed to select the major ideas which constitute the core of the text. Third, monitoring the process of understanding and questioning the underlying meaning of the text are also of paramount importance in assisting learners to fully assimilate the writer's/author's views and ideologies. Last, through recalling the major ideas and summarizing the text, as an important way of evaluating their comprehension, learners can reinforce their mastery of the text input under consideration.

These mentioned strategic steps, among others, can be 'labelled' as (meta) cognitive RSs. They occupy a substantial part in the analysis and interpretation of textual information.

Further, it is worth stating that many prior research studies (e.g., Adunyarittigun, 2021; Ahmadi, Ismail, & Abdullah, 2013; Mokhtari & Reichard, 2002; Zhang & Wu, 2009) probed into the learners' reading strategy awareness and fruitfully contributed to the expansion of the existing, vital literature on EFL reading as a cognitive enterprise in the vast universe of academia. This evinces the key criticality and utmost effectiveness regarding reading strategy knowledge in assisting the learners to handle the written discourse with maximal efficacy and optimal precision. Yet, research on university-level reading which requires utter cognizance and concerted usage of cognitive and metacognitive RSs on the part of the learners is prototypically typified by stark paucity and dramatic inadequacy in the context of Moroccan tertiary education. In this regard, the current study, being part of my unpublished Doctoral Dissertation, is bound up with the exploration of Moroccan English department university learners' retrospective consciousness of (meta) cognitive reading heuristics.

2. Review of Related Literature

2.1 Information Processing Theory

The cognitive theory of information processing, which is robustly linked to textual analysis and meaning synthesis in different ways and to substantial degrees, has been typically advanced by many leading researchers and cognitive psychologists (e.g., Lifshitz, et al., 2013; McFarland, 2017; Shiffrin & Schneider, 1977; Schneider & Chein, 2003; Piccinini & Scarantino, 2010). This underlying theory is tacitly delineated as a "pluralistic view of cognition" (Solso, 1979, p.369). In effect, information processing can be proactively performed by the learners either in an automatic or controlled manner depending on the easiness or difficulty of the cognitive task (e.g., reading, writing) under study (Msaddek, 2015). This showcases that the critical analysis of the textual content, the reasoned synthesis of the ideologies, and the reasonable processing of viewpoints and formulations stated in the university-level written discourse rest upon the 'attentional' mechanisms and the cognitive/ executive control exercised by the learners for the optimal goal of gaining comprehension.

Being closely linked to the working memory capacity and apparently manifesting cognition in all its core processes and key aspects, information processing is conceptualized as an interaction between 'bottom-up' or 'data driven' processes and 'top-down' or 'conceptually driven' processes (Schwartz, 1984, p.80). This evidently reveals that, in seeking to analyze textual information, the learner readers do not only use the 'bottom-up' processing to identify the meaning of lexical items and ideas of the written input, but they also implement the 'top-down' processing to form hypotheses and expectations relative to the text content. They relate what is included within the frame of the text to their broader background knowledge in an effort to construct the meaning. In this view, Sternberg (1984) states that there are three foundational components of information processing which are of paramount importance in conducting any academic cognitive task. They are stated as follows:

1. Selective encoding: (sifting out relevant information from irrelevant information, in the stimulus environment, in order to select information for further processing).

2. Selective combination: (combining selected information in such a way as to render it interpretable; that is, integrating it in some meaningful way).

3. Selective comparison: (rendering newly encoded or combined information meaningful by perceiving its relations to old information previously stored). (Sternberg, 1984, p.168)

Thus, information processing, as a prototypical embodiment of human cognition/ thinking, entails selecting, integrating, comparing, and perceiving the ideational content with a view to digesting the intended meaning. Given the cognitively demanding nature of the university-level reading undertaken by EFL learners and considering the cognitive patterns involved in the working memory capacity for perceiving the writer's/ author's views and ideas, it is apparent that astute awareness of the basic heuristics/ mechanics is of fundamental value in deciphering the input included in differing written materials. This tacitly features that processing any encountered information through working memory, especially in textual reading, necessitates cognitive perception, metacognitive thinking, and attentional efforts on the part of learners in order to reach the optimum comprehension which is the desired goal of the reading process.

2.2 The Interplay of Schemata & EFL Reading

It is true to state that the concept of 'schema' was first introduced in the field of psychology by Bartlett (1932, in Asch, 2002, p.213) who argued that a schema is mainly implemented by readers in remembering, interpreting and understanding information. In fact, his conceptualizations of this concept are generally based on the 'Gestalt psychology' which refers to "the study of mental organization" (Anderson & Pearson, 1988). Indeed, schema denotes "an active organization of past reactions, or past experiences" (Bartlett, 1932, quoted in Anderson & Pearson, 1988, p. 39). It plays a functioning role in the process of perceiving, analyzing, and conceiving the meaning that is included in a given printed text. In this respect, the claim that "what readers know affects what they understand" (Alderson, 2000, p.33) has been the most central theme and key principle of the schema theory since this stated claim highlights the prime importance of the actual interaction between the readers' prior knowledge and textual content.

In an attempt to clarify the term of schema, Hewitt (1982) considers it as "an abstract structure incorporating general knowledge about concepts or events, things or situations" (pp.11-12). This overall knowledge assists the learner readers to come up with an adequate interpretation of the target text via activating the proper and relevant schemata (the plural form of schema). The latter are delineated as "higher-level complex (or even conventional or habitual) knowledge structures" (Van Dijk, 1981, p.141) which have the primary function of directing and guiding the course of the comprehension process and allowing learners to predict and infer the meaning of the ideas, thoughts, and concepts that are stated in the text. From this broader perspective, it can be acknowledged that schemata constitute a structured framework within which textual reading, as a cognitive process, can be undertaken by

learners in an efficient way.

Casson (1983), elaborating further on the concept of schemata, maintains that the latter are not only 'data structures', they are also 'data processors' (p.438). To illustrate this particular point, schemata, in addition to storing and organizing the information in the mind, allow the learner readers to process and synthesize the content of the written discourse in a more comprehensive way. In essence, schemata, in any cognitive undertaking, form a robust link that relates the new information to the previously acquired one. This shows that schemata "serve as the basis for all human information processing" (Rumelhart, 1980). It is via schemata that readers can make sense of the ideas presented in the text, recall the relevant concepts, and achieve the process of comprehension in a highly thorough, elaborate manner. In this context, Brewer and Nakamura (1984) claim that:

> [Schemas] are higher-order cognitive structures that have been hypothesized to underlie many aspects of human knowledge and skill. They serve a crucial role in providing an account of how old knowledge interacts with new knowledge in perception, language, thought, and memory. (p.2)

This succinct quotation highlights the key premise that schemata do enable the learner readers not only to activate and recall their acquired knowledge that is stored in the working memory, but also to obtain the meaning of any presented new information. Hence, the activation of schemata for processing somewhat advanced college-level written texts involves the interaction between memory capacity, executive functioning, and the ideational content. Viewed from this critical perspective, schemata are the guiding principle that lays the ground for the accomplishment of an effective textual comprehension amongst university learners.

2.3 Metacognition: A Brief Overview

Metacognition, as an overall manifestation of higher-level, proactive thinking, is viewed as the process of controlling and monitoring the course of any learning act performed. Fervently pioneered and unequivocally explicated by Flavell (1971) within the wider arena of cognitive psychology, the term metacognition inherently relies on and involves such viable higher-order skills as planning, reasoning, rethinking, monitoring, reflecting, and assessing one' cognitive progress during the execution of an academic task (e.g., reading, writing, speaking). For Garner (1987), metacognition is perceived as thinking about one's thinking, remembering, and understanding. Indeed, it is a sophisticated form of executive control that shapes and directs one's strategic behaviour towards the successful completion of any assigned learning/ reading task within the educational sphere (Msaddek, 2021). Thus, metacognition serves as a sturdy bedrock for the enactment of the intended steps, actions, and procedures that fruitfully facilitate and shore up the fundamental process of grasping the conceptualizations and views included in written texts.

For clarity purposes, metacognition consists of two interconnected components which are incarnated in knowledge of cognition and regulation of cognition (Baker & Brown, 1984). The first component, knowledge of cognition, includes such constituents as the person

variable (e.g., self-knowledge), the task variable (e.g., task difficulty, task easiness), and the strategy variable (e.g., strategy knowledge). These three cited variables are completely dependent on one another as they form the core fundamentals of cognitive knowledge. The second component of metacognition, regulation of cognition, embodies the self-regulated intended actions, processes, and strategies for coping with textual reading (Griffith & Ruan, 2005). It encompasses the sophisticated acts of planning how to decipher the written input, tracking the process of comprehension during reading, and assessing the efficiency of the mastery of textual comprehension. These high-order strategic moves enable the reading process in a principled fashion. They are considered as the essential condition for attaining an efficient comprehension. Clearly, regulation of cognition, which "presupposes the existence of knowledge since it is assumed that a strategic action is based on existing knowledge" (Schmitt & Newby, 1986, p.30), is deemed to be part and parcel of metacognition.

2.4 Cognitive Versus Metacognitive Strategies

In recognition of the substantial significance of metacognition in effective learning/ reading performance and academic achievement, it is essential that the strategies involved in learning/ reading tasks be clustered into cognitive and metacognitive. To start with, cognitive strategies (CSs), which are applied to diverse learning tasks (i.e., reading, writing), are classified into two categories: surface strategies and deep strategies (McKeachie, Pintrich, Yi-Guang, & Smith, 1986; Pintrich, 1989). Surface CSs are used by the EFL learners with the main objective of achieving understanding of the information in a superficial way. This type of strategies "helps encode new information into short-term memory only" (Somuncuoglu & Yildirim, 1999, p.268), i.e. when applying these strategies, learners focus their attention on the main ideas that are of critical importance and disregard the detailed and additional information. They only approach the learning/ reading task at the surface level without attempting to deepen and further their understanding of the content.

Deep CSs, on the other hand, basically facilitate long-term retention of the target information (Pintrich & Garcia, 1991; Somuncuoglu & Yildirim, 1999). They are primarily implemented by EFL learners to analyze and comprehend the presented information at a more profound level. This reflects the fact that the use of these strategies entails 'higher-order processing' skills and thinking capabilities which assure learners an in-depth interpretation of the content being approached. Indeed, by employing this kind of strategies of learning/ reading, learners can relate what is included in the task to their prior knowledge so as to extensively elaborate on the meaning in an attempt to attain an effective comprehension.

With regard to metacognitive strategies (MSs), they entail the proactive exertion of self-regulation, self-direction, and self-control for optimally undertaking any assigned learning/ reading task. According to O'Malley (1987), the overall function of MSs is basically planning, monitoring, and evaluating learning activities. They are an essential means of making certain that the requirements of the task being studied and dealt with are adequately met. These metacognitive strategic moves (i.e., planning, monitoring, evaluating) that are meant to be enacted by the university-level learners in any scholarly endeavor (i.e., reading, writing) entail such core fundamentals as strong self-efficacy beliefs, utmost

self-regulation, and planful cognitive control for realizing optimal academic achievement.

For the sake of elaboration, Schmitt and Newby (1986) argue that planning requires task and self-knowledge, and involves the selection of relevant strategies. This unravels that an utter awareness of both their cognitive abilities and the nature of the task assigned is a contributing factor that allows learners to have general knowledge of what they are required to achieve. In essence, this type of knowledge can assist learners to reach a certain kind of effectiveness, especially at the level of task analysis and synthesis. With regard to strategy selection, as another core component of planning, it enables learners to deal with the content of the task more efficiently. Thus, learners, at the stage of planning, are supposed to select the strategies that are of primary importance in order to properly accomplish the task under critical study. This evinces that task knowledge, self-knowledge, and strategy selection, which have metacognitive dimensions, are the basic constituents of the planning process.

The use of monitoring in attempting to approach academic learning/ reading tasks is another foundational metacognitive prerequisite to achieving a successful undertaking. This 'self-regulatory' strategy has been associated with achievement (Ley & Young, 2001). To put it succinctly, dealing with a given studying task without keeping track of the progression that is taking place will not guarantee an efficiency-driven comprehension. Within this framework, Puntambekar (1995) reflects the fact that younger and less skilled learners do not use many monitoring strategies. This amply evinces that the development of monitoring strategies, as noted by Puntambekar (1995), can be closely related to two major variables which are age and aptitude. That means that mature and skilled learners are able to effectively monitor their comprehension of diverse tasks, whereas younger and less skilled learners cannot use the monitoring strategies as successfully as their counterparts (skilled learners).

Evaluating is deemed to be the final metacognitive procedure resorted to by the learners for assuring the attainment of comprehension of the learning/ reading task under study. When engaging in the process of evaluating, learners are expected to track the progress that they make towards achieving comprehension. This evidently shows that developing the capability to assess one's own performance in an assigned task is an essential strategy in the learning/ reading process. However, the development of this ability can only be apparent among skilled learners who can apply a wide range of evaluative techniques. This fact is underlined by Weinstein (1994) who points out that expert learners know how to evaluate their learning strategies and modify them on a timely basis. In effect, thinking methodically and analytically about the learning outcomes and reading behaviors enables learners to measure their full grasp of the target content.

Thus, it is deduced that the strategies deployed for analyzing and synthesizing the textual input, as some reading researchers (e.g., Barone & Xu, 2008; Brown, 1981; Garner, 1987; Msaddek, 2015; Vellutino, 2003) affirm, can be grouped into cognitive and metacogntive RSs. Based on the classification/ taxonomy of RSs (e.g., cognitive, metacognitive) presented in my unpublished Doctoral Dissertation that was defended in 2015, the cognitive reading strategies (CRSs) encapsulate predicting, inferring, main idea selection, visualizing, underlining, note taking, paraphrasing, whilst the metacognitive reading strategies (MRSs) consist of planning

strategies (goal-setting and background knowledge use), monitoring strategies (self-monitoring, self-questioning, and text rereading), and evaluating strategies (recalling and summarizing).

3. The Current Study

The present study, which is exploratory and descriptive in essence, discloses whether Moroccan English department university students are retrospectively conscious of (meta) cognitive reading strategies (RSs) that are evoked and used for the construction of an effective textual comprehension. Thus, two research questions guiding the course of this study have been designated.

1) Do Moroccan EFL university learners reflect deep retrospective knowledge of cognitive reading strategies (CRSs) during textual processing?

2) Do Moroccan EFL learners exhibit deep retrospective knowledge of metacognitive reading strategies (MRSs) during textual processing?

4. Method

4.1 Participants

One hundred and thirteen (113) university learners belonging to the Faculty of Letters and Human Sciences (FLHS) in Rabat were the main participants in this study. The two groups (Group 1: N=50; Group 2: N= 63) were made of mixed-ability students who reflected a multiplicity of reading proficiency levels. Their age ranged from nineteen to twenty-three years old. Yet, a few participants were aged over twenty-three years old. They were first-semester EFL learners who were centrally targeted as the subjects in this case study. They are typically representative of Moroccan EFL university student-readers in varying aspects. The following table presents the number of the participants in both groups (Group 1 & Group 2).

Table 1. The Number of the Participating EFL Learners

The Subjects	Males	Females	Total of the Group
Group (1)	21	29	50
Group (2)	27	36	63
Total	113		

4.2 Procedure

The study under critical investigation is firmly grounded in an exploratory, descriptive research design. By nurturing a quantitative-qualitative approach directed at exhibiting the university-level learners' retrospective consciousness of (meta) cognitive reading strategies (RSs), it was necessary that two advanced-level reading comprehension texts (narrative and expository) coupled with corresponding questions and a retrospectively-predicated questionnaire be implemented for bringing the study to a successful end. Actually, given that a strict range of reading strategies (RSs) can be regularly used by the learners unconsciously,

the study tends to assess the targeted groups' proactive and retrospective awareness of the nature and types of the (meta) cognitive RSs that facilitate an efficient comprehension. This shows that some, if not all, strategies of which learners are not conscious can be at times automatically put into practice once they are exposed to the critical, reasoned analysis of the written discourse. Thus, the intended goal is to evaluate the students' retrospective knowledge of differing strategies (cognitive and metacognitive) deployed in the reading process.

The retrospective questionnaire (RQ) used in this study encompasses a multiplicity of questions such as open-ended questions, yes/no questions, and multiple-choice questions. This provides fundamental gateways into digging deeply into the cognitive and metacognitive mechanisms that govern the mentally demanding act of reading printed texts of both narrative and expository type among EFL university learners. As for the two advanced-level reading comprehension texts (e.g., narrative, expository) assigned to both groups (Group 1 & Group 2), they include diverse types of questions which can be set forth as follows: the wh-questions task, the meaning-inferring task, the paraphrasing task, and the summary writing task. The first task is made up of five wh-questions which required the targeted learners to critically and analytically read the written discourse with a view to coming up with the expected responses. The second task is related to meaning-inferring in which EFL learners are meant to depend upon their inferential mechanisms for deciphering the connotation of each given concept. Concerning the third task in the narrative and expository reading texts, it is primarily concerned with the paraphrasing process. This reveals the learners' cognitive capability to preserve the core connotation of the given three statements without any meaning distortion or divergence. In what concerns the last task, summary writing, it entails the EFL learners' recall of the included content in order to compose a summary of the whole reading passage (i.e., narrative, expository).

All the incorporated questions necessitate that learners retrospectively evoke cognitive reading strategies (CRSs) (predicting, inferring, main idea selection, visualizing, underlining, note taking, and paraphrasing) as well as metacognitive reading strategies (MRSs) (goal-setting, background knowledge use, self-monitoring, self-questioning, rereading, recalling, and summarizing) for the building of an effectual interpretation of the given text passages. Thus, retrospective information and perspectives provided by the two groups (Group 1 & Group 2) via the administered questionnaire were numerically interpreted. This was executed to foreground the frequencies of the (meta) cognitive reading strategy awareness among the two groups targeted. By means of the Excel Software Program, all the gained data relative to retrospective consciousness of RSs were converted into illustrative statistical figures and tables.

5. Results

5.1 EFL Students' Retrospective Consciousness of Cognitive Reading Heuristics

This section is primarily concerned with the exploration of the extent to which the target EFL learners are retrospectively conscious of the cognitive reading heuristics. It presents the findings relevant to the sampled EFL learners' retrospective consciousness of the cognitive text-processing strategies. The results are presented in the following table and figures below.

Table 2. EFL Learners' Retrospective Consciousness of CRSs

Subjects (N=113) / Cognitive Strategy Awareness		Group 1 (N=50)	Group 2 (N=63)
Predicting	N	3	10
	%	**8.83**	**17.24**
Inferring	N	15	23
	%	**44.11**	**39.66**
Main Ideas Selection	N	10	8
	%	**29.41**	**13.79**
Visualizing	N	0	0
	%	**0**	**0**
Underlining	N	3	10
	%	**8.83**	**17.24**
Note Taking	N	2	0
	%	**5.88**	**0**
Paraphrasing	N	1	7
	%	**2.94**	**12.07**
Total	N	34	58
	%	**100**	**100**

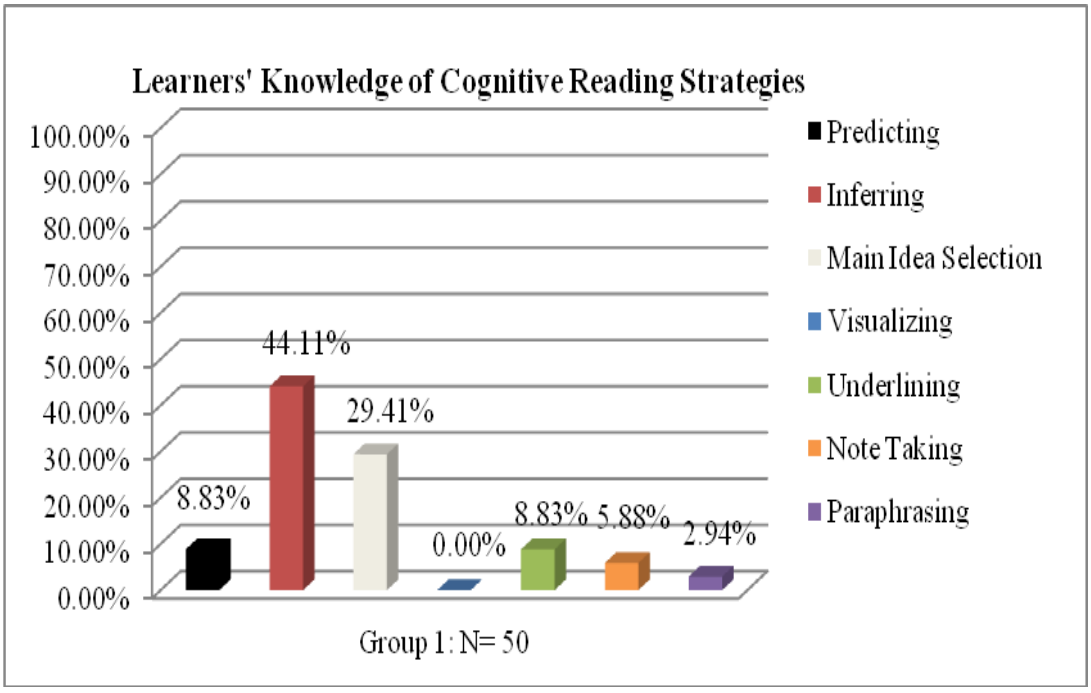

Figure 1. Retrospective Consciousness of CRSs among EFL Learners (Group 1)

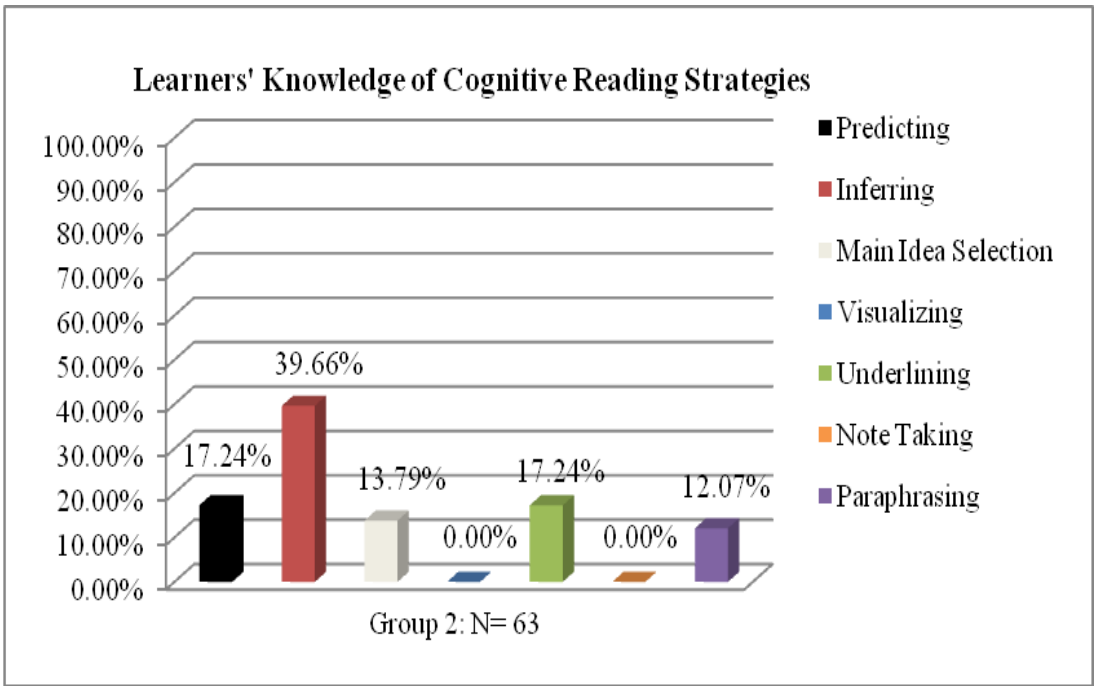

Figure 2. Retrospective Consciousness of CRSs among EFL Learners (Group 2)

Indeed, the analysis of the retrospective data shows that the EFL first-semester student-readers do not exhibit high consciousness as to cognitive heuristics used in the analysis and synthesis of different written discourse (e.g., narrative, expository). Actually, the strategies some of the participants in the first group (N=50) were aware of are embodied in meaning inferring and main ideas selection with percentages of 44.11% and 29.41% respectively. Further, the subjects belonging to the first group reflected their awareness of both predicting and underlining with an even frequency of 8.83%. However, only a small number of the participants in this group (Group 1) were conscious of other CRSs (e.g., note taking, paraphrasing). As for visualizing, the group seemed to be cognitively unaware of this cognitive strategic act.

Similarly, the second group (N=63), like their counterparts in the first group (1), was not wholly aware of the cognitive text-processing moves. In particular, this group (Group 2) reported their awareness of meaning inferring and main ideas selection with frequencies of 39.66% and 13.79% for each. Added to this, awareness of both predicting and underlining is represented with an even proportion of 17.24% among the second group. As for paraphrasing, the subjects belonging to this group reported their consciousness of this cognitive text-related strategy with a percentage of 12.07%. Realistically, both the first and second groups' awareness of CRSs seemed to be rather insufficient.

5.2 EFL Students' Retrospective Consciousness of Metacognitive Reading Heuristics

According to the retrospective data, most EFL learners belonging to the two groups under focus did not reveal astute consciousness of the metacognitive text-related strategies. Fundamentally, it can be stated that some metacognitive strategic moves were unconsciously

tapped by the participating EFL learners in their critical analysis of the written input. The ensuing table and figures reflect the subjects' retrospective awareness of the metacognitive reading techniques.

Table 3. EFL Learners' Retrospective Consciousness of MRSs

Subjects (N=113) / **Metacognitive Strategy Awareness**		**Group 1 (N=50)**	**Group 2 (N=63)**
Goal-setting	N	4	4
	%	**11.43**	**13.79**
Background Knowledge Use	N	1	2
	%	**2.85**	**6.90**
Self-monitoring	N	5	4
	%	**14.29**	**13.79**
Self-questioning	N	0	0
	%	**0**	**0**
Text Rereading	N	22	16
	%	**62.86**	**55.17**
Recalling	N	2	3
	%	**5.72**	**10.35**
Summarizing	N	1	0
	%	**2.85**	**0**
Total	N	35	29
	%	**100**	**100**

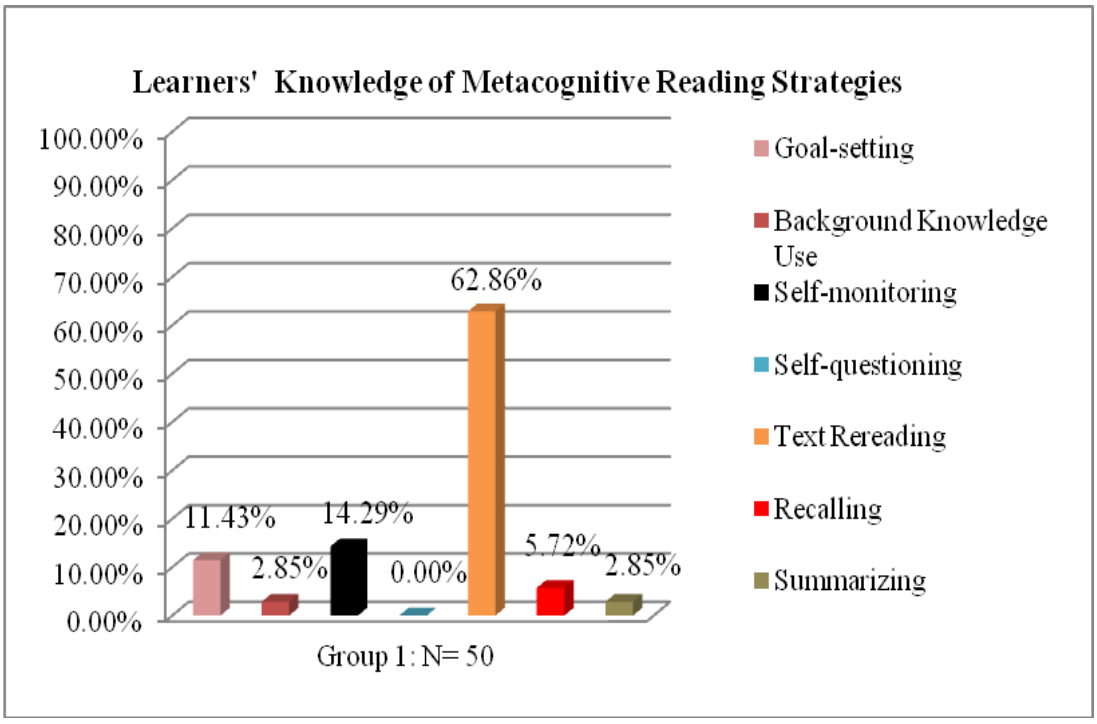

Figure 3. Retrospective Consciousness of MRSs among EFL Learners (Group 1)

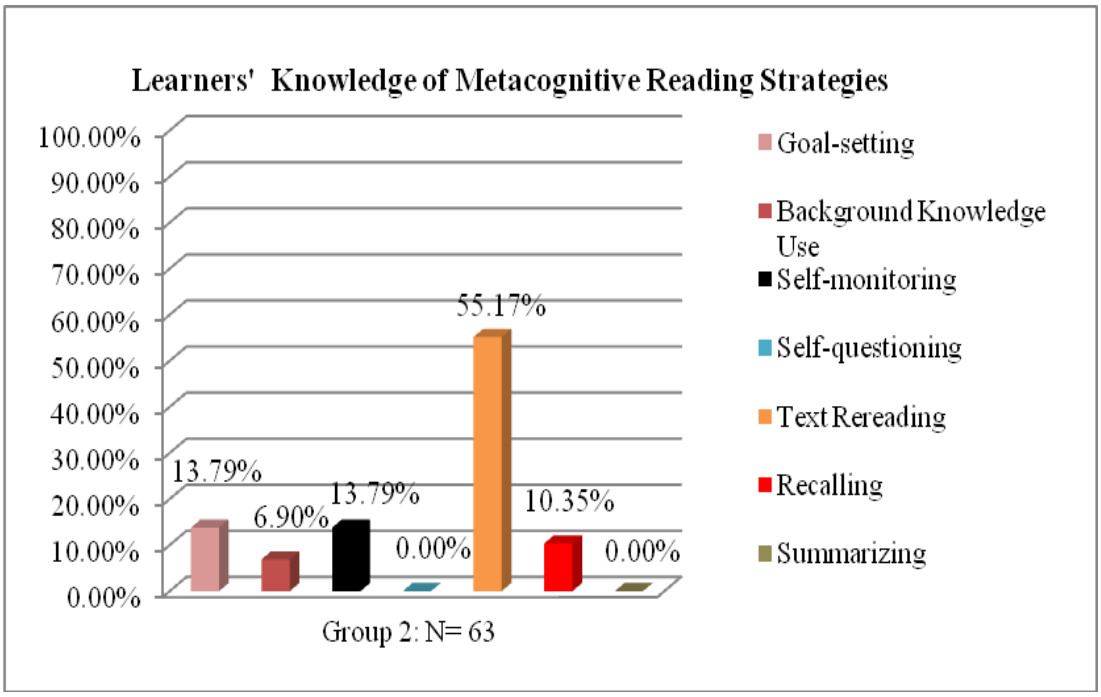

Figure 4. Retrospective Consciousness of MRSs among EFL Learners (Group 2)

As the data above show, most of the EFL student-readers in this study did reflect their somewhat incomplete consciousness of some MRSs. Notably, awareness of rereading and self-monitoring is represented with percentages of 62.86% and 14.29% among the first group (1) respectively. As to goal-setting, the group seemed to be aware of this planning reading technique with a proportion of 11.43%. Consciousness of recalling, as an evaluating reading technique, was marked with a percentage of 5.72% among the subjects belonging to the same group. Further, very few of the participants reflected their metacognitive knowledge as to other reading strategic moves (e.g., prior knowledge, summarizing). However, as far as self-questioning is concerned, none of the subjects showed their awareness of this basic strategic step.

Likewise, the second group (2) was not adequately aware of the metacognitive strategic steps used in text reading. Respectively, 55.17% and 10.35% of awareness of rereading and recalling were showcased among the group. Furthermore, whereas a percentage of 13.79% represents the group's consciousness of both goal-setting and self-monitoring, awareness of prior knowledge use was reported by the subjects belonging to this group (2) with a rate of 6.90%. Yet, as shown in the table and figure above (Table 3 & Figure 4), the subjects reflected somewhat utter unawareness of self-questioning and summarizing. Generally, it can be stated that the EFL learner readers' metacognitive knowledge as to the text-processing techniques is not sufficiently adequate, nor is it robustly effective.

6. Discussion

The goal of this small-scale study was to evidence the extent to which Moroccan EFL university learners exhibit retrospective consciousness of the (meta) cognitive heuristics applied to high-level textual input. Upon the analysis of the retrospective data gained through

the use of the questionnaire, it can be concluded that the targeted EFL learners' comprehension of the assigned texts was the outcome of the heavy reliance on and application of the cognitive strategic moves. This premise is supported by a range of previous research studies (e.g., Abou Shihab, 2011; Tabataba'ian & Zabihi, 2011). Obviously, predicting the texts' meaning, inferring the connotation of some concepts, selecting the main ideas, visualizing, underlining, note taking, and paraphrasing are the requisite steps that most EFL learners unconsciously utilize in the analysis and synthesis of the writer's/author's underlying message. Indeed, the targeted groups' consciousness of these strategic moves is tacitly imbued with inadequacy as some researchers (e.g., Baker & Brown, 1984) affirmatively posit in their prior evidence-based studies.

The examination of the retrospective data showed that both groups (Group 1 & Group 2) reflected an extended measure of unconscious use of the CRSs. It is true to maintain that the generation of reasoned predictions relating to the texts under study can be performed by the learners in an unconscious way and at different levels. Some learners depended on reading the text title as an effective medium for constructing an overall overview of the content, whereas others tended to concentrate their attention on the key words included in the text. Further, reading the first sentence as well as the first paragraph of the text can also be deemed the common sub-techniques automatically used for the accurate generation of predictive guesses as to the textual content among the EFL learners.

As for inferring, it can be stated that, though most of the participating EFL learners unconsciously applied it while reading the given texts, it was conducted in different ways, for while some learners could resort to relying on the context for understanding the meaning of concepts, others could take the initiative to read the whole sentence/ paragraph or associate the words/sentences with other ones in the text. This proves the view that the act of attaining the implied meaning of the text is part of the 'inferential process' which can be undertaken by the learners, at times, in an automatic, unconscious manner during textual reading.

As regards the strategy of main ideas selection, it was found out that most of the participant EFL learners did underline, write down, or memorize the major ideas in their use of this strategy. This reveals that the strategic processes of underlining, note taking, and memorizing are inextricably related to the selection procedure. They can be, oftentimes, implemented by the EFL learners in a rather concomitant way. However, awareness of this cognitive strategy, though it is extensively used, was reflected only among a limited number of the subjects belonging to the two groups (Group 1 & Group 2). This explicitly features that this cognitive strategic move is unconsciously utilized by the learner readers.

Furthermore, it is plain that the cognitive strategy of visualizing is heavily used by the EFL learners in the narrative texts processing. In fact, one can plausibly confirm that learners, at times, unconsciously embark on the visualizing process via which they can follow the sequence of events and actions cited in the narrative text. This was evinced by their 'unawareness' of the nature of this strategy. Thus, it can be declared that forming mental images relative to the eventualities, characters' attitudes, and some social aspects of life, which are usually stated in texts of a narrative type, is an essential contributor to the learners'

understanding of the included content. In that regard, Duffy (2009) admits that imaging is something that good readers seem to perform 'naturally'. This corroborates the view that building mental images while reading the narrative written discourse can be 'unintentionally' executed by readers for the main purpose of attaining an effective understanding.

Paraphrasing, which is, by most accounts, recruited by the EFL readers in processing the narrative and expository texts, proves to be an efficient strategy in assisting the learners to achieve an understanding of the content. Through the analysis of the retrospective data relative to the paraphrasing task, it appeared that the target subjects depended on some sub-techniques such as translating the words/sentences into L1 or L2 and attempting to come up with synonymous words in order to derive the authentic meaning included in the written texts. Yet, the student-readers targeted in this study did not perform significantly better in the paraphrasing task of the written discourse assigned (narrative and expository texts). They provided replicas of the given statements without rephrasing them in their own words. This results, as stated before, from the inadequacy of lexicon which plays a great part in the process of paraphrasing textual information.

Additionally, as reflected in the Results Section (see Table 3, Figure 3, and Figure 4), it is plausible to claim that the overwhelming majority of the EFL subjects (Group 1 & Group 2) under focal study did not seem to be sufficiently aware of the planning strategies (e.g., goal-setting, background knowledge use), monitoring strategies (e.g., self-monitoring, self-questioning, rereading), and evaluating strategies (e.g., recalling, summarizing). To elaborate, consciousness of the CRSs did significantly predominate the sampled subjects' actual process of text processing. This is indicative of the basic premise that many of the targeted participants were not conscious of the MRSs used throughout the course of textual analysis and synthesis. Given that background knowledge, self-monitoring, and rereading can be unconsciously recruited by most of the learners involved in this case study in their attempt to decode the textual content, it is particularly apparent that they lack awareness of the nature of these strategies. In addition, their awareness of setting goals, self-questioning, recalling, and summarizing was typified by greater inadequacy.

More particularly, the student-readers' awareness of the planning strategies (e.g., goal-setting, background knowledge use) is prototypically characterized by a certain measure of limitation. For the sake of illustration, setting clear goals prior to engaging in the reading act was partially, if not completely, disregarded by the targeted learners. One likely valid explanation for this fact is that most of the participating EFL student-readers of both groups (Group 1 & Group 2) tended to process the written text with little, if any, consciousness of the goals they intended to achieve in the course of reading the assigned texts (narrative and expository). Nevertheless, the dependence on background knowledge, as a particular source of gaining some measure of understanding, was unconsciously effected by a great number of the participating EFL learners.

According to the sampled subjects' retrospective views, it is particularly true to state that a higher proportion of the student-readers had a tendency to analyze and synthesize the written discourse at random without pinpointing the major goals that can form the framework for the

conduct of an effectual reading. This stated fact reveals that awareness of the process of setting the goals at the outset of textual reading is lacking among most Moroccan EFL first-semester university learners. Thus, bearing in mind the required objectives behind text processing can substantially assist the EFL learners to effectively establish a thorough understanding of the content of diverse printed texts (i.e., narrative, expository). This postulate is outstandingly supported by Schunk's (1996) claim that the process of goal-setting leads to effective achievement.

Worth noting is that accessing background knowledge, as a 'frame of reference', was achieved by approximately all the EFL learners targeted in this study. This can be ascribed to their extensive experience in reading various written texts and their familiarization with some issues and facts that are correlated with the topicality of the assigned texts. Hence, this attested view validates the premise that linking the text content to what one already knows is a precondition for facilitating the comprehension act (Msaddek, 2015). Yet, what can be underscored is that most of the targeted learners were not sufficiently aware of the role of the previously acquired knowledge in textual analysis. This can be viewed as resulting from their restricted metacognitive awareness as to prior knowledge use. In this regard, one can come up with the conception that, despite the fact that the activation of previous knowledge can be a recurrent strategy among EFL readers, their awareness of this strategic step is far from sufficient. Actually, a stark deficiency in goal-setting typically characterizes their planning approach to the written discourse. Therefore, awareness of planning 'heuristics', it is assumed, remains inadequate among EFL student-readers.

With reference to the monitoring strategies, it is manifest that the overwhelming majority of the EFL learners are not adequately aware of the processes involved in self-regulating the reading comprehension act. In effect, though most of the subjects reflected their potential capability in efficiently dealing with the different concepts, sentences, and paragraphs included in the given written texts (i.e., narrative, expository) in order to attain the optimum understanding, they did not engage themselves in the process of self-questioning as regards the stated information that constitutes part and parcel of the entire text. This insufficiency in awareness pertaining to querying the author's/writer's views, ensuring whether one's understanding is taking place, and knowing 'when' and 'where' to shift the RSs can contribute to inefficient textual comprehension.

Further, for the primary purpose of undertaking text processing in an effective way, EFL learners are required to involve themselves in text rereading. Based on the retrospective data, some learners reread the whole text twice or three times. This is ample evidence that awareness of text 'reinspection', as a robust technique for remedying the perceived comprehension failure, forms a substantial portion of the EFL learners' attentive thinking vis-à-vis the construction of text meaning. Realistically, it can be acclaimed that, although most of the Moroccan EFL university learners, namely at the first-semester level, engage in self-monitoring and rereading, they are not fully conscious of the outstanding steps of the strategic processes of self-monitoring and self-questioning which form the core aspects of metacognition (Msaddek, 2015). They are only aware of the rereading strategy as a gateway to overcoming the difficulties encountered during textual analysis and synthesis.

In what concerns the evaluating strategies, one can deduce that there is a certain kind of deficiency in their application by the participating EFL learners. Given that the targeted learners did engage in rereading to strengthen their understanding of the texts' meaning, they evinced a substantial lack of awareness as to evaluating their conducted comprehension process. Upon completing the actual reading process and having an overall overview of its content, the participant EFL learners of both groups (1 & 2) hardly recalled the major points that make up the gist of each text (i.e., narrative, expository) and did not write efficient summaries in their own terms. Clearly, even though some learners did perform the summary task included in the assigned texts, most, if not all, the summaries were exact replicas of the texts as they tended to use the same terminologies/sentences stated in the two written texts without bringing forth paraphrased ideas and synonymous concepts. Thus, not reflecting the evaluative steps that can be taken to assess the mastery of the text content is clear-cut evidence of the targeted learners' inadequate awareness of how to evaluate their understanding of the written discourse.

It is explicit that most Moroccan EFL learners are not sufficiently aware of (meta) cognitive RSs. It can be put forward that the large majority of EFL learners targeted in this study were not adequately conscious of the (meta) cognitive strategic reading moves that aid in the comprehension process. In fact, their strategy awareness seemed to be, to an extent, cognitively-predominated since they tended to unconsciously employ more CRSs in processing the textual information. Thus, predicting the text content, inferring the meaning, selecting the main ideas, visualizing, underlining the key words, taking notes of some particular facts, and paraphrasing represent the frequent strategic moves through which learners construct the meaning inherent in the text.

As it is declared by some researchers (e.g., Fitrisia, Tan, & Yusuf, 2015), it is of potential importance to state that the learners' awareness of the MRSs is characterized by stark inadequacy. Indeed, relating the textual content to background knowledge, self-monitoring the progressive understanding of the text (e.g., slow reading, context dependence), and rereading were the frequently deployed text-processing strategies among the target EFL learners. However, their awareness of the metacognitive processes of setting goals, self-questioning, recalling, and summarizing was limited as long as they did not sufficiently use them throughout the reading process. Thus, the current study's findings parallel, to a great extent, those put forth by prior researchers (e.g., Abou Shihab, 2011; Fitrisia, et al., 2015; Tedjo, Teopilus, Hartani, & Sulindra, 2022). This reveals that most EFL learners do not depend on all the efficient MRSs in the operation of synthesizing the textual content.

In essence, it is undeniable that insufficiency of (meta) cognitive reading strategy awareness amongst the subjects of the two groups (Group 1 & Group 2) does not imply that they do not use some (meta) cognitive reading strategies (RSs) unconsciously. It clearly appears that the EFL learners targeted in this case study did use some of these RSs (i.e., cognitive, metacognitive) which they were not fully aware of while processing the textual content. However, as some researchers (Davies, 1995; Mokhtari & Sheory, 2002) postulate, consciousness of a host of reading heuristics does not always lead to the effective deployment and application of those strategic moves. Therefore, it can be particularly stated that if EFL

learners are instructed in all the basic cognitive and metacognitive RSs, their reading strategy awareness can be further strengthened, and thus effective and prolonged strategy use will be the resultant outcome.

Based on what is expatiated upon above, it is of note to speculate that raising the EFL learners' awareness about (meta) cognitive strategic moves can only be achieved via the mediating function of the reading strategy instruction (RSI). In other words, being exposed to the higher importance, the diverse typologies, and the actual application of the (meta) cognitive RSs, EFL learners can develop adequate strategy knowledge which can positively impact their strategy use in approaching the different kinds of textual input (e.g., narrative, expository). This can, indeed, be in complete accord with Carrell's (1989) underlying claim that metacognitive awareness precedes strategy use. More explicitly, strategy awareness can serve as a sturdy platform for implementing the basic 'heuristic' processes across the text content. Thus, it can be posited that consciousness of 'what', 'how', 'when', 'where', and 'why' to use efficient RSs can result in reinforcing the learners' strategic repertoire, and thus refining their reading potential to varying degrees.

7. Conclusion

It is fairly plausible that most of the Moroccan EFL university learners are not adequately conscious of the (meta) cognitive reading 'heuristics'. The major strategic moves the readers sampled in this study were aware of were manifested in main ideas selection, underlining, note taking, and rereading. Fundamental to this stated fact is that, in spite of the EFL learners' unawareness of some (meta) cognitive reading strategies (RSs), they tended to resort to some of them unconsciously whilst trying to derive the meaning from the text. As a case in point, some of the target EFL learners did not know that predicting and inferring are RSs. However, during text reading, they made use of them without exerting any conscious 'self-regulation' or reflecting any critical awareness of strategy use. Likewise, in reading the assigned narrative text, the readers had a great tendency to image what was included in the text with little, if any, proactive awareness of the visualizing process.

Obviously, the target EFL learners did not possess well-developed knowledge as to some strategic steps by which they could self-direct and self-evaluate their developmental progress in the meaning-making process. Building on the reached insights in this regard, one can state that, though most EFL learners targeted in this study unconsciously tapped some strategies such as invoking their prior knowledge to 'scaffold' their understanding, reading slowly to self-monitor their thinking processes, and rereading to restore an effective comprehension, it can be postulated that their metacognitive knowledge relative to RSs was, to a considerable extent, lacking and far from sufficient. Hence, the large number of the participating EFL learners exhibited 'automaticity' in their application of some cognitive and metacognitive RSs as they deploy them without being fully cognizant of their core essence/ nature. This leads to the ultimate view that the applicability of the reading techniques among the EFL learners does not mean that they have strong knowledge of them (Baker & Brown, 1984).

The drawn implication is that strategy use is not invariably enacted on the basis of strategy awareness. Most of the participating EFL learners revealed cognizance of some strategies

which fall within the cognitive (i.e., inferring, main idea selection) as well as the metacognitive (i.e., rereading) parameters. Yet, unawareness of the major 'heuristics' used in facilitating the process of meaning-making is the crystal-clear evidence accounting for deficiency in reading strategy use among EFL learners. Thus, the fundamental recommendation that the learner readers' exposure to an explicit cognitive and metacognitive reading strategy instruction (CMRSI) can consolidate their (meta) cognitive awareness of the RSs and help them conduct an effectual analysis of the given text is to be accorded critical, high importance in the Moroccan tertiary education.

In principle, systematic training in (meta) cognitive reading strategies (RSs) should be integrated in the Reading Comprehension Course and offered to Moroccan English department university learners, especially at the first-semester level. It can firmly reinforce their critical consciousness and use of these types of RSs for gaining the implied meaning embedded in any EFL textual input. Thus, it is recommendable that, not only should EFL learners be exposed to the importance and typologies of RSs (cognitive and metacognitive reading strategies), but they should also be explicitly trained in the application of these text-processing moves with a view to revamping their working memory skills, executive functioning, and metacognitive capabilities at the level of text analysis and meaning synthesis. This leads to the postulate that the actual use of the RSs can be deemed the outcome of the learners' heightened awareness of the differing potential strategies which play a key role in constructing the text content.

Given the compelling nature of the results of this small-scale study, some limitations should be acknowledged. One limitation pertains to the study's neglect of considering the issue of the mixed-ability students. In effect, it is true that in each group (Group 1 & Group 2), there existed learners of differing language proficiency levels. Investigating this matter would give a clear-cut view of whether the (meta) cognitive reading strategy consciousness is associated with the variable of language proficiency. The other limitation is manifested in the generality of the findings reached. Targeting English department students from the Faculty of Letters and Human Sciences (FLHS) in Rabat does not guarantee that the same results can be gained in other Moroccan higher education institutions. Thus, prospective research studies should address different groups across various geographical areas in Morocco for satisfying the criteria of generalizability. Further, though the use of the retrospective questionnaire (RQ) provides rich insights into reading strategy awareness, recourse to other data collection tools (i.e., self-report, interview) should be made in future reading comprehension research falling within the purview of metacognitive theory as fertile ground for understanding the university students' cognitive perception of the strategies used for digesting the ideas, formulations, and conceptualizations embedded in the university-level EFL written texts.

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Note:

This small-scale study is part and parcel of my unpublished Doctoral Dissertation that was defended in 2015. The dissertation handles the effect of explicit training in cognitive and metacognitive reading strategies (RSs) on Moroccan English department university learners' strategy use and reading achievement gains.